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Course/Section: CPE 232-CPE31S24	Date Submitted:
Instructor: Prof. Taylar	Semester and SY:

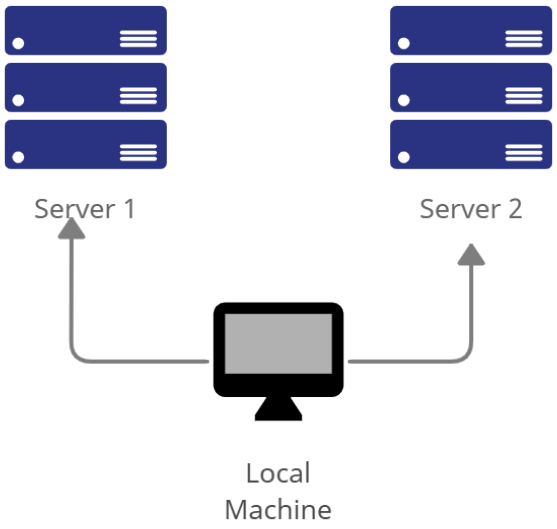
Activity 1: Configure Network using Virtual Machines

1. **Objectives:**
   1.1. Create and configure Virtual Machines in Microsoft Azure or VirtualBox
   1.2. Set-up a Virtual Network and Test Connectivity of VMs

2. **Discussion:**

Network Topology:

Assume that you have created the following network topology in Virtual Machines, *provide screenshots for each task*. (Note: *it is assumed that you have the prior knowledge of cloning and creating snapshots in a virtual machine*).



Task 1: Do the following on Server 1, Server 2, and Local Machine. In editing the file using nano command, press control + O to write out (save the file). Press enter when asked for the name of the file. Press control + X to end.

1. Change the hostname using the command *sudo nano /etc/hostname*
   1.1 Use server1 for Server 1

```
christianjaraula@christianjaraula-VirtualBox:~$ cat /etc/hostname
Server 1
christianjaraula@christianjaraula-VirtualBox:~$
```

1.2 Use server2 for Server 2

```
christianjaraula@christianjaraula-VirtualBox:~$ cat /etc/hostname
Server 2

christianjaraula@christianjaraula-VirtualBox:~$
```

1.3 Use workstation for the Local Machine

```
christianjaraula@christianjaraula-VirtualBox:~$ cat /etc/hostname
Local Machine
```

2. Edit the hosts using the command *sudo nano /etc/hosts*. Edit the second line.

2.1 Type 127.0.0.1 server 1 for Server 1

```
  GNU nano 6.2                          /etc/hosts *
127.0.0.1       localhost
127.0.0.1       Server 1

# The following lines are desirable for IPv6 capable hosts
::1     ip6-localhost ip6-loopback
fe00::0 ip6-localnet
ff00::0 ip6-mcastprefix
ff02::1 ip6-allnodes
ff02::2 ip6-allrouters
```

2.2 Type 127.0.0.1 server 2 for Server 2

```
Thunderbird Mail                        /etc/hosts *
127.0.0.1       localhost
127.0.0.1       Server 2

# The following lines are desirable for IPv6 capable hosts
::1     ip6-localhost ip6-loopback
fe00::0 ip6-localnet
ff00::0 ip6-mcastprefix
ff02::1 ip6-allnodes
ff02::2 ip6-allrouters
```

2.3 Type 127.0.0.1 workstation for the Local Machine

```
  GNU nano 6.2                          /etc/hosts
127.0.0.1       localhost
127.0.0.1       Workstation

# The following lines are desirable for IPv6 capable hosts
::1     ip6-localhost ip6-loopback
fe00::0 ip6-localnet
ff00::0 ip6-mcastprefix
ff02::1 ip6-allnodes
ff02::2 ip6-allrouters
```

Task 2: Configure SSH on Server 1, Server 2, and Local Machine. Do the following:

1. Upgrade the packages by issuing the command *sudo apt update* and *sudo apt upgrade* respectively.

```
christianjaraula@LocalMachine:~$ sudo apt update
Hit:1 http://ph.archive.ubuntu.com/ubuntu jammy InRelease
Get:2 http://ph.archive.ubuntu.com/ubuntu jammy-updates InRelease [114 kB]
Get:3 http://security.ubuntu.com/ubuntu jammy-security InRelease [110 kB]
Get:4 http://ph.archive.ubuntu.com/ubuntu jammy-backports InRelease [99.8 kB]
Get:5 http://ph.archive.ubuntu.com/ubuntu jammy-updates/main amd64 Packages [51
9 kB]
Get:6 http://ph.archive.ubuntu.com/ubuntu jammy-updates/main i386 Packages [278
 kB]
Get:7 http://ph.archive.ubuntu.com/ubuntu jammy-updates/main amd64 DEP-11 Metad
ata [91.6 kB]
Get:8 http://ph.archive.ubuntu.com/ubuntu jammy-updates/universe i386 Packages
[122 kB]
Get:9 http://ph.archive.ubuntu.com/ubuntu jammy-updates/universe amd64 Packages
 [221 kB]
Get:10 http://ph.archive.ubuntu.com/ubuntu jammy-updates/universe amd64 DEP-11
Metadata [146 kB]
Get:11 http://ph.archive.ubuntu.com/ubuntu jammy-updates/multiverse amd64 DEP-1
1 Metadata [940 B]
Get:12 http://ph.archive.ubuntu.com/ubuntu jammy-backports/universe amd64 DEP-1
1 Metadata [12.5 kB]
Get:13 http://security.ubuntu.com/ubuntu jammy-security/main amd64 DEP-11 Metad
ata [11.4 kB]
Get:14 http://security.ubuntu.com/ubuntu jammy-security/universe amd64 DEP-11 M
etadata [10.1 kB]
```

```
christianjaraula@LocalMachine:~$ sudo apt upgrade
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
Calculating upgrade... Done
The following packages have been kept back:
  libnftables1 nftables
The following packages will be upgraded:
  apt apt-utils fprintd gir1.2-gtk-4.0 gir1.2-javascriptcoregtk-4.0
  gir1.2-webkit2-4.0 gnome-control-center gnome-control-center-data
  gnome-control-center-faces isc-dhcp-client isc-dhcp-common libapt-pkg6.0
  libcryptsetup12 libgtk-4-1 libgtk-4-bin libgtk-4-common
  libjavascriptcoregtk-4.0-18 libllvm13 libpam-fprintd libwebkit2gtk-4.0-37
  libxslt1.1 linux-firmware python3-jwt python3-software-properties
  software-properties-common software-properties-gtk
26 upgraded, 0 newly installed, 0 to remove and 2 not upgraded.
7 standard security updates
Need to get 242 MB/297 MB of archives.
After this operation, 60.4 kB of additional disk space will be used.
Do you want to continue? [Y/n] y
Get:1 http://ph.archive.ubuntu.com/ubuntu jammy-updates/main amd64 gnome-contro
l-center-data all 1:41.7-0ubuntu0.22.04.4 [343 kB]
Get:2 http://ph.archive.ubuntu.com/ubuntu jammy-updates/main amd64 gnome-contro
l-center amd64 1:41.7-0ubuntu0.22.04.4 [1,786 kB]
Get:3 http://ph.archive.ubuntu.com/ubuntu jammy-updates/main amd64 gnome-contro
l-center-faces all 1:41.7-0ubuntu0.22.04.4 [1,217 kB]
Get:4 http://ph.archive.ubuntu.com/ubuntu jammy-updates/main amd64 linux-firmwa
re all 20220329.git681281e4-0ubuntu3.4 [238 MB]
```

```
christianjaraula@Server1:~$ sudo apt update
Hit:1 http://ph.archive.ubuntu.com/ubuntu jammy InRelease
Get:2 http://ph.archive.ubuntu.com/ubuntu jammy-updates InRelease [114 kB]
Get:3 http://security.ubuntu.com/ubuntu jammy-security InRelease [110 kB]
Get:4 http://ph.archive.ubuntu.com/ubuntu jammy-backports InRelease [99.8 kB]
Get:5 http://ph.archive.ubuntu.com/ubuntu jammy-updates/main amd64 Packages [51
9 kB]
Get:6 http://ph.archive.ubuntu.com/ubuntu jammy-updates/main i386 Packages [278
 kB]
Get:7 http://ph.archive.ubuntu.com/ubuntu jammy-updates/main amd64 DEP-11 Metad
ata [91.6 kB]
Get:8 http://ph.archive.ubuntu.com/ubuntu jammy-updates/universe amd64 Packages
 [221 kB]
Get:9 http://ph.archive.ubuntu.com/ubuntu jammy-updates/universe i386 Packages
[122 kB]
Get:10 http://ph.archive.ubuntu.com/ubuntu jammy-updates/universe amd64 DEP-11
Metadata [146 kB]
Get:11 http://ph.archive.ubuntu.com/ubuntu jammy-updates/multiverse amd64 DEP-1
1 Metadata [940 B]
Get:12 http://ph.archive.ubuntu.com/ubuntu jammy-backports/universe amd64 DEP-1
1 Metadata [12.5 kB]
Get:13 http://security.ubuntu.com/ubuntu jammy-security/main amd64 DEP-11 Metad
ata [11.4 kB]
Get:14 http://security.ubuntu.com/ubuntu jammy-security/universe amd64 DEP-11 M
etadata [10.1 kB]
```

```
christianjaraula@Server2:~$ sudo apt update
Hit:1 http://ph.archive.ubuntu.com/ubuntu jammy InRelease
Get:2 http://ph.archive.ubuntu.com/ubuntu jammy-updates InRelease [114 kB]
Get:3 http://security.ubuntu.com/ubuntu jammy-security InRelease [110 kB]
Get:4 http://ph.archive.ubuntu.com/ubuntu jammy-backports InRelease [99.8 kB]
Get:5 http://ph.archive.ubuntu.com/ubuntu jammy-updates/main amd64 Packages [51
9 kB]
Get:6 http://ph.archive.ubuntu.com/ubuntu jammy-updates/main i386 Packages [278
 kB]
Get:7 http://ph.archive.ubuntu.com/ubuntu jammy-updates/main amd64 DEP-11 Metad
ata [91.6 kB]
Get:8 http://ph.archive.ubuntu.com/ubuntu jammy-updates/universe i386 Packages
[122 kB]
Get:9 http://ph.archive.ubuntu.com/ubuntu jammy-updates/universe amd64 Packages
 [221 kB]
Get:10 http://ph.archive.ubuntu.com/ubuntu jammy-updates/universe amd64 DEP-11
Metadata [146 kB]
Get:11 http://ph.archive.ubuntu.com/ubuntu jammy-updates/multiverse amd64 DEP-1
1 Metadata [940 B]
Get:12 http://ph.archive.ubuntu.com/ubuntu jammy-backports/universe amd64 DEP-1
1 Metadata [12.5 kB]
Get:13 http://security.ubuntu.com/ubuntu jammy-security/main amd64 DEP-11 Metad
ata [11.4 kB]
Get:14 http://security.ubuntu.com/ubuntu jammy-security/universe amd64 DEP-11 M
etadata [10.1 kB]
Fetched 1,737 kB in 2s (833 kB/s)
```

```
christianjaraula@Server1:~$ sudo apt upgrade
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
Calculating upgrade... Done
The following packages have been kept back:
  libnftables1 nftables
The following packages will be upgraded:
  apt apt-utils fprintd gir1.2-gtk-4.0 gnome-control-center
  gnome-control-center-data gnome-control-center-faces isc-dhcp-client
  isc-dhcp-common libapt-pkg6.0 libcryptsetup12 libgtk-4-1 libgtk-4-bin
  libgtk-4-common libpam-fprintd linux-firmware python3-software-properties
  software-properties-common software-properties-gtk
19 upgraded, 0 newly installed, 0 to remove and 2 not upgraded.
Need to get 242 MB/251 MB of archives.
After this operation, 60.4 kB of additional disk space will be used.
Do you want to continue? [Y/n] y
Get:1 http://ph.archive.ubuntu.com/ubuntu jammy-updates/main amd64 gnome-contro
l-center-data all 1:41.7-0ubuntu0.22.04.4 [343 kB]
Get:2 http://ph.archive.ubuntu.com/ubuntu jammy-updates/main amd64 gnome-contro
l-center amd64 1:41.7-0ubuntu0.22.04.4 [1,786 kB]
Get:3 http://ph.archive.ubuntu.com/ubuntu jammy-updates/main amd64 gnome-contro
l-center-faces all 1:41.7-0ubuntu0.22.04.4 [1,217 kB]
Get:4 http://ph.archive.ubuntu.com/ubuntu jammy-updates/main amd64 linux-firmwa
re all 20220329.git681281e4-0ubuntu3.4 [238 MB]
36% [4 linux-firmware 56.8 MB/238 MB 24%]
```

```
christianjaraula@Server2:~$ sudo apt upgrade
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
Calculating upgrade... Done
The following packages have been kept back:
  libnftables1 nftables
The following packages will be upgraded:
  apt apt-utils fprintd gir1.2-gtk-4.0 gir1.2-javascriptcoregtk-4.0
  gir1.2-webkit2-4.0 gnome-control-center gnome-control-center-data
  gnome-control-center-faces isc-dhcp-client isc-dhcp-common libapt-pkg6.0
  libcryptsetup12 libgtk-4-1 libgtk-4-bin libgtk-4-common
  libjavascriptcoregtk-4.0-18 libllvm13 libpam-fprintd libwebkit2gtk-4.0-37
  libxslt1.1 linux-firmware python3-jwt python3-software-properties
  software-properties-common software-properties-gtk
26 upgraded, 0 newly installed, 0 to remove and 2 not upgraded.
7 standard security updates
Need to get 242 MB/297 MB of archives.
After this operation, 60.4 kB of additional disk space will be used.
Do you want to continue? [Y/n] y
Get:1 http://ph.archive.ubuntu.com/ubuntu jammy-updates/main amd64 gnome-contro
l-center-data all 1:41.7-0ubuntu0.22.04.4 [343 kB]
Get:2 http://ph.archive.ubuntu.com/ubuntu jammy-updates/main amd64 gnome-contro
l-center amd64 1:41.7-0ubuntu0.22.04.4 [1,786 kB]
Get:3 http://ph.archive.ubuntu.com/ubuntu jammy-updates/main amd64 gnome-contro
l-center-faces all 1:41.7-0ubuntu0.22.04.4 [1,217 kB]
Get:4 http://ph.archive.ubuntu.com/ubuntu jammy-updates/main amd64 linux-firmwa
re all 20220329.git681281e4-0ubuntu3.4 [238 MB]
```

2. Install the SSH server using the command *sudo apt install openssh-server*.

```
christianjaraula@LocalMachine:~$ sudo apt install openssh-server
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
```

```
christianjaraula@Server1:~$ sudo apt install openssh-server
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
```

```
christianjaraula@Server2:~$ sudo apt install openssh-server
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
```

3. Verify if the SSH service has started by issuing the following commands:
   3.1 sudo service ssh start
   3.2 sudo systemctl status ssh

```
christianjaraula@LocalMachine:~$ sudo service ssh start
christianjaraula@LocalMachine:~$ sudo systemctl status ssh
● ssh.service - OpenBSD Secure Shell server
     Loaded: loaded (/lib/systemd/system/ssh.service; enabled; vendor preset: >
     Active: active (running) since Fri 2022-08-26 08:40:52 PST; 1min 9s ago
       Docs: man:sshd(8)
             man:sshd_config(5)
   Main PID: 15362 (sshd)
      Tasks: 1 (limit: 1681)
     Memory: 1.7M
        CPU: 11ms
     CGroup: /system.slice/ssh.service
             └─15362 "sshd: /usr/sbin/sshd -D [listener] 0 of 10-100 startups"
```

```
christianjaraula@Server1:~$ sudo service ssh start
christianjaraula@Server1:~$ sudo systemctl status ssh
● ssh.service - OpenBSD Secure Shell server
     Loaded: loaded (/lib/systemd/system/ssh.service; enabled; vendor preset: >
     Active: active (running) since Fri 2022-08-26 08:40:57 PST; 1min 44s ago
       Docs: man:sshd(8)
             man:sshd_config(5)
   Main PID: 15020 (sshd)
      Tasks: 1 (limit: 1681)
     Memory: 1.7M
        CPU: 12ms
     CGroup: /system.slice/ssh.service
             └─15020 "sshd: /usr/sbin/sshd -D [listener] 0 of 10-100 startups"

Aug 26 08:40:57 Server1 systemd[1]: Starting OpenBSD Secure Shell server...
Aug 26 08:40:57 Server1 sshd[15020]: Server listening on 0.0.0.0 port 22.
Aug 26 08:40:57 Server1 sshd[15020]: Server listening on :: port 22.
Aug 26 08:40:57 Server1 systemd[1]: Started OpenBSD Secure Shell server.
lines 1-16/16 (END)
```

```
christianjaraula@Server2:~$ sudo service ssh start
christianjaraula@Server2:~$ sudo systemctl status ssh
● ssh.service - OpenBSD Secure Shell server
     Loaded: loaded (/lib/systemd/system/ssh.service; enabled; vendor preset: >
     Active: active (running) since Fri 2022-08-26 08:40:54 PST; 2min 18s ago
       Docs: man:sshd(8)
             man:sshd_config(5)
   Main PID: 15656 (sshd)
      Tasks: 1 (limit: 1681)
     Memory: 1.7M
        CPU: 12ms
     CGroup: /system.slice/ssh.service
             └─15656 "sshd: /usr/sbin/sshd -D [listener] 0 of 10-100 startups"

Aug 26 08:40:54 Server2 systemd[1]: Starting OpenBSD Secure Shell server...
Aug 26 08:40:54 Server2 sshd[15656]: Server listening on 0.0.0.0 port 22.
Aug 26 08:40:54 Server2 sshd[15656]: Server listening on :: port 22.
Aug 26 08:40:54 Server2 systemd[1]: Started OpenBSD Secure Shell server.
```

4. Configure the firewall to all port 22 by issuing the following commands:
   4.1 sudo ufw allow ssh
   4.2 sudo ufw enable

4.3 sudo ufw status

```
christianjaraula@LocalMachine:~$ sudo ufw allow ssh
Rules updated
Rules updated (v6)
christianjaraula@LocalMachine:~$ sudo ufw enable
Firewall is active and enabled on system startup
christianjaraula@LocalMachine:~$ sudo ufw status
Status: active

To                         Action      From
--                         ------      ----
22/tcp                     ALLOW       Anywhere
22/tcp (v6)                ALLOW       Anywhere (v6)
```

Task 3: Verify network settings on Server 1, Server 2, and Local Machine. On each device, do the following:

1. Record the ip address of Server 1, Server 2, and Local Machine. Issue the command *ifconfig* and check network settings. Note that the ip addresses of all the machines are in this network 192.168.56.XX.
   1.1 Server 1 IP address: 192.168.56.105
   1.2 Server 2 IP address: 192.168.56.106
   1.3 Server 3 IP address: 192.168.56.104
2. Make sure that they can ping each other.

```
MINGW64 ~ (master)
$ ping 192.168.56.104

Pinging 192.168.56.104 with 32 bytes of data:
Reply from 192.168.56.104: bytes=32 time<1ms TTL=64
Reply from 192.168.56.104: bytes=32 time<1ms TTL=64
Reply from 192.168.56.104: bytes=32 time<1ms TTL=64
Reply from 192.168.56.104: bytes=32 time<1ms TTL=64

Ping statistics for 192.168.56.104:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

2.1 Connectivity test for Local Machine 1 to Server 1: ☐ Successful ☐ Not Successful

```
MINGW64 ~ (master)
$ ping 192.168.56.105

Pinging 192.168.56.105 with 32 bytes of data:
Reply from 192.168.56.105: bytes=32 time<1ms TTL=64
Reply from 192.168.56.105: bytes=32 time<1ms TTL=64
Reply from 192.168.56.105: bytes=32 time<1ms TTL=64
Reply from 192.168.56.105: bytes=32 time<1ms TTL=64

Ping statistics for 192.168.56.105:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms

MINGW64 ~ (master)
$
```

2.2 Connectivity test for Local Machine 1 to Server 2: ☐ Successful ☐ Not Successful

```
MINGW64 ~ (master)
$ ping 192.168.56.106

Pinging 192.168.56.106 with 32 bytes of data:
Reply from 192.168.56.106: bytes=32 time<1ms TTL=64
Reply from 192.168.56.106: bytes=32 time<1ms TTL=64
Reply from 192.168.56.106: bytes=32 time<1ms TTL=64
Reply from 192.168.56.106: bytes=32 time<1ms TTL=64

Ping statistics for 192.168.56.106:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum = 0ms, Average = 0ms
```

2.3 Connectivity test for Server 1 to Server 2: ☐ Successful ☐ Not Successful

Task 4: Verify SSH connectivity on Server 1, Server 2, and Local Machine.

1. On the Local Machine, issue the following commands:

1.1 ssh username@ip_address_server1 for example, *ssh jvtaylar@192.168.56.120*

1.2 Enter the password for server 1 when prompted

1.3 Verify that you are in server 1. The user should be in this format user@server1. For example, *jvtaylar@server1*

```
MINGW64 ~ (master)
$ ssh christianjaraula@192.168.56.104
The authenticity of host '192.168.56.104 (192.168.56.104)' can't be established.
ED25519 key fingerprint is SHA256:RsZynZKCo+g+OeNQSyz3pePhOjR+9oBuJjj+pqq7OWA.
This key is not known by any other names
Are you sure you want to continue connecting (yes/no/[fingerprint])? y
Please type 'yes', 'no' or the fingerprint: yes
Warning: Permanently added '192.168.56.104' (ED25519) to the list of known hosts
.
christianjaraula@192.168.56.104's password:
Welcome to Ubuntu 22.04.1 LTS (GNU/Linux 5.15.0-46-generic x86_64)

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

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
```

2. Logout of Server 1 by issuing the command *control + D.*

```
christianjaraula@Server1:~$ logout
Connection to 192.168.56.105 closed.
christianjaraula@LocalMachine:~$
```

3. Do the same for Server 2.

```
christianjaraula@Server2:~$ logout
Connection to 192.168.56.106 closed.
christianjaraula@LocalMachine:~$
```

4. Edit the hosts of the Local Machine by issuing the command *sudo nano /etc/hosts.* Below all texts type the following:

4.1 IP_address server 1 (provide the ip address of server 1 followed by the hostname)

4.2 IP_address server 2 (provide the ip address of server 2 followed by the hostname)

```
christianjaraula@LocalMachine: ~
  GNU nano 6.2                          /etc/hosts *
127.0.0.1       localhost
127.0.0.1       Workstation
192.168.56.105  Server 1
192.168.56.106  Server 2
# The following lines are desirable for IPv6 capable hosts
::1     ip6-localhost ip6-loopback
fe00::0 ip6-localnet
ff00::0 ip6-mcastprefix
ff02::1 ip6-allnodes
ff02::2 ip6-allrouters
```

4.3 Save the file and exit.

5. On the local machine, verify that you can do the SSH command but this time, use the hostname instead of typing the IP address of the servers. For example, try to do *ssh jvtaylar@server1*. Enter the password when prompted. Verify that you have entered Server 1. Do the same for Server 2.

```
christianjaraula@LocalMachine:~$ ssh christianjaraula@server1
The authenticity of host 'server1 (192.168.56.105)' can't be established.
ED25519 key fingerprint is SHA256:RsZynZKCo+g+OeNQSyz3pePhOjR+9oBuJjj+pqq7OWA.
This host key is known by the following other names/addresses:
    ~/.ssh/known_hosts:1: [hashed name]
    ~/.ssh/known_hosts:4: [hashed name]
    ~/.ssh/known_hosts:5: [hashed name]
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added 'server1' (ED25519) to the list of known hosts.
christianjaraula@server1's password:
Welcome to Ubuntu 22.04.1 LTS (GNU/Linux 5.15.0-46-generic x86_64)

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

0 updates can be applied immediately.

Last login: Fri Aug 26 10:47:04 2022 from 192.168.56.104
```

```
christianjaraula@LocalMachine:~$ ssh christianjaraula@server2
The authenticity of host 'server2 (192.168.56.106)' can't be established.
ED25519 key fingerprint is SHA256:RsZynZKCo+g+OeNQSyz3pePhOjR+9oBuJjj+pqq7OWA.
This host key is known by the following other names/addresses:
    ~/.ssh/known_hosts:1: [hashed name]
    ~/.ssh/known_hosts:4: [hashed name]
    ~/.ssh/known_hosts:5: [hashed name]
    ~/.ssh/known_hosts:6: [hashed name]
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added 'server2' (ED25519) to the list of known hosts.
christianjaraula@server2's password:
Welcome to Ubuntu 22.04.1 LTS (GNU/Linux 5.15.0-46-generic x86_64)

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

0 updates can be applied immediately.

Last login: Fri Aug 26 10:49:43 2022 from 192.168.56.104
christianjaraula@Server2:~$
```

Reflections:

Answer the following:

1. How are we able to use the hostname instead of IP address in SSH commands?
   The hostname and distinctive IP address were assigned to the hostname.
2. How secured is SSH?

The SSH protocol encrypts data transmitted between a client and a server to protect the connection. To prevent network assaults, all user authentication, commands, output, and file transfers are encrypted.