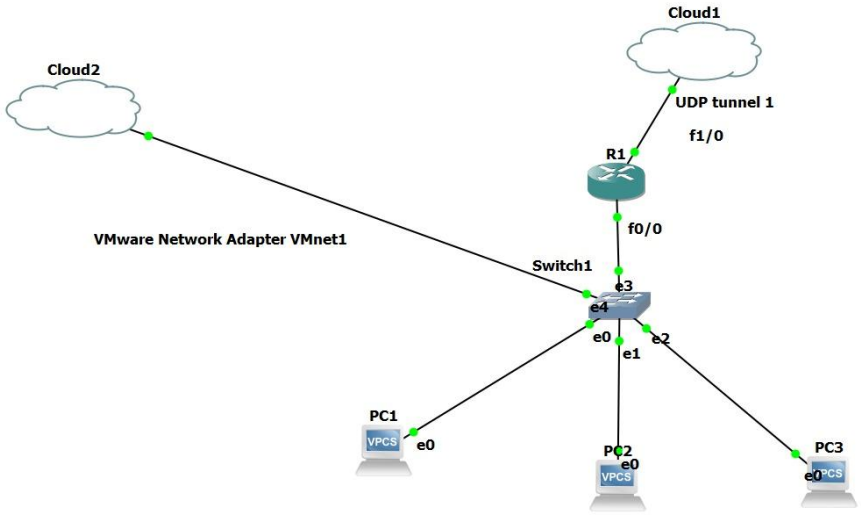
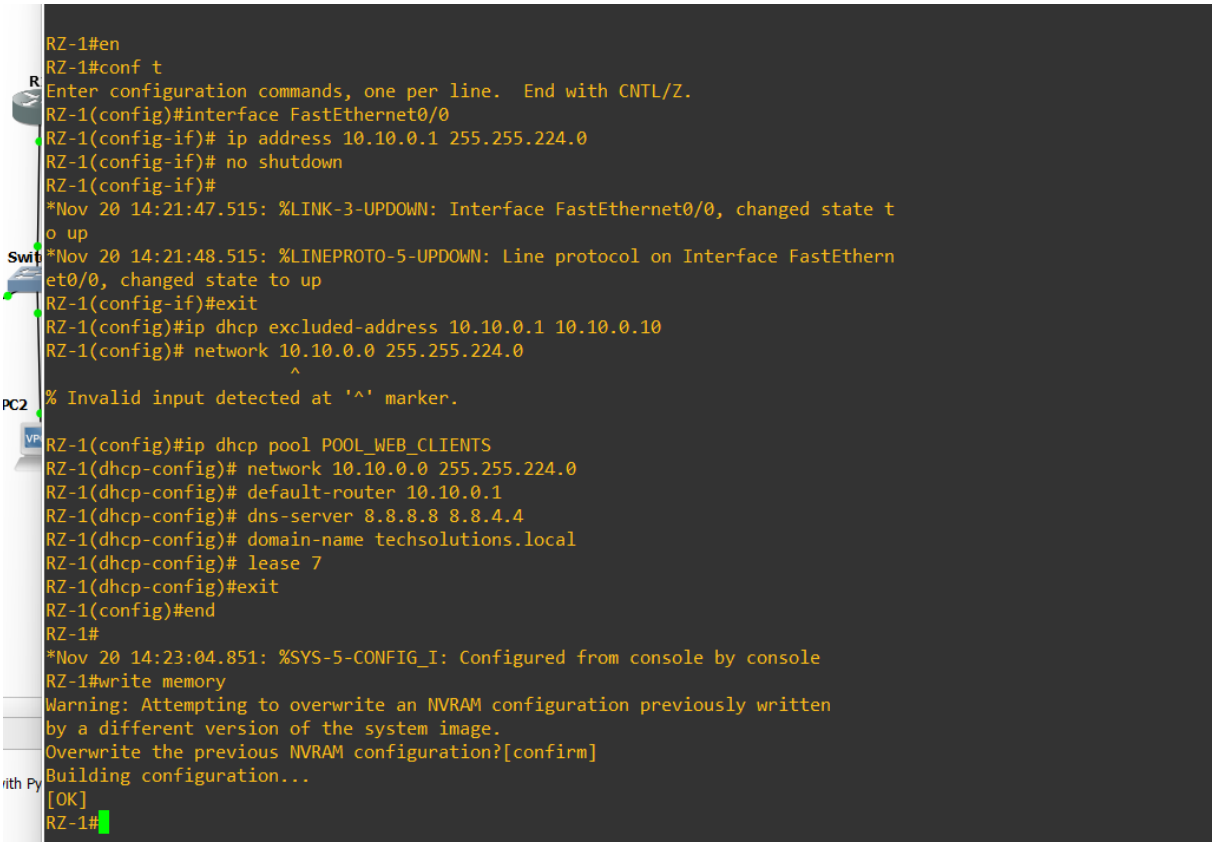
Département web

- **Topologie**



- **Config routeur**



```
RZ-1#en
RZ-1#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
RZ-1(config)#interface FastEthernet0/0
RZ-1(config-if)# ip address 10.10.0.1 255.255.224.0
RZ-1(config-if)# no shutdown
RZ-1(config-if)#
*Nov 20 14:21:47.515: %LINK-3-UPDOWN: Interface FastEthernet0/0, changed state t
o up
*Nov 20 14:21:48.515: %LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthern
et0/0, changed state to up
RZ-1(config-if)#exit
RZ-1(config)#ip dhcp excluded-address 10.10.0.1 10.10.0.10
RZ-1(config)# network 10.10.0.0 255.255.224.0
                      ^
% Invalid input detected at '^' marker.

RZ-1(config)#ip dhcp pool POOL_WEB_CLIENTS
RZ-1(dhcp-config)# network 10.10.0.0 255.255.224.0
RZ-1(dhcp-config)# default-router 10.10.0.1
RZ-1(dhcp-config)# dns-server 8.8.8.8 8.8.4.4
RZ-1(dhcp-config)# domain-name techsolutions.local
RZ-1(dhcp-config)# lease 7
RZ-1(dhcp-config)#exit
RZ-1(config)#end
RZ-1#
*Nov 20 14:23:04.851: %SYS-5-CONFIG_I: Configured from console by console
RZ-1#write memory
Warning: Attempting to overwrite an NVRAM configuration previously written
by a different version of the system image.
Overwrite the previous NVRAM configuration?[confirm]
Building configuration...
[OK]
RZ-1#
```

- **Config dhcp pc :**

```
PC1> ip dhcp
DDORA IP 10.10.0.11/19 GW 10.10.0.1

PC1> save
Saving startup configuration to startup.vpc
.  done

PC1> show ip

NAME        : PC1[1]
IP/MASK     : 10.10.0.11/19
GATEWAY     : 10.10.0.1
DNS         : 8.8.8.8  8.8.4.4
DHCP SERVER : 10.10.0.1
DHCP LEASE  : 604781, 604800/302400/529200
DOMAIN NAME : techsolutions.local
MAC         : 00:50:79:66:68:00
LPORT       : 10010
RHOST:PORT  : 127.0.0.1:10011
MTU:        : 1500

PC1>
```

- **Ping pc passerelle:**

```
PC1> ping 10.10.0.1
84 bytes from 10.10.0.1 icmp_seq=1 ttl=255 time=16.053 ms
84 bytes from 10.10.0.1 icmp_seq=2 ttl=255 time=15.422 ms
84 bytes from 10.10.0.1 icmp_seq=3 ttl=255 time=16.503 ms
84 bytes from 10.10.0.1 icmp_seq=4 ttl=255 time=15.859 ms
84 bytes from 10.10.0.1 icmp_seq=5 ttl=255 time=15.432 ms
```

- **Ping backbone:**

```
RZ-1#show ip ospf neighbor

Neighbor ID     Pri   State           Dead Time   Address         Interface
5.5.5.5           0   FULL/  -        00:00:34    172.16.3.1      Tunnel3
RZ-1#ping 172.16.3.1
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 172.16.3.1, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 24/129/292 ms
RZ-1#ping 201.201.201.14
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 201.201.201.14, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 44/91/144 ms
RZ-1#ping 201.201.201.26
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 201.201.201.26, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 24/108/208 ms
RZ-1#ping 201.201.201.34
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 201.201.201.34, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 52/84/108 ms
RZ-1#ping 201.201.201.38
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 201.201.201.38, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 24/83/136 ms
RZ-1#ping 201.201.201.31
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 201.201.201.31, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 80/96/108 ms
RZ-1#
```

- **Config OSPF:**

```
RZ1# show ip ospf neighbor

Neighbor ID     Pri   State           Dead Time   Address         Interface
5.5.5.5           0   FULL/  -        00:00:30    172.16.3.1      Tunnel1
RZ1#ping 172.16.3.2 source 172.16.3.1
% Invalid source address- IP address not on any of our up interfaces
RZ1#conf t
Enter configuration commands, one per line.  End with CNTL/Z.
RZ1(config)#ping 172.16.3.2 source 172.16.3.1
           ^
% Invalid input detected at '^' marker.

RZ1(config)#exit
RZ1#
*Dec 28 15:52:34.646: %SYS-5-CONFIG_I: Configured from console by console
RZ1#ping 172.16.3.1
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 172.16.3.1, timeout is 2 seconds:
!!!!!
Success rate is 100 percent (5/5), round-trip min/avg/max = 24/58/124 ms
RZ1#debug crypto isakmp
Crypto ISAKMP debugging is on
RZ1#debug crypto ipsec
Crypto IPSEC debugging is on
RZ1#
```

- **Installation apache:**

Open | *install.sh [Read-Only] ~/Desktop | Save

```
#!/bin/bash

echo "=== Installing Apache2 and PHP ==="

# Update system
sudo apt update -y

# Install Apache
sudo apt install -y apache2

# Enable & start Apache
sudo systemctl enable apache2
sudo systemctl start apache2

# Install PHP and common modules
sudo apt install -y php libapache2-mod-php php-mysql php-cli php-curl php-gd php-xml php-
  mbstring

# Restart Apache to load PHP
sudo systemctl restart apache2

# Firewall (optional, safe to run)
sudo ufw allow 'Apache'
sudo ufw reload || true

# Create PHP test file
echo "<?php phpinfo(); ?>" | sudo tee /var/www/html/info.php > /dev/null

echo ""
echo "=== Installation Complete ==="
echo "Test Apache:  http://<VM_IP>"
echo "Test PHP:     http://<VM_IP>/info.php"
```

- **Script installation mysql pour le deploiement web :**

Open mysql.sh ~/Desktop Save

```
#!/bin/bash
# Installation MySQL
echo -e "${BLUE}[4/8]${NC} Installation de MySQL..."
export DEBIAN_FRONTEND=noninteractive
apt install mysql-server -y
systemctl start mysql
systemctl enable mysql

# Sécurisation MySQL
echo -e "${BLUE}[5/8]${NC} Sécurisation de MySQL..."
mysql -e "ALTER USER 'root'@'localhost' IDENTIFIED WITH mysql_native_password BY '${MYSQL_ROOT_PASSWORD}';" 2>/dev/null
mysql -u root -p${MYSQL_ROOT_PASSWORD} -e "DELETE FROM mysql.user WHERE User='';" 2>/dev/null
mysql -u root -p${MYSQL_ROOT_PASSWORD} -e "DELETE FROM mysql.user WHERE User='root' AND Host NOT IN ('localhost', '127.0.0.1', '::1');" 2>/dev/null
mysql -u root -p${MYSQL_ROOT_PASSWORD} -e "DROP DATABASE IF EXISTS test;" 2>/dev/null
mysql -u root -p${MYSQL_ROOT_PASSWORD} -e "FLUSH PRIVILEGES;" 2>/dev/null

# Création de la base de données
echo -e "${BLUE}[6/8]${NC} Création de la base de données..."
mysql -u root -p${MYSQL_ROOT_PASSWORD} <<EOFMYSQL
CREATE DATABASE IF NOT EXISTS ${DB_NAME};
USE ${DB_NAME};

CREATE TABLE IF NOT EXISTS employes (
    id INT AUTO_INCREMENT PRIMARY KEY,
    nom VARCHAR(50) NOT NULL,
    prenom VARCHAR(50) NOT NULL,
    poste VARCHAR(100),
    salaire DECIMAL(10, 2),
    date_embauche DATE,
    email VARCHAR(100) UNIQUE
);

INSERT INTO employes (nom, prenom, poste, salaire, date_embauche, email) VALUES
('Dupont', 'Jean', 'Développeur Web', 45000.00, '2020-01-15', 'jean.dupont@entreprise.tn'),
('Martin', 'Sophie', 'Chef de Projet', 55000.00, '2019-06-01', 'sophie.martin@entreprise.tn'),
('Bernard', 'Pierre', 'Designer UI/UX', 42000.00, '2021-03-10', 'pierre.bernard@entreprise.tn'),
('Dubois', 'Marie', 'Administratrice Système', 48000.00, '2020-09-20', 'marie.dubois@entreprise.tn');

CREATE USER IF NOT EXISTS '${DB_ADMIN_USER}'@'%' IDENTIFIED BY '${DB_ADMIN_PASS}';
```

sh Tab Width: 8 Ln 1, Col 1 INS

input to this VM, move the mouse pointer inside or press Ctrl+G

- **Script installation nfs :**

Open ▾ | nfs.sh [Read-Only] ~/Desktop | Save

```
#!/bin/bash
# ==============================
# NFS CLIENT SETUP SCRIPT
# ==============================

SERVER_IP="10.10.42.20"
NFS_EXPORT="/nfs_share"
MOUNT_POINT="/mnt/nfs"

GROUP="nfsgrp"
NFS_SERVER="10.10.42.20"


echo "Creation groupe nfsgrp"
getent group $GROUP || groupadd $GROUP

echo "Creation usr"
id $USER &>/dev/null || useradd -u $UID_NUM -m -s /bin/bash $USER

echo "ajout usr au nfsgrp"
usermod -aG $GROUP $USER

echo "pt partage"
mkdir -p $MOUNT_POINT

echo "ajout partage permanent"
grep -q "$SERVER_IP:$NFS_EXPORT" /etc/fstab || \
echo "$SERVER_IP:$NFS_EXPORT  $MOUNT_POINT  nfs  defaults  0  0" >> /etc/fstab

echo "montage du partage nfs"
mount -a

echo "veriiif montage"
mount | grep nfs

echo "Configuration CL NFS terminée avec succès"
```

- **Installation node pour depart web :**

nfs.sh | install_node_exporter.sh

```
#!/bin/bash

echo "=== Installation Node Exporter sur le Client ==="

# Téléchargement
cd /tmp
wget https://github.com/prometheus/node_exporter/releases/download/v1.6.1/
node_exporter-1.6.1.linux-amd64.tar.gz

# Extraction
tar xvfz node_exporter-1.6.1.linux-amd64.tar.gz

# Installation
sudo cp node_exporter-1.6.1.linux-amd64/node_exporter /usr/local/bin/
sudo chmod +x /usr/local/bin/node_exporter

# Création utilisateur
sudo useradd --no-create-home --shell /bin/false node_exporter

# Création service
sudo tee /etc/systemd/system/node_exporter.service > /dev/null <<'EOF'
[Unit]
Description=Node Exporter
Wants=network-online.target
After=network-online.target

[Service]
User=node_exporter
Group=node_exporter
Type=simple
ExecStart=/usr/local/bin/node_exporter

[Install]
WantedBy=multi-user.target
EOF

# Démarrage
sudo systemctl daemon-reload
sudo systemctl enable node_exporter
sudo systemctl start node_exporter

```

- **Config final routeur :**

```
RZ1#show running
Building configuration...

Current configuration : 1965 bytes
!
! Last configuration change at 10:49:15 UTC Mon Jan 5 2026
upgrade fpd auto
version 15.3
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption
!
hostname RZ1
!
boot-start-marker
boot-end-marker
!
aqm-register-fnf
!
!
no aaa new-model
no ip icmp rate-limit unreachable
!
!
!
ip dhcp excluded-address 10.10.0.1 10.10.0.20
!
ip dhcp pool Departement-Web-Marketing
 network 10.10.0.0 255.255.224.0
 default-router 10.10.0.1
 dns-server 8.8.8.8
!
!
!
no ip domain lookup
ip cef
no ipv6 cef
!
multilink bundle-name authenticated
!
!
```

```
!
!
ip nat inside source list 100 interface FastEthernet1/0 overload
ip route 0.0.0.0 0.0.0.0 FastEthernet1/0
!
no cdp log mismatch duplex
!
!
access-list 100 permit ip 10.10.0.0 0.0.31.255 any
access-list 100 deny   ip any 172.16.0.0 0.0.0.3
access-list 100 deny   ip any 201.201.201.0 0.0.0.3
!
control-plane
!
!
mgcp behavior rsip-range tgcp-only
mgcp behavior comedia-role none
mgcp behavior comedia-check-media-src disable
mgcp behavior comedia-sdp-force disable
!
mgcp profile default
!
!
!
gatekeeper
 shutdown
!
!
line con 0
 exec-timeout 0 0
 privilege level 15
 logging synchronous
 stopbits 1
line aux 0
 exec-timeout 0 0
 privilege level 15
 logging synchronous
 stopbits 1
line vty 0 4
 login
 transport input all
!
!
end
```

- **Status apache :**

```
serveur@serveur-virtual-machine:~/Desktop$ sudo systemctl status apache2
[sudo] password for serveur:
● apache2.service - The Apache HTTP Server
     Loaded: loaded (/lib/systemd/system/apache2.service; enabled; vendor prese>
     Active: active (running) since Sun 2025-12-28 08:06:35 EST; 1 week 0 days >
       Docs: https://httpd.apache.org/docs/2.4/
    Process: 8483 ExecReload=/usr/sbin/apachectl graceful (code=exited, status=>
   Main PID: 1224 (apache2)
      Tasks: 9 (limit: 4551)
     Memory: 31.3M
        CPU: 2.734s
     CGroup: /system.slice/apache2.service
             ├─ 1224 /usr/sbin/apache2 -k start
             ├─ 8574 /usr/sbin/apache2 -k start
             ├─ 8575 /usr/sbin/apache2 -k start
             ├─ 8576 /usr/sbin/apache2 -k start
             ├─ 8577 /usr/sbin/apache2 -k start
             ├─ 8579 /usr/sbin/apache2 -k start
             ├─11025 /usr/sbin/apache2 -k start
             ├─11031 /usr/sbin/apache2 -k start
             └─11052 /usr/sbin/apache2 -k start
```

- **Route sur Vm :**

```
serveur@serveur-virtual-machine:~/Desktop$ ip route show
default via 10.10.0.1 dev ens33 proto static metric 20100
10.10.0.0/19 dev ens33 proto kernel scope link src 10.10.0.100 metric 100
169.254.0.0/16 dev ens37 proto kernel scope link src 169.254.113.206 metric 101
169.254.0.0/16 dev ens33 scope link metric 1000
224.0.0.0/4 dev ens37 proto static scope link metric 101
```