

FACULTÉ DES SCIENCES ET DES TECHNOLOGIES

(FST)

Troisième Année

RAPPORT

Sur le Projet Réseau 1

COURS

Réseau

PROFESSEUR

Ismael Saint Amour

PROJET

Configuration et Étude des Services DNS et DHCP

PREPARE PAR:

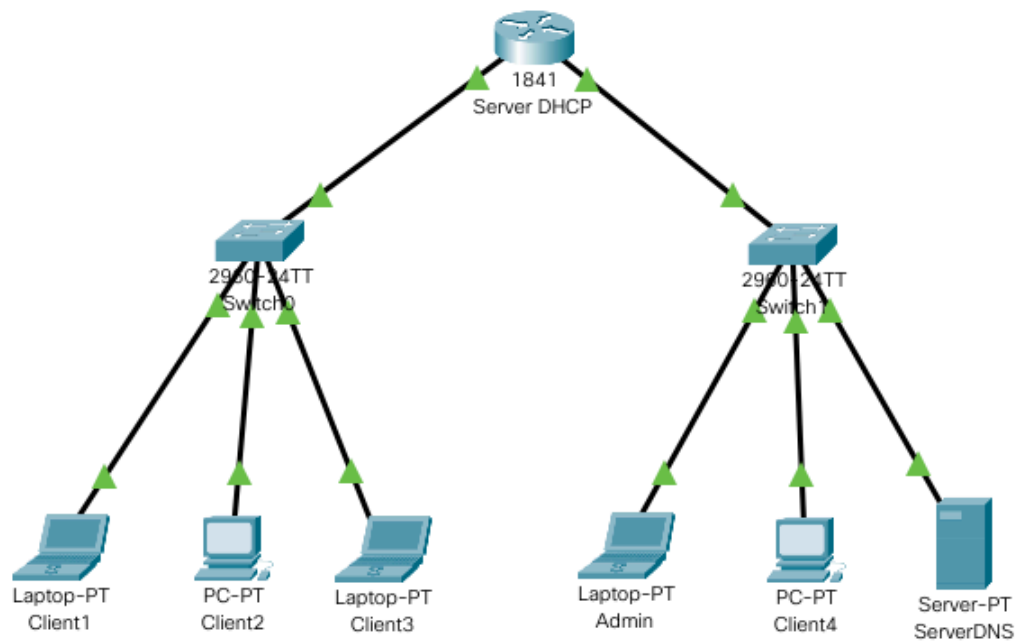
Peterson CHERY

SESSION

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07 /01 / 2025

1. Conception de l'architecture du réseau :



2. Configuration du routeur:

```
Physical Config CLI Attributes

Router>enable
Router#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#host Server DHCP
^
% Invalid input detected at '^' marker.

Router(config)#hostname Server DHCP
^
% Invalid input detected at '^' marker.

Router(config)#hostname ServerDHCP
ServerDHCP(config)#interface FastEthernet0/0
ServerDHCP(config-if)#ip address 192.168.1.1 255.255.255.0
ServerDHCP(config-if)#no shut d

ServerDHCP(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/0, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/0, changed state to up

ServerDHCP(config-if)#exit
ServerDHCP(config)#exit
ServerDHCP#
%SYS-5-CONFIG_I: Configured from console by console

ServerDHCP#enable
ServerDHCP#conf t
Enter configuration commands, one per line. End with CNTL/Z.
ServerDHCP(config)#interface FastEthernet0/1
ServerDHCP(config-if)#ip address 192.168.2.1 255.255.255.0
ServerDHCP(config-if)#no shut d

ServerDHCP(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/1, changed state to up

Ctrl+F6 to exit CLI focus
```

```

ServerDHCP#enable
ServerDHCP#conf t
Enter configuration commands, one per line. End with CNTL/Z.
ServerDHCP(config)#interface FastEthernet0/1
ServerDHCP(config-if)#ip address 192.168.2.1 255.255.255.0
ServerDHCP(config-if)#no shut d

ServerDHCP(config-if)#
%LINK-5-CHANGED: Interface FastEthernet0/1, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state to up

ServerDHCP(config-if)#exit
ServerDHCP(config)#exit
ServerDHCP#
%SYS-5-CONFIG_I: Configured from console by console

ServerDHCP#show arp
Protocol Address      Age (min) Hardware Addr  Type  Interface
Internet 192.168.1.1        -   0090.2182.9301  ARPA   FastEthernet0/0
Internet 192.168.2.1        -   0090.2182.9302  ARPA   FastEthernet0/1
ServerDHCP#

```

Ctrl+F6 to exit CLI focus

3. Configuration des Commutateurs S1 et S2:

```

Switch>enable
Switch#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#hostname S1
S1(config)#interface vlan 1
S1(config-if)#ip address 192.168.1.2 255.255.255.0
S1(config-if)#no shut d

S1(config-if)#
%LINK-5-CHANGED: Interface Vlan1, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Vlan1, changed state to up

S1(config-if)#exit
S1(config)# ip default-gateway 192.168.1.1
S1(config)#

```

Ctrl+F6 to exit CLI focus

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```

Switch>enable
Switch#conf t
Enter configuration commands, one per line. End with CNTL/Z.
Switch(config)#hostname S2
S2(config)#interface vlan 1
S2(config-if)#ip address 192.168.2.2 255.255.255.0
S2(config-if)#no shut d

S2(config-if)#
%LINK-5-CHANGED: Interface Vlan1, changed state to up

%LINEPROTO-5-UPDOWN: Line protocol on Interface Vlan1, changed state to up

S2(config-if)#exit
S2(config)#ip default-gateway 192.168.2.1
S2(config)#show arp
^
% Invalid input detected at '^' marker.

S2(config)#exit
S2#
%SYS-5-CONFIG_I: Configured from console by console

S2#show arp
Protocol Address      Age (min) Hardware Addr  Type  Interface
Internet 192.168.2.2      -    0001.C95E.E5ED  ARPA   Vlan1
S2#

```

Ctrl+F6 to exit CLI focus

4. Configuration du service DHCP:

IOS Command Line Interface

```

ServerDHCP(config)#ip dhcp excluded-address 192.168.2.2
ServerDHCP(config)#exit
ServerDHCP#
%SYS-5-CONFIG_I: Configured from console by console

ServerDHCP#ip dhcp pool PR-1
^
% Invalid input detected at '^' marker.

ServerDHCP#enable
ServerDHCP#conf t
Enter configuration commands, one per line. End with CNTL/Z.
ServerDHCP(config)#ip dhcp pool PR-1
ServerDHCP(dhcp-config)#network 192.168.1.0 255.255.255.0
ServerDHCP(dhcp-config)#default-router 192.168.1.1
ServerDHCP(dhcp-config)#dns-server 192.168.2.10
ServerDHCP(dhcp-config)#exit
ServerDHCP(config)#ip dhcp pool PR-2
ServerDHCP(dhcp-config)#network 192.168.2.0 255.255.255.0
ServerDHCP(dhcp-config)#default-router 192.168.2.1
ServerDHCP(dhcp-config)#dns-server 192.168.2.10
ServerDHCP(dhcp-config)#exit
ServerDHCP(config)#exit

```

Ctrl+F6 to exit CLI focus

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5. Configuration des dispositifs à l'aide du serveur DHCP:

The screenshot shows the 'IP Configuration' window for the 'FastEthernet0' interface. The 'Desktop' tab is selected. Under 'IP Configuration', the 'DHCP' radio button is selected, and the status 'DHCP request successful.' is displayed. The IPv4 Address is 192.168.1.3, Subnet Mask is 255.255.255.0, Default Gateway is 192.168.1.1, and DNS Server is 192.168.2.10. Under 'IPv6 Configuration', the 'Static' radio button is selected. The IPv6 Address field is empty, and the Link Local Address is FE80::201:42FF:FE8E:C258. The Default Gateway and DNS Server fields for IPv6 are also empty. A 'Top' button is at the bottom left.

Physical Config **Desktop** Programming Attributes

IP Configuration X

Interface FastEthernet0

IP Configuration

☒ DHCP ☐ Static DHCP request successful.

IPv4 Address 192.168.1.3

Subnet Mask 255.255.255.0

Default Gateway 192.168.1.1

DNS Server 192.168.2.10

IPv6 Configuration

☐ Automatic ☒ Static

IPv6 Address /

Link Local Address FE80::201:42FF:FE8E:C258

Default Gateway

DNS Server

☐ Top

This screenshot is similar to the first one, but the IPv4 Address is 192.168.1.4. The Link Local Address for IPv6 is FE80::2E0:B0FF:FE64:14E3.

Physical Config **Desktop** Programming Attributes

IP Configuration X

Interface FastEthernet0

IP Configuration

☒ DHCP ☐ Static DHCP request successful.

IPv4 Address 192.168.1.4

Subnet Mask 255.255.255.0

Default Gateway 192.168.1.1

DNS Server 192.168.2.10

IPv6 Configuration

☐ Automatic ☒ Static

IPv6 Address /

Link Local Address FE80::2E0:B0FF:FE64:14E3

Default Gateway

DNS Server

☐ Top

This screenshot is similar to the first one, but the IPv4 Address is 192.168.1.5. The Link Local Address for IPv6 is FE80::260:2FFF:FE8E:E232.

Physical Config **Desktop** Programming Attributes

IP Configuration X

Interface FastEthernet0

IP Configuration

☒ DHCP ☐ Static DHCP request successful.

IPv4 Address 192.168.1.5

Subnet Mask 255.255.255.0

Default Gateway 192.168.1.1

DNS Server 192.168.2.10

IPv6 Configuration

☐ Automatic ☒ Static

IPv6 Address /

Link Local Address FE80::260:2FFF:FE8E:E232

Default Gateway

DNS Server

☐ Top

Physical Config **Desktop** Programming Attributes

IP Configuration X

Interface FastEthernet0

IP Configuration

☒ DHCP ☐ Static DHCP request successful.

IPv4 Address 192.168.2.3

Subnet Mask 255.255.255.0

Default Gateway 192.168.2.1

DNS Server 192.168.2.10

IPv6 Configuration

☐ Automatic ☒ Static

IPv6 Address /

Link Local Address FE80::290:CFF:FE66:88

Default Gateway

DNS Server

☐ Top

Physical Config **Desktop** Programming Attributes

IP Configuration X

Interface FastEthernet0

IP Configuration

☒ DHCP ☐ Static DHCP request successful.

IPv4 Address 192.168.2.4

Subnet Mask 255.255.255.0

Default Gateway 192.168.2.1

DNS Server 192.168.2.10

IPv6 Configuration

☐ Automatic ☒ Static

IPv6 Address /

Link Local Address FE80::210:11FF:FE76:E3B5

Default Gateway

DNS Server

☐ Top

6. Vérification du serveur DHCP:

```

ServerDHCP>show ip dhcp binding
IP address      Client-ID/      Lease expiration  Type
                Hardware address
192.168.1.3     0001.428E.C258   --                Automatic
192.168.1.4     00E0.B064.14E3   --                Automatic
192.168.1.5     0060.2F8E.E232   --                Automatic
192.168.2.3     0090.0C66.0088   --                Automatic
192.168.2.4     0010.1176.E3B5   --                Automatic
ServerDHCP>

```

Ctrl+F6 to exit CLI focus

Copy Paste

☐ Top

7. Configuration du serveur DNS et des dispositifs pour utiliser le serveur DNS:

PhysicalConfigServicesDesktopProgrammingAttributes

IP Configuration

IP Configuration

☐ DHCP

☒ Static

IPv4 Address

192.168.2.10

Subnet Mask

255.255.255.0

Default Gateway

192.168.2.1

DNS Server

0.0.0.0

IPv6 Configuration

☐ Automatic

☒ Static

IPv6 Address

 /

Link Local Address

FE80::2D0:58FF:FE54:1BB3

Default Gateway

DNS Server

802.1X

☐ Top

PhysicalConfigServicesDesktopProgrammingAttributes

SERVICES

DNS

DNS Service

☒ On

☐ Off

Resource Records

Name

client4

Type

A Record

Address

192.168.2.4

Add

Save

Remove

No.	Name	Type	Detail
0	admin	A Record	192.168.2.3
1	client1	A Record	192.168.1.3
2	client2	A Record	192.168.1.4
3	client3	A Record	192.168.1.5

DNS Cache

☐ Top

8. Test de la Résolution du serveur DNS :

```
C:\>ping client2

Pinging 192.168.1.4 with 32 bytes of data:

Reply from 192.168.1.4: bytes=32 time<1ms TTL=128
Reply from 192.168.1.4: bytes=32 time<1ms TTL=128
Reply from 192.168.1.4: bytes=32 time=13ms TTL=128
Reply from 192.168.1.4: bytes=32 time<1ms TTL=128

Ping statistics for 192.168.1.4:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 13ms, Average = 3ms

C:\>
```

☐ Top

Physical Config **Desktop** Programming Attributes

Command Prompt

```
C:\>ping admin

Pinging 192.168.2.3 with 32 bytes of data:

Reply from 192.168.2.3: bytes=32 time<1ms TTL=128
Reply from 192.168.2.3: bytes=32 time=3ms TTL=128
Reply from 192.168.2.3: bytes=32 time<1ms TTL=128
Reply from 192.168.2.3: bytes=32 time=4ms TTL=128

Ping statistics for 192.168.2.3:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 4ms, Average = 1ms

C:\>ping client3

Pinging 192.168.1.5 with 32 bytes of data:

Request timed out.
Reply from 192.168.1.5: bytes=32 time=14ms TTL=127
Reply from 192.168.1.5: bytes=32 time=1ms TTL=127
Reply from 192.168.1.5: bytes=32 time=11ms TTL=127

Ping statistics for 192.168.1.5:
    Packets: Sent = 4, Received = 3, Lost = 1 (25% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 1ms, Maximum = 14ms, Average = 8ms

C:\>ping client2

Pinging 192.168.1.4 with 32 bytes of data:

Request timed out.
Reply from 192.168.1.4: bytes=32 time=11ms TTL=127
Reply from 192.168.1.4: bytes=32 time=12ms TTL=127
Reply from 192.168.1.4: bytes=32 time=11ms TTL=127
```

Physical Config **Desktop** Programming Attributes

Command Prompt

```
Packet Tracer PC Command Line 1.0
C:\>ping client1

Pinging 192.168.1.3 with 32 bytes of data:

Reply from 192.168.1.3: bytes=32 time=11ms TTL=128
Reply from 192.168.1.3: bytes=32 time=1ms TTL=128
Reply from 192.168.1.3: bytes=32 time<1ms TTL=128
Reply from 192.168.1.3: bytes=32 time=6ms TTL=128

Ping statistics for 192.168.1.3:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 11ms, Average = 4ms

C:\>ping client2

Pinging 192.168.1.4 with 32 bytes of data:

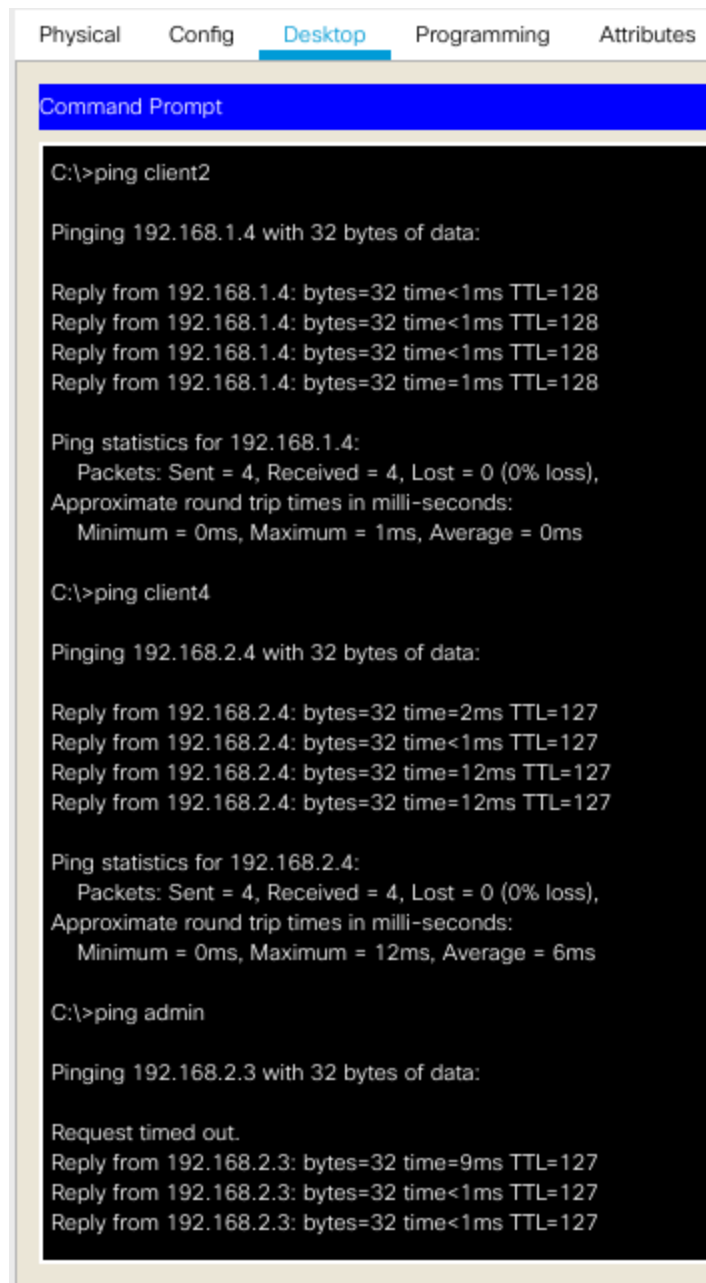
Reply from 192.168.1.4: bytes=32 time<1ms TTL=128
Reply from 192.168.1.4: bytes=32 time<1ms TTL=128
Reply from 192.168.1.4: bytes=32 time<1ms TTL=128
Reply from 192.168.1.4: bytes=32 time=1ms TTL=128

Ping statistics for 192.168.1.4:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 1ms, Average = 0ms

C:\>ping client4

Pinging 192.168.2.4 with 32 bytes of data:

Reply from 192.168.2.4: bytes=32 time=2ms TTL=127
Reply from 192.168.2.4: bytes=32 time<1ms TTL=127
Reply from 192.168.2.4: bytes=32 time=12ms TTL=127
Reply from 192.168.2.4: bytes=32 time=12ms TTL=127
```

The screenshot shows a network simulator window with tabs for Physical, Config, Desktop, Programming, and Attributes. The Desktop tab is active, displaying a Command Prompt window. The Command Prompt shows the following commands and results:

```
C:\>ping client2

Pinging 192.168.1.4 with 32 bytes of data:

Reply from 192.168.1.4: bytes=32 time<1ms TTL=128
Reply from 192.168.1.4: bytes=32 time<1ms TTL=128
Reply from 192.168.1.4: bytes=32 time<1ms TTL=128
Reply from 192.168.1.4: bytes=32 time=1ms TTL=128

Ping statistics for 192.168.1.4:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 1ms, Average = 0ms

C:\>ping client4

Pinging 192.168.2.4 with 32 bytes of data:

Reply from 192.168.2.4: bytes=32 time=2ms TTL=127
Reply from 192.168.2.4: bytes=32 time<1ms TTL=127
Reply from 192.168.2.4: bytes=32 time=12ms TTL=127
Reply from 192.168.2.4: bytes=32 time=12ms TTL=127

Ping statistics for 192.168.2.4:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 12ms, Average = 6ms

C:\>ping admin

Pinging 192.168.2.3 with 32 bytes of data:

Request timed out.
Reply from 192.168.2.3: bytes=32 time=9ms TTL=127
Reply from 192.168.2.3: bytes=32 time<1ms TTL=127
Reply from 192.168.2.3: bytes=32 time<1ms TTL=127
```

Conclusion:

DHCP et DNS sont des outils indispensables pour la gestion efficace des réseaux locaux. Ils permettent d'automatiser les tâches et de réduire les erreurs de configuration, d'améliorer les performances et de faciliter la gestion des réseaux.