

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

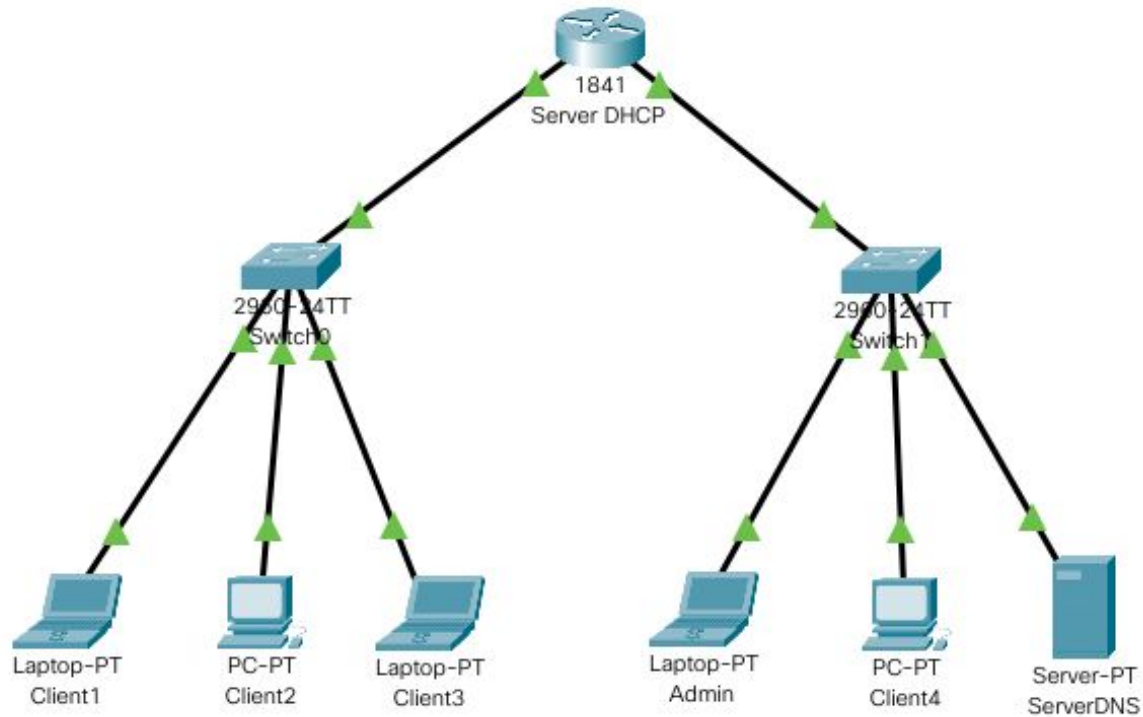
PREPARE PAR: Peterson CHERY

SESSION: I

PLAN

- 1. Conception de l'architecture du réseau**
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- 5. Configuration des dispositifs à l'aide du serveur DHCP**
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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:

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

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

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

PhysicalConfigDesktopProgrammingAttributes

IP ConfigurationX

InterfaceFastEthernet0

IP Configuration

☒ DHCP☐ StaticDHCP request successful.

IPv4 Address192.168.2.4

Subnet Mask255.255.255.0

Default Gateway192.168.2.1

DNS Server192.168.2.10

IPv6 Configuration

☐ Automatic☒ Static

IPv6 Address /

Link Local AddressFE80::210:11FF:FE76:E3B5

Default Gateway

DNS Server

☐ Top

6. Vérification du serveur DHCP:

ServerDHCP>show ip dhcp binding

IP address	Client-ID/ Hardware address	Lease expiration	Type
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:

The screenshot shows the 'IP Configuration' window with the 'Desktop' tab selected. The 'Static' radio button is chosen for IPv4 configuration. The fields are filled with: IPv4 Address: 192.168.2.10, Subnet Mask: 255.255.255.0, Default Gateway: 192.168.2.1, and DNS Server: 0.0.0.0. The IPv6 section shows 'Static' selected with a Link Local Address of FE80::2D0:58FF:FE54:1BB3. A 'Top' button is at the bottom left.

Physical Config Services **Desktop** Programming Attributes

IP Configuration X

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

The screenshot shows the 'Services' window with the 'Services' tab selected. The 'DNS' service is listed in the left sidebar. On the right, the 'DNS' section has 'DNS Service' set to 'On'. Below, the 'Resource Records' section shows a table with columns: No., Name, Type, and Detail. The table contains four records, with the third record (client3) highlighted in blue. At the bottom, there is a 'DNS Cache' button. A 'Top' button is at the bottom left.

Physical Config **Services** Desktop Programming Attributes

SERVICES

- HTTP
- DHCP
- DHCPv6
- TFTP
- DNS**
- SYSLOG
- AAA
- NTP
- EMAIL
- FTP
- IoT
- VM Management
- Radius EAP

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:\>
```

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
```

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
```

Command Prompt

```
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.

