ĐẠI HỌC QUỐC GIA THÀNH PHỐ HỒ CHÍ MINH
TRƯỜNG ĐẠI HỌC BÁCH KHOA
KHOA KHOA HỌC VÀ KỸ THUẬT MÁY TÍNH

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MẠNG MÁY TÍNH TN (CO3094)

LAB 6

CONFIGURING AND ALLOWING INTER VLAN ROUTING

HK: 241 - LỚP: L09

GVHD: Bùi Xuân Giang

Sinh viên thực hiện:

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Thành phố Hồ Chí Minh, tháng 11 năm 2024

Mục tiêu: Mục tiêu của bài tập này là giúp bạn học cách cấu hình một router để cung cấp khả năng giao tiếp giữa các VLAN (Inter-VLAN Routing). Theo mặc định, các máy chủ trong một VLAN không thể giao tiếp với các máy chủ trong một VLAN khác nếu không có router định tuyến giữa hai VLAN.

Mục đích: Cấu hình Inter-VLAN là một kỹ năng cơ bản. Hầu hết các mạng thường có hơn một VLAN và điều này là bắt buộc nếu các máy chủ trong các VLAN này cần giao tiếp với nhau khi cần thiết. Là một kỹ sư Cisco và trong kỳ thi CCNA của Cisco, bạn sẽ cần biết cách cấu hình định tuyến giữa các VLAN.

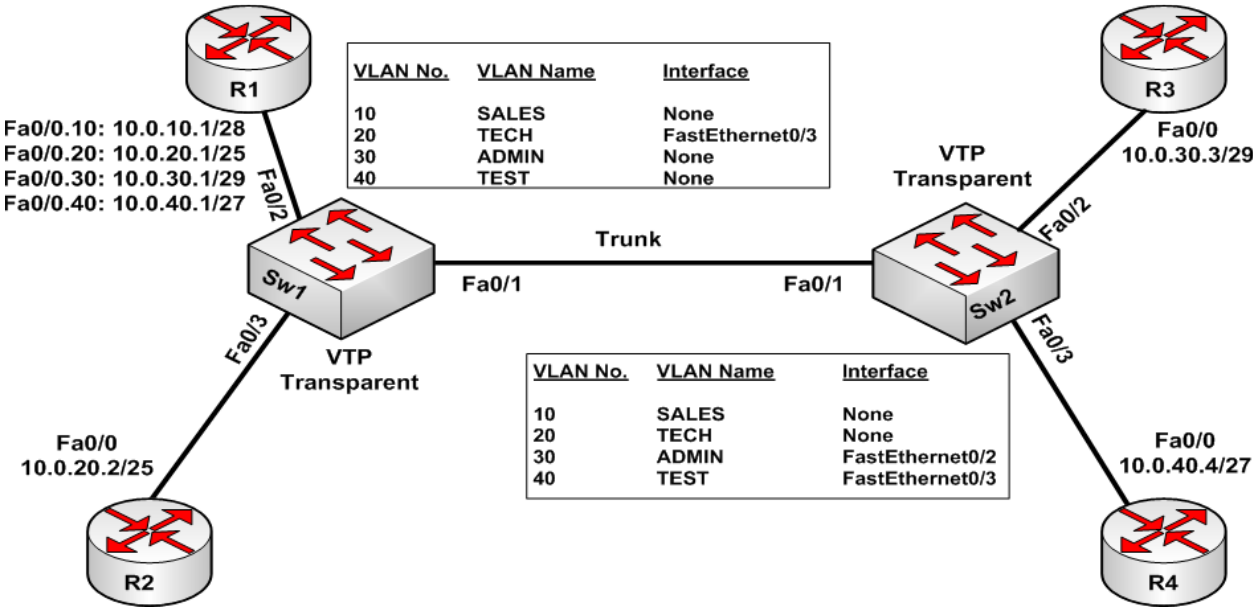
Cấp độ chứng chỉ: Lab này phù hợp để chuẩn bị cho các chứng chỉ CCENT và CCNA.

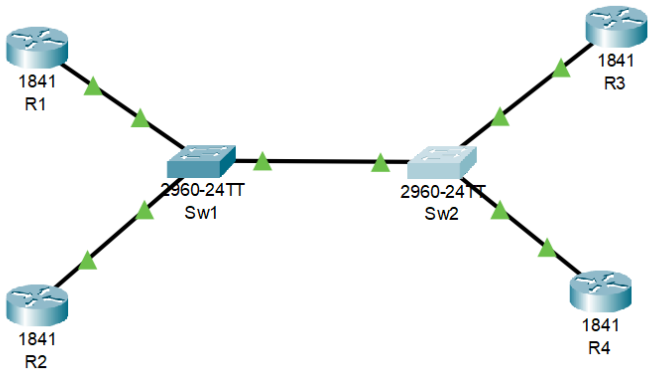
Mức độ chứng chỉ: Lab này phù hợp cho cả kỳ thi chứng chỉ CCENT và CCNA.

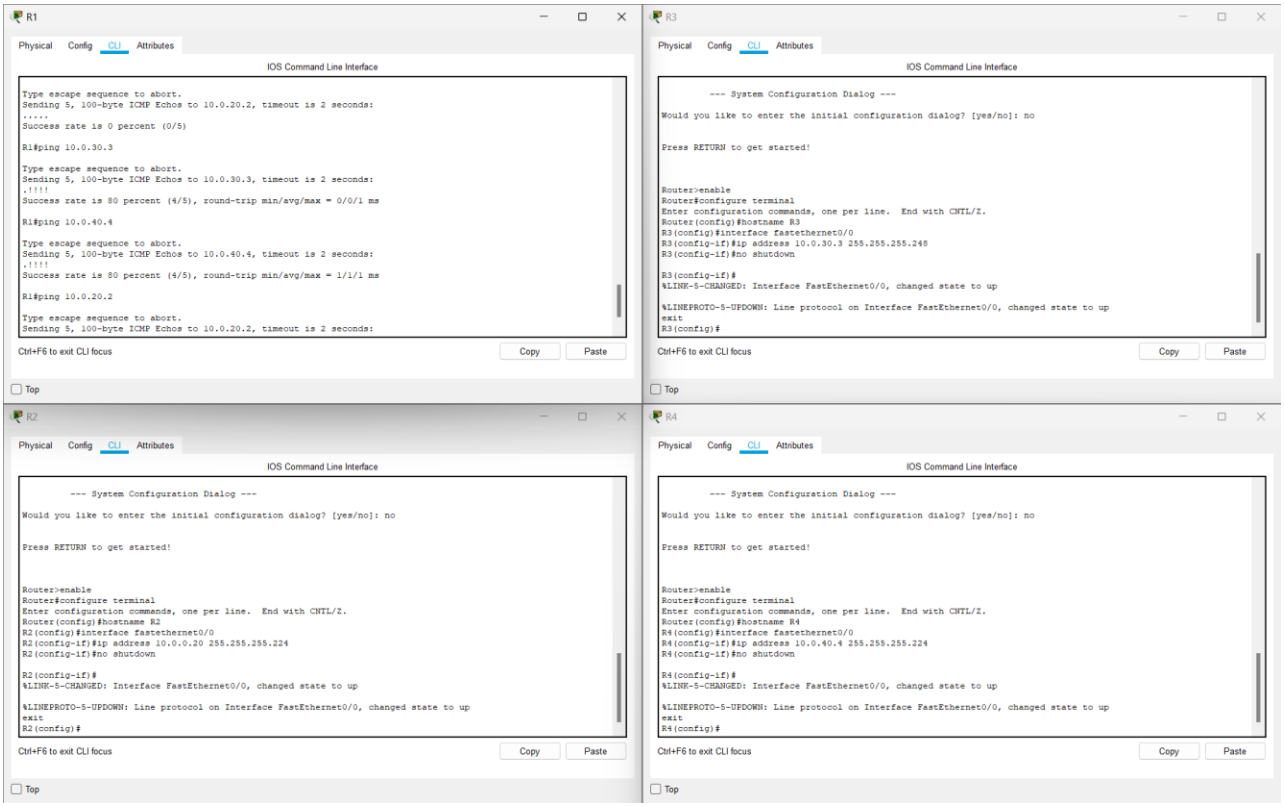
Độ khó của Lab: Lab này có độ khó 9/10.

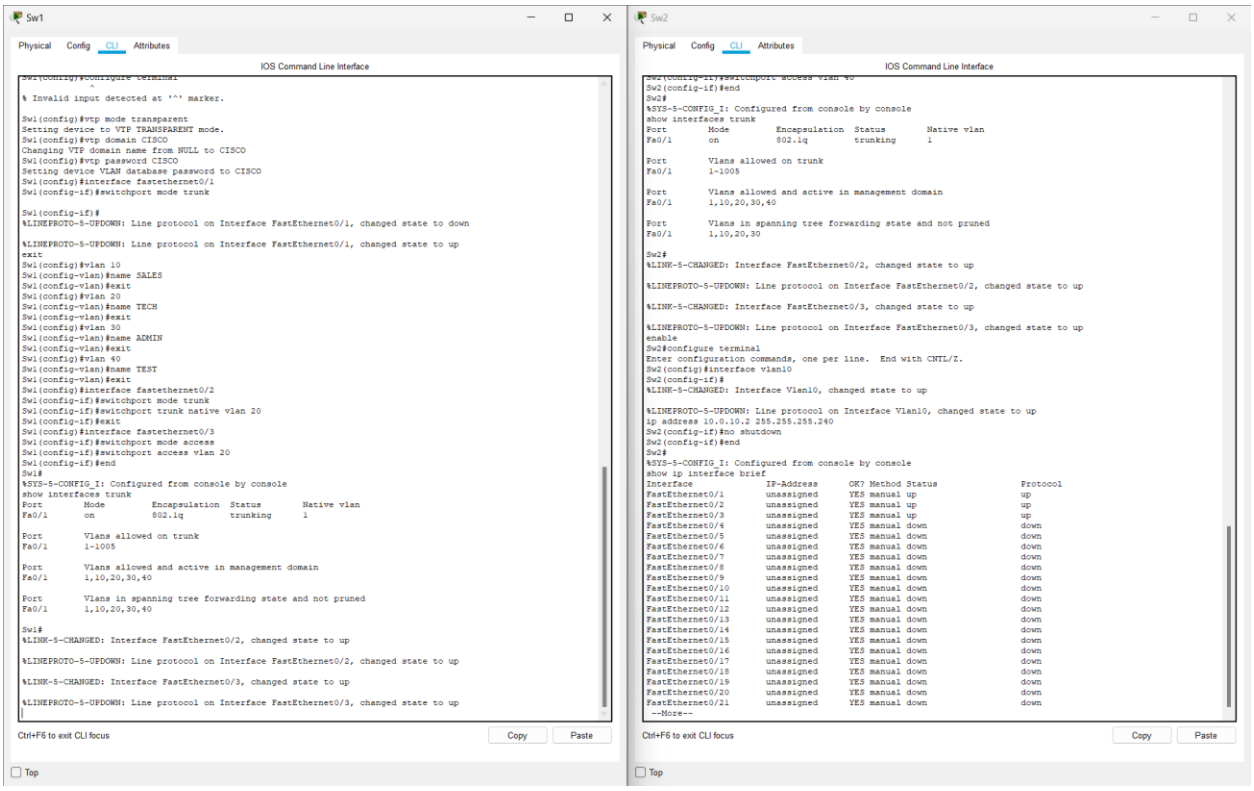
Đánh giá sự sẵn sàng: Khi bạn sẵn sàng cho kỳ thi chứng nhận của mình, bạn nên hoàn thành bài lab này trong không quá 20 phút.

Sơ đồ mạng: Sử dụng sơ đồ sau để hoàn thành bài lab này:




1841
R1
1841
R3
2960-24TT
Sw1
2960-24TT
Sw2
1841
R2
1841
R4


R1
Physical Config CLI Attributes
IOS Command Line Interface
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 10.0.20.2, timeout is 2 seconds:
.....
Success rate is 0 percent (0/5)
R1#ping 10.0.30.3
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 10.0.30.3, timeout is 2 seconds:
.!!!!
Success rate is 80 percent (4/5), round-trip min/avg/max = 0/0/1 ms
R1#ping 10.0.40.4
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 10.0.40.4, timeout is 2 seconds:
.!!!!
Success rate is 80 percent (4/5), round-trip min/avg/max = 1/1/1 ms
R1#ping 10.0.20.2
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 10.0.20.2, timeout is 2 seconds:
Ctrl+F6 to exit CLI focus
Copy
Paste
Top
R3
Physical Config CLI Attributes
IOS Command Line Interface
--- System Configuration Dialog ---
Would you like to enter the initial configuration dialog? [yes/no]: no
Press RETURN to get started!
Router>enable
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#hostname R3
R3(config)#interface fastethernet0/0
R3(config-if)#ip address 10.0.30.3 255.255.255.248
R3(config-if)#no shutdown
R3(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
exit
R3(config)#
Ctrl+F6 to exit CLI focus
Copy
Paste
Top
R2
Physical Config CLI Attributes
IOS Command Line Interface
--- System Configuration Dialog ---
Would you like to enter the initial configuration dialog? [yes/no]: no
Press RETURN to get started!
Router>enable
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#hostname R2
R2(config)#interface fastethernet0/0
R2(config-if)#ip address 10.0.0.20 255.255.255.224
R2(config-if)#no shutdown
R2(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
exit
R2(config)#
Ctrl+F6 to exit CLI focus
Copy
Paste
Top
R4
Physical Config CLI Attributes
IOS Command Line Interface
--- System Configuration Dialog ---
Would you like to enter the initial configuration dialog? [yes/no]: no
Press RETURN to get started!
Router>enable
Router#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Router(config)#hostname R4
R4(config)#interface fastethernet0/0
R4(config-if)#ip address 10.0.40.4 255.255.255.224
R4(config-if)#no shutdown
R4(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
exit
R4(config)#
Ctrl+F6 to exit CLI focus
Copy
Paste
Top


Sw1
Physical
Config
CLI
Attributes
IOS Command Line Interface
% Invalid input detected at '^' marker.
Sw1(config)#vtp mode transparent
Setting device to VTP TRANSPARENT mode.
Sw1(config)#vtp domain CISCO
Changing VTP domain name from NULL to CISCO
Sw1(config)#vtp password CISCO
Setting device VLAN database password to CISCO
Sw1(config)#interface fastethernet0/1
Sw1(config-if)#switchport mode trunk
Sw1(config-if)#
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state to down
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/1, changed state to up
exit
Sw1(config)#vlan 10
Sw1(config-vlan)#name SALES
Sw1(config-vlan)#exit
Sw1(config)#vlan 20
Sw1(config-vlan)#name TECH
Sw1(config-vlan)#exit
Sw1(config)#vlan 30
Sw1(config-vlan)#name ADMIN
Sw1(config-vlan)#exit
Sw1(config)#vlan 40
Sw1(config-vlan)#name TEST
Sw1(config-vlan)#exit
Sw1(config)#interface fastethernet0/2
Sw1(config-if)#switchport mode trunk
Sw1(config-if)#switchport trunk native vlan 20
Sw1(config-if)#exit
Sw1(config)#interface fastethernet0/3
Sw1(config-if)#switchport mode access
Sw1(config-if)#switchport access vlan 20
Sw1(config-if)#end
Sw1#
%SYS-5-CONFIG_I: Configured from console by console
show interfaces trunk
Port Mode Encapsulation Status Native vlan
Fa0/1 on 802.1q trunking 1
Port Vlans allowed on trunk
Fa0/1 1-1005
Port Vlans allowed and active in management domain
Fa0/1 1,10,20,30,40
Port Vlans in spanning tree forwarding state and not pruned
Fa0/1 1,10,20,30,40
Sw1#
%LINK-5-CHANGED: Interface FastEthernet0/2, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/2, changed state to up
%LINK-5-CHANGED: Interface FastEthernet0/3, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/3, changed state to up
Ctrl+F6 to exit CLI focus
Copy
Paste
Top
Sw2
Physical
Config
CLI
Attributes
IOS Command Line Interface
Sw2(config-if)#end
Sw2#
%SYS-5-CONFIG_I: Configured from console by console
show interfaces trunk
Port Mode Encapsulation Status Native vlan
Fa0/1 on 802.1q trunking 1
Port Vlans allowed on trunk
Fa0/1 1-1005
Port Vlans allowed and active in management domain
Fa0/1 1,10,20,30,40
Port Vlans in spanning tree forwarding state and not pruned
Fa0/1 1,10,20,30
Sw2#
%LINK-5-CHANGED: Interface FastEthernet0/2, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/2, changed state to up
%LINK-5-CHANGED: Interface FastEthernet0/3, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface FastEthernet0/3, changed state to up
enable
Sw2#configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
Sw2(config)#interface vlan10
Sw2(config-if)#
%LINK-5-CHANGED: Interface Vlan10, changed state to up
%LINEPROTO-5-UPDOWN: Line protocol on Interface Vlan10, changed state to up
ip address 10.0.10.2 255.255.255.240
Sw2(config-if)#no shutdown
Sw2(config-if)#end
Sw2#
%SYS-5-CONFIG_I: Configured from console by console
show ip interface brief
Interface IP-Address OK? Method Status Protocol
FastEthernet0/1 unassigned YES manual up up
FastEthernet0/2 unassigned YES manual up up
FastEthernet0/3 unassigned YES manual up up
FastEthernet0/4 unassigned YES manual down down
FastEthernet0/5 unassigned YES manual down down
FastEthernet0/6 unassigned YES manual down down
FastEthernet0/7 unassigned YES manual down down
FastEthernet0/8 unassigned YES manual down down
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FastEthernet0/20 unassigned YES manual down down
FastEthernet0/21 unassigned YES manual down down
--More--
Ctrl+F6 to exit CLI focus
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