Midnight Hackers Team:

- o Rich Simms
- o Christian Paasche
- o Jay Clark
- Salvador Marquez
- o Sean Lazar
- o Mo Hart

Scenario:

Corporate LAN contains a router connected to an ISP via Frame Relay. Corporate router does PAT and DHCP for Corporate LAN. Access and Distribution switches are configured with VLANs, trunking, and port security. The ISP router is connected to two branch office routers via serial links, using PPP and authenticated via CHAP. Configure a dynamic routing protocol on each of the three ISP routers. Each of the three ISP routers has a LAN attached.

Objective:

Determine an IP address scheme that fits this model. Configure serial links for ISP, Branch Office 1 (BR_1), and Branch Office 2 (BR_2) with PPP and CHAP authentication. Use /30 subnets for the serial links. Write configurations for both OSPF and EIGRP, to gain experience with both protocols. Default traffic needs to be sent to Loopback 100 on Branch Office 2. Branch Office 1 and Branch Office 2 have LANs, and need to be configured with VLSM networks that are part of 172.16.0.0.

On the Corporate router, it should be the default gateway, DHCP server, and PAT for the Corporate LAN. The Corporate LAN needs to be configured with RFC 1918 (private addressing). The Access and Distribution switches need to be configured with VLANs 1, 10, 20 and 99. Each switch must have one port on each VLAN. All ports are manually configured as access or trunk ports. Port security needs to be configured on all access ports to allow only 1 MAC address. STP Root Bridge is the Distribution switch and it needs to be configured as such. A discard route is also placed on the corporate router. A discard route prevents packets intended for the corporate VLANs to be sent out the default gateway in the event one of the corporate LANs becomes unreachable.

Network Diagram:



Physical Cabling:



Hardware:

BR_1 Cisco 2620 Router with 1 two port serial card, IOS version 12.2 **BR_2** Cisco 2620 Router with 1 two port serial card, IOS version 12.2 **ISP** Cisco 2621 Router with 2 two port serial cards, IOS version 12.2

Corporate Cisco 2620 Router with 1 two port serial card and 1 ISDN card, IOS version 12.2 **Distribution** Cisco 2950 Switch with 24 Fast Ethernet ports and 2 Gigabit Copper ports, IOS version 12.1

Access Cisco 2900 Switch with 12 Fast Ethernet ports, IOS version 12.0

Corporate LAN VLANs:

	VLAN	Network	Subnet Mask
Default	1	192.168.10.0	255.255.255.224
Accounting	10	192.168.10.32	255.255.255.224
Marketing	20	192.168.10.64	255.255.255.240
Engineering	99	192.168.10.80	255.255.255.240

VLAN Port Assignment:

	Trunk	VLAN 1	VLAN 10	VLAN 20	VLAN 99
Distribution	Gig 0/1 & 0/2	Fa 1-6	Fa 7-12	Fa 13-18	Fa 19-24
Access	Fa 1	Fa 2-3	Fa 4-6	Fa 7-9	Fa 10-12

Running Configurations

We implemented this case study using both EIGRP and OSPF routing protocols. The running configurations below are labeled OSPF for the OSPF implementation and EIGRP for the EIGRP implementation. Note the actual change in routing protocols is only done to the isp, br_1 and br_2 routers. The running configurations for the corporate router and the two switches are the same in both implementations.

OSPF Running Configurations:

ISP 11/22/06 (OSPF)	BR 111/22/06 (OSPF)	BR 2 11/22/06 (OSPF)
Current configuration : 1255 bytes	Current configuration : 1074 bytes	Current configuration : 1196 bytes
<output omitted=""></output>	<output omitted=""></output>	<output omitted=""></output>
!	!	!
hostname isp	hostname br_1	hostname br_2
1	1	!
enable secret 5	enable secret 5	enable secret 5
\$1\$PjZ2\$S3t6XejUQpH4kRmEJgK6I0	\$1\$S3ry\$Gh2CqXLrXefkJEjSkO6/r0	\$1\$9vG0\$GA5f0sPbCgyyELNRWssmj1
1	1	!
username br_1 password 0 cisco	username br_2 password 0 cisco	username br_1 password 0 cisco
username br_2 password 0 cisco	username isp password 0 cisco	username isp password 0 cisco
ip subnet-zero	memory-size iomem 15	memory-size iomem 10
1	ip subnet-zero	ip subnet-zero
no ip domain-lookup	!	!
!	no ip domain-lookup	no ip domain-lookup
<output omitted=""></output>	!	!
!	<output omitted=""></output>	<output omitted=""></output>
interface FastEthernet0/0	!	!
ip address 63.88.27.129 255.255.255.128	interface FastEthernet0/0	interface Loopback100
duplex auto	ip address 172.16.0.129 255.255.255.192	ip address 10.10.10.10 255.255.255.252
speed auto	duplex auto	!
!	speed auto	interface FastEthernet0/0
interface Serial0/0	!	ip address 172.16.0.1 255.255.255.128
ip address 63.88.27.65 255.255.255.252	interface Serial0/0	duplex auto
encapsulation frame-relay	ip address 207.62.41.29 255.255.255.252	speed auto
frame-relay map ip 63.88.27.66 201	encapsulation ppp	!
!	no fair-queue	interface Serial0/0
interface FastEthernet0/1	ppp authentication chap	ip address 207.62.41.30 255.255.255.252
no ip address		encapsulation ppp
shutdown	interface Serial0/1	clockrate 64000
duplex auto	1p address 207.62.41.22 255.255.255.252	ppp authentication chap
speed auto	encapsulation ppp	
	clockrate 64000	interface Serial0/1
interface Serial0/1	ppp authentication chap	1p address 207.62.41.26 255.255.255.252
1p address 207.62.41.25 255.255.255.252		encapsulation ppp
encapsulation ppp	router ospf 10	clockrate 64000
ppp authentication chap	log-adjacency-changes	ppp autientication chap
! interface Seriel0/2	passive-interface FastEtherneto/0	! router conf 10
no in address	network 1/2.10.0.128 0.0.0.05 area 0	log adjagency changes
shutdown	network 207.62.41.20 $0.0.0.3$ area 0	passive interface EastEthernot0/0
	letwork 207.02.41.28 0.0.0.3 area 0	passive-interface rastEthemeto/0
: interface Serial0/3	: in classless	network 207 62 41 24 0 0 0 3 area 0
in address 207 62 41 21 255 255 255 252	ip bith server	network 207.62.41.24 0.0.0.3 area 0
encansulation ppp		default_information originate
nnn authentication chan		
ppp admentication enap	$voice_{port} 1/0/0$	in classless
router ospf 10		in route $0.0.0.0.0.0.0.1$ conback 100
log-adjacency-changes	voice-port 1/0/1	in http server
passive-interface FastFthernet0/0		
network 63 88 27 64 0 0 0 3 area 0	dial-peer cor custom	
network 63.88.27.128 0.0.0 127 area 0		
network 207.62.41.20 0.0.0.3 area 0	1	voice-port 1/0/0

ISP 11/22/06 (OSPF)	BR_1 11/22/06 (OSPF)	BR_2 11/22/06 (OSPF)
network 207.62.41.24 0.0.0.3 area 0	1	!
1	1	voice-port 1/0/1
ip classless	line con 0	1
ip http server	exec-timeout 0 0	dial-peer cor custom
1	logging synchronous	1
!	line aux 0	1
dial-peer cor custom	line vty 0 4	!
!	password cisco	1
!	login	1
!	1	line con 0
!	end	exec-timeout 0 0
line con 0		logging synchronous
exec-timeout 0 0		line aux 0
logging synchronous		line vty 0 4
line aux 0		password cisco
line vty 0 4		login
password cisco		1
login		end
1		
end		

Corporate 11/22/06 (OSPF)	Distribution 11/22/06 (OSPF)	Access 11/22/06 (OSPF)
Current configuration : 2112 bytes	Current configuration : 2766 bytes	Current configuration:
<output omitted=""></output>	<output omitted=""></output>	<output omitted=""></output>
!	!	!
hostname corporate	hostname distribution	hostname access
!	!	!
enable secret 5	enable secret 5	enable secret 5
\$1\$p3Ob\$4EGMu.8vfqTRzz/OBQOMV/	\$1\$KU5Z\$260U8/CK9RIIChyPOTzRY0	\$1\$NKNh\$qEBH.dDHIzWCvQ5nszU6/.
!	!	!
memory-size iomem 15	ip subnet-zero	ip subnet-zero
ip subnet-zero	no ip domain-lookup	no ip domain-lookup
!	!	!
no ip domain-lookup	spanning-tree extend system-id	interface FastEthernet0/1
ip dhcp excluded-address 192.168.10.1	spanning-tree vlan 1 priority 24576	switchport trunk encapsulation dot1q
192.168.10.3	!	switchport mode trunk
ip dhcp excluded-address 192.168.10.33	!	!
ip dhcp excluded-address 192.168.10.65	interface FastEthernet0/1	interface FastEthernet0/2
ip dhcp excluded-address 192.168.10.81	switchport mode access	port security max-mac-count 1
!	switchport port-security	!
ip dhcp pool vlan1	no ip address	interface FastEthernet0/3
network 192.168.10.0 255.255.255.224	!	port security max-mac-count 1
default-router 192.168.10.1	<interfaces 1="" 2-6="" fastethernet0="" like=""></interfaces>	!
!	!	interface FastEthernet0/4
ip dhcp pool vlan10	interface FastEthernet0/7	port security max-mac-count 1
network 192.168.10.32 255.255.255.224	switchport access vlan 10	switchport access vlan 10
default-router 192.168.10.33	switchport mode access	!
!	switchport port-security	interface FastEthernet0/5
ip dhcp pool vlan20	no ip address	port security max-mac-count 1
network 192.168.10.64 255.255.255.240	!	switchport access vlan 10
default-router 192.168.10.65	<interfaces 7="" 8-12="" fastethernet0="" like=""></interfaces>	!
!	!	interface FastEthernet0/6
ip dhep pool vlan99	interface FastEthernet0/13	port security max-mac-count 1

enerovork 192.168.10.80 255.255.254switchport access vlan 20switchport access vlan 20interface FastEhernet07interface FastEhernet07on ja addressinterface FastEhernet07interface FastEhernet08interface FastEhernet07on ja addressinterface FastEhernet07interface FastEhernet00.1interface FastEhernet07on ja addressinterface FastEhernet07interface FastEhernet00.0interface GigabitEihernet07interface FastEhernet00.0interface GigabitEihernet07interface FastEhernet00.0interface GigabitEihernet07interface FastEhernet07.0interface GigabitEihernet07ip address 192.168.10.2 255.255.254interface GigabitEihernet07ip address 192.168.10.3 255.255.254.24in ip addressip address 192.168.10.61ip address 192.168.10.2 255.255.254.24ip address 192.168.10.61ip address 192.168.10.2 255.255.254.24ip address 192.168.10.2 255.255.254.24in it address 192.168.10.2 255.255.254.24ip address 192.168.10.61ip address 192.168.10.2 255.255.254.24ip address 192.168.10.61ip address 192.168.10.2 255.255.254.24ip address 192.168.10.61ip address 192.168.10.2 255.255.254.24ip address 192.168.10.61	Corporate 11/22/06 (OSPF)	Distribution 11/22/06 (OSPF)	Access 11/22/06 (OSPF)
default-router 192.168.10.81switchport mode access!coupto emitted>no ip adfexs.interface FastEhernet0/7port security max-mac-count 1yort security max-mac-count 1interface FastEhernet0/0switchport access vlan 20oip addressinterface FastEhernet0/13speed autoswitchport access vlan 99switchport nocess vlan 99switchport access vlan 20switchport nocess vlan 99switchport access vlan 20interface FastEhernet0/11switchport nocess vlan 99interface FastEhernet0/12switchport noce accessinterface FastEhernet0/10interface GigabitEhernet0/19interface FastEhernet0/10interface GigabitEhernet0/1interface FastEhernet0/10interface GigabitEhernet0/1switchport mode trunkip adfress 192.168.103 255.255.252.24ip adfress 192.168.103 255.255.255.24interface FastEhernet0/10interface FastEhernet0/10switchport mode trunkip adfress 192.168.104 255.255.255.24interface VLANIip adfress 192.168.10.63 255.255.255.24interface VLANIip adfress 192.168.10.755.255.255.24interface VLANIip adfress 192.168.10.755.255.255.25ip adfress 192.168.10.755.255.255.25ip adfress 192.168.10.755.255.255.25ip adfress 192.168.10.755ip adfress 1	network 192.168.10.80 255.255.255.240	switchport access vlan 20	switchport access vlan 10
<pre>switchpor port-security on interface FastEhternet0/7 switchpor access vla 20 interface FastEhternet00 interface FastEhternet0 interface FastEhternet00 interface FastE</pre>	default-router 192.168.10.81	switchport mode access	!
contpart omitted>in o in ja iddressport security max-mac-count 1interface FastEthernet0/0-interfaces 14-18 like FastEthernet0/13>!interface FastEthernet0/0interface FastEthernet0/13>!duples autoswitchport access vlan 99port security max-mac-count 1speed autoswitchport node access!interface FastEthernet0/0.1switchport node access!interface FastEthernet0/0.1switchport node access!interface FastEthernet0/1switchport node access!interface FastEthernet0/10interface FastEthernet0/19switchport access vlan 20interface FastEthernet0/10interface GigabiEthernet0/11switchport access vlan 20interface FastEthernet0/10interface GigabiEthernet0/11switchport access vlan 20interface FastEthernet0/10switchport access vlan 20!interface FastEthernet0/11interface FastEthernet0/12!interface FastEthernet0/12interface FastEthernet0/12!interface FastEthernet0/12!!interface FastEthernet0/12!!interface FastEthernet0/12!! </td <td>!</td> <td>switchport port-security</td> <td>interface FastEthernet0/7</td>	!	switchport port-security	interface FastEthernet0/7
1 switchport access vlan 20 1 cinterface 14-18 like FastEthernet0/12s 1 interface Fas	<output omitted=""></output>	no ip address	port security max-mac-count 1
interface FastEthemet00 interface FastEthemet013 interface FastEthemet008 interface FastEthemet008 interface FastEthemet008 interface FastEthemet008 interface FastEthemet008 interface FastEthemet008 interface FastEthemet009 in a ddress value 99 switchport access vlan 99 interface FastEthemet009 in a ddress vlan 10 switchport access vlan 20 interface FastEthemet0010 interface FastEthemet0011 interface FastEthemet0010 interface Fast	!	!	switchport access vlan 20
no ip address!interface FastEthernet0/8upplex autoswitchport access vlan 99switchport access vlan 99speed autoswitchport access vlan 99switchport access vlan 20interface FastEthernet0/1switchport port-securityinterface FastEthernet0/9interface FastEthernet0/10interface FastEthernet0/10interface FastEthernet0/10interface FastEthernet0/10switchport access vlan 20!interface FastEthernet0/10interface GagbifEthernet0/11port security max-mac-count 1interface FastEthernet0/10switchport access vlan 90!interface FastEthernet0/20no ip address!interface FastEthernet0/20no ip address!ip address 192.168.10.63 255.255.255.255.255.255.255.255.255.255	interface FastEthernet0/0	<interfaces 13="" 14-18="" fastethernet0="" like=""></interfaces>	!
duplex autointerface FastEthernet0/19port security max-mac-count 1switchport access vlan 99switchport access vlan 20interface FastEthernet0/0.1switchport node accessinadress 192.168.10.1 255.255.252.24interface FastEthernet0/19interface FastEthernet0/0.10switchport access vlan 20interface FastEthernet0/0.10interface FastEthernet0/19interface FastEthernet0/10interface FastEthernet0/19interface FastEthernet0/10interface GigabitEthernet0/19interface FastEthernet0/10switchport access vlan 99interface FastEthernet0/20switchport access vlan 99in interface FastEthernet0/20interface Vlan1interface FastEthernet0/20switchport access vlan 99in address 192.168.10.81 255.255.255.252interface Vlan1in at insideip address 192.168.10.81 255.255.255.252in ant insideip address 192.168.10.81 255.255.255.252in antaber easily formation fame-relayip address 192.168.10.32 255.255.255.252in antoride	no ip address	!	interface FastEthernet0/8
speed autoswitchport access Van 99switchport access Van 99interface FastEthernet00.1switchport noce accessinterface FastEthernet09interface FastEthernet0.1no ip address 12.55.25.25.21interface FastEthernet0010interface FastEthernet0.10switchport access Van 20interface FastEthernet0/10interface FastEthernet0.10switchport access Van 20interface FastEthernet0/10interface FastEthernet0.10switchport access Van 99interface FastEthernet0/10interface FastEthernet0.20switchport access Van 99interface FastEthernet0/11interface FastEthernet0.20switchport access Van 99interface FastEthernet0/12interface FastEthernet0.20interface GigabitEthernet0/2port security max-mac-count 1interface FastEthernet0/20switchport access Van 99interface FastEthernet0/11interface FastEthernet0/20interface Van1switchport access Van 99interface FastEthernet0/20switchport access Van 99interface FastEthernet0/12interface FastEthernet0/20switchport access Van 99interface FastEthernet0/12interface FastEthernet0/20interface Van1switchport access Van 99interface FastEthernet0/0.99in gidress 12.168.10.32 55.255.255.254interface Van1interface Scrial0/0interface Scrial0/0in an inside <t< td=""><td>duplex auto</td><td>interface FastEthernet0/19</td><td>port security max-mac-count 1</td></t<>	duplex auto	interface FastEthernet0/19	port security max-mac-count 1
switchport mode access!interface FastBithemet0/0.1switchport noceaip address 192.168.10.1 255.255.252.24interface FastBithemet0/9interface FastBithemet0/0.10interface GigabitEthemet0/1encapsulation dot1Q 10interface GigabitEthemet0/1encapsulation dot1Q 10interface GigabitEthemet0/2ip address 192.168.10.3 255.255.255.244interface GigabitEthemet0/2ip address 192.168.10.3 255.255.255.244interface GigabitEthemet0/2ip address 192.168.10.65 255.255.255.240interface GigabitEthemet0/2ip address 192.168.10.65 255.255.255.240interface VIan1ip address 192.168.10.81 255.255.255.240interface VIan1ip nat insideip address 192.168.10.81 255.255.255.240ip address 192.168.10.81 255.255.255.252interface VIan1ip address 192.168.10.81 255.255.255.252ip nat insideinterface FastBithemet0/0.99ip address 192.168.10.81 255.255.255.252ip nat insideip nat insideip natinsideip outo-cacheinterface FastBithemet0/0.99in econ 0ip address 63.82.7.66 352.255.255.252ip nat outsideip nat outsideloginrencapsulation frame-relayip out occacheinterface Serial0/0ip address 63.82.7.65 102ip nat outsideip address 10.20.00.00.01ip out to 12.168.00.02.03.1ip addressip out to 12.168.00.02.03.1ip addressip out to 12.168.00.02.03.1ip addressip out to 12.168.00.02.03.1ip addressip nat outsideip addressi	speed auto	switchport access vlan 99	switchport access vlan 20
<pre>interface FastEthernet0/0.1 on ip address ip address 192.168.10.1 255.255.255.224 ip nat inside i andress 192.168.10.255.255.255.254 interface FastEthernet0/10 interface FastEthernet0/11 interface FastEthernet0/12 interface FastEthe</pre>	!	switchport mode access	1
encapsulation dot[Q 1 native ip address 192.168.10.1 255.255.255.254.24 ip nat insideno ip address 20-24 like FastEthernet0/19 switchport access vlan 20 imerface FastEthernet0/10 port security max-mac-count 1 switchport access vlan 99 interface FastEthernet0/12 port security max	interface FastEthernet0/0.1	switchport port-security	interface FastEthernet0/9
ip address 192.168.10.1 255.255.255.254 ! switchport access vlan 20 interface FastEthernet0/19 ! interface GigabitEthernet0/19 ip address 192.168.10.33 255.255.255.254 ! interface GigabitEthernet0/2 ip address 192.168.10.33 255.255.255.254 interface GigabitEthernet0/2 switchport access vlan 99 ip address 192.168.10.65 255.255.255.254 interface GigabitEthernet0/2 switchport access vlan 99 ip address 192.168.10.65 255.255.255.254 interface GigabitEthernet0/2 switchport access vlan 99 ip address 192.168.10.65 255.255.255.240 interface Vlan1 pot security max-mac-count 1 ip address 192.168.10.65 255.255.255.240 interface FastEthernet0/12 pot security max-mac-count 1 ip address 192.168.10.2 255.255.255.254 interface FastEthernet0/12 pot security max-mac-count 1 ip address 192.168.10.31 255.255.255.255 in oip address i interface FastEthernet0/12 ip address 63.88.27.66 255.255.255.255 ip address 192.168.10.31 255.255.255.255.255 ip address 192.168.10.32 255.255.255.255.255 in ac-address-table secure 0002.b34c.2383 frame-relay map ip 63.88.27.65 102 ip out outside in ac-address-table secure 0002.b34c.2383 ip out 0.00.00.00.00.03.88.27.65 ip out 0.00.00.00.03.88.27.65 in address	encapsulation dot1Q 1 native	no ip address	port security max-mac-count 1
ip natiniside: interfaces 20-24 like FastEthernet0/19>! interface FastEthernet0/10interface FastEthernet0/10interface GigabitEthernet0/1port security max-mac-count 1interface FastEthernet0/02switchport mode trunkswitchport access vlan 99ip nat insideinterface GigabitEthernet0/2port security max-mac-count 1interface FastEthernet0/02switchport mode trunkswitchport access vlan 99interface FastEthernet0/02no ip address 192,168,10.32 55,255,255,254interface GigabitEthernet0/2interface FastEthernet0/09no ip address 192,168,10.32 255,255,255,254interface FastEthernet0/12interface FastEthernet0/0.99in pi paddress 192,168,10.32 255,255,255,254interface FastEthernet0/12interface FastEthernet0/0.99in pi port security max-mac-count 1ip address 192,168,10.81 255,255,255,254ip http serverip address 192,168,10.32 255,255,254ip address 192,168,10.81 255,255,255,254ip http serverip address 192,168,10.32 255,255,254ip address 63,882,766 255,255,255,255ine con 0icac-address-table secure 0002,b34c,33aframe-relayinar side source list 1 interface Serial0/0inac-address-table secure 0002,b34c,33aip at inside source list 1 interface Serial0/0inac-address-table secure 0002,b35,c253,c35,c35ip at inside source list 1 interface Serial0/0inac-address-table secure 0002,b35,c253,c35,c35ip at inside source list 1 interface Serial0/0inac-address-table secure 0002,b35,c253,c35,c35ip orate 0,0,0,0,0,0,63,88,27,65ip orate 192,168,10,0,0,0,0,13inac-address-table secure 0002,b35,c253,c3	ip address 192.168.10.1 255.255.255.224	!	switchport access vlan 20
1!interface FastElthernet0/10 interface GigabitEthernet0/1 switchport mode trunk no ip address 192.108.10.33 255.255.252.24 in terface FastEthernet0/2 switchport mode trunk no ip address 192.108.10.33 255.255.252.24 interface FastEthernet0/2 switchport mode trunk no ip address 192.108.10.65 255.255.252.24 ip address 192.108.10.65 255.255.252.24 ip address 192.108.10.65 255.255.252.24 ip address 192.108.10.65 255.255.252.24 ip address 192.108.10.26 255.255.255.24 ip address 192.108.10.26 255.255.255.24 ip address 192.108.10.26 255.255.255.24 ip address 192.108.10.27 255.255.255.24 ip address 192.108.10.28 255.255.255.24 ip address 192.108.10.28 255.255.255.24 ip address 192.108.10.28 255.255.255.24 ip address 192.108.10.28 255.255.255.24 ip nut sinside !interface FastEthernet0/12 interface Vlan1 interface Vlan1 interface Vlan1 interface Vlan1 in prote-cacheinterface Vlan1 interface Vlan2 interface Vlan2 interface Vlan3 interface Vlan3 <br< td=""><td>ip nat inside</td><td><interfaces 19="" 20-24="" fastethernet0="" like=""></interfaces></td><td>!</td></br<>	ip nat inside	<interfaces 19="" 20-24="" fastethernet0="" like=""></interfaces>	!
interface FastEthermet0/0.10interface GigabitEthermet0/1por security max-mac-count 1encapsulation dot1Q 10switchport mode trunkswitchport access vlan 99ip address 192.168.10.33 255.255.252.24in tai niside!ip address 192.168.10.65 255.255.252.24interface GigabitEthermet0/2port security max-mac-count 1interface FastEthermet0/0.20switchport node trunkswitchport access vlan 99encapsulation dot1Q 20no ip address!ip address 192.168.10.65 255.255.252.24interface CigabitEthermet0/2switchport access vlan 99interface FastEthermet0/0.99no ip route-cache!interface FastEthermet0/0.99in prote-cache!interface Serial0/0ip pathers 192.168.10.2 255.255.255.254ip address 192.168.10.3 255.255.255.254ip address 192.168.10.81 255.255.255.255ip address 192.168.10.3 255.255.255.255ip address 192.168.10.3 255.255.255.255ip address 192.168.10.81 255.255.255.255ip address 192.168.10.3 255.255.255.255ip address 192.168.10.3 255.255.255.255ip address 192.168.10.81 255.255.255.255ip address 192.168.10.3 255.255.255.255ip address 192.168.10.3 255.255.255.255ip address 192.168.10.81 255.255.255.255ip address 192.168.10.3 255.255.255.255interface CigabitEthermet0.2interface CigabitEthermet0.2ip national configure relayinterface FastEthermet0.10ip address 192.168.10.3 255.255.255ip address 192.168.10.3 255.255.255ip address 192.168.10.0 0.0.0.31interface Signifigure relayinterface Signifigure relayinterface Signifigure relayip classless<	!	!	interface FastEthernet0/10
encapsulation dot1Q 10 ip address 192.168.10.33 255.255.255.224 ip nat insideswitchport mode trunk no ip addressswitchport access vlan 99 interface FastEthernet0/11 port security max-mac-count 1 switchport access vlan 99!!interface FastEthernet0/2 switchport mode trunk no ip address!!interface FastEthernet0/20 encapsulation dot1Q 20 ip address 192.168.10.65 255.255.255.255.255.255.255!!interface FastEthernet0/0.99 encapsulation dot1Q 99 ip address 192.168.10.81 255.255.255.255.255!!interface FastEthernet0/0.99 encapsulation dot1Q 99 ip address 192.168.10.81 255.255.255.255interface Vlan1 ip toute-cache!interface Serial0/0 ip address 63.88.27.66 255.255.255.255in proute-cache !!!ine con 0 exce-timeout 0 0 login!ine vig 0 4 ip calsespassword cisco login!!!no ip route-scable secure 0002.b34c.2383!!!mac-address-table secure 0002.b34c.33aa FastEthernet0/4 vlan 10 exce-timeout 0 0 login!ine vig 5 15 login!mac-address-table secure 0002.b34c.33aa FastEthernet0/4 vlan 10 exce-timeout 0 0 login!ine con 0 exce-stimes 1 permit 192.168.10.20.00.31 access-list 1 permit 192.168.10.30.00.015!!!!!!!! <td>interface FastEthernet0/0.10</td> <td>interface GigabitEthernet0/1</td> <td>port security max-mac-count 1</td>	interface FastEthernet0/0.10	interface GigabitEthernet0/1	port security max-mac-count 1
<pre>ip address 192.168.10.33 255.255.252.4 ip nat inside ip address 192.168.10.33 255.255.252.4 ip nat inside i interface FastEthernet0/0.20 encapsulation dot1Q 20 ip address 192.168.10.65 255.255.255.240 i p nat inside i interface Valan1 ip address 192.168.10.65 255.255.255.240 i p nat inside i interface Valan1 ip address 192.168.10.81 255.255.255.240 ip nat inside i interface Straibly i p address 192.168.10.81 255.255.255.252 i interface Straibly i p at inside source list 1 interface Serial0/0 ip atouts 26.38.27.65 102 i p catselses i no is proute 0.00.0.0.0.6 3.88.27.65 i p route 92.168.0.0 0.0.31 access-list 1 permit 192.168.10.30 0.0.0.15 i i comput on inited> i l ine con 0 cxec-timeout 0 0 loggin i p cut 192.168.10.0.20.0.31 access-list 1 permit 192.168.10.30 0.0.0.15 i line con 0 cxec-timeout 0 0 loggin i cut 192.168.10.30 0.0.0.15 i line con 0 cxec-timeout 0 0 loggin i cut 192.168.10.20.00.0.31 access-list 1 permit 192.168.10.30 0.0.0.15 i line con 0 cxec-timeout 0 0 loggin i cut 192.168.10.30 0.0.0.15 i line con 0 cxec-timeout 0 0 loggin i cut 192.168.10.30 0.0.0.15 i line con 0 cxec-timeout 0 0 loggin i cut 192.168.10.30 0.0.0.15 i line con 0 cxec-timeout 0 0 loggin i cut 192.168.10.30 0.0.0.15 i line con 0 cxec-timeout 0 0 loggin i cut 192.168.10.30 0.0.0.15 i line con 0 cxec-timeout 0 0 loggin i cut 192.168.10.30 0.0.0.15 i line con 0 cxec-timeout 0 0 loggin i cut 192.168.10.30 0.0.0.15 i line con 0 cxec-timeout 0 0 loggin i cut 192.168.10.30 0.0.0.15 i line con 0 cxec-timeout 0 0 loggin i cut 192.168.10.30 0.0.0.15 i line con 0 cxec-timeout 0 0 loggin i cut 192.168.10.30 0.0.0.15 i line con 0 cxec-timeout 0 0 loggin i cut 192.168.10.30 0.0.0.15 i line con 0 cxec-timeout 0 0 loggin i cut 1</pre>	encapsulation dot1Q 10	switchport mode trunk	switchport access vlan 99
ip nat inside!interface GigabitEdhernet0/2interface FastEthernet0/11!interface GigabitEdhernet0/2switchport mode trunk no ip address 192.168.10.65 255.255.255.25switchport mode trunk no ip address 192.168.10.65 255.255.255.25switchport access vlan 99!interface FastEthernet0/0.99interface Vlan1 ip address 192.168.10.81 255.255.255.252interface FastEthernet0/12!interface FastEthernet0/0.99interface FastEthernet0/12pot security max-mac-count 1!interface FastEthernet0/0.99interface FastEthernet0/12pot security max-mac-count 1!ip address 192.168.10.81 255.255.255.252ip http serverip address 192.168.10.3 255.255.255.252!!interface FastEthernet0/0!!interface Serial0.00!interface VLAN1!ip address 63.88.27.66 255.255.255.252ip nat outsideno ip directed-broadcast no ip route-cache!inter con 0exce-timeout 0 0mac-address-table secure 0002.b34b.a16f!inter con 0imac-address-table secure 0002.b34c.2383farame-relay map ip 63.88.27.65 102password ciscofastEthernet0/7 vlan 20!inder serial0.00!mac-address-table secure 0002.b34c.33aaip route 192.168.0.0 0.0.0.0.63.88 27.65inder serial0.00inder serial0.00!!ince n0!ip route 192.168.10.0 0.0.0.31access-list 1 permit 192.168.10.40.0.0.015ince n0!!ince vy 0 4access-list 1 permit 192.168.10.20.0.0.51ince n0ince vy 0 1	ip address 192.168.10.33 255.255.255.224	no ip address	
!interface GigabitEthernet0/2 switchport accessport security max-mac-count 1 switchport accessinterface FastEthernet0/0.20 encapsulation dot1Q 20 ip address 192.168.10.65 255.255.255.240 i finerface FastEthernet0/0.99 encapsulation dot1Q 99 ip address 192.168.10.81 255.255.255.250 i pa ddress 192.168.10.21 20 interface FastEthernet02 Vala 1 interface FastEthernet02 Vala 1 interface Serial00 i password cisco i past vity 0 4 password cisco i proute 192.168.10.02 055.255.00.01 Nullo p thty server i proute 192.168.10.02 00.031 access-list 1 permit 192.168.10.04 0.0.15 access-list 1 permit 192.168.10.04 0.0.15 access-list 1 permit 192.168.10.04 0.0.15 access-list 1 permit 192.168.10.04 0.0.15 access-list 1 permit 192.168.10.03 0.0.015 i line vity 0 4 password cisco login 1 line vity 0 4 password cisco <br< td=""><td>ip nat inside</td><td></td><td>interface FastEthernet0/11</td></br<>	ip nat inside		interface FastEthernet0/11
interface FastEthernet0/0.20 encapsulation dotIQ 20 ip address 192.168.10.65 255.255.255.254 ip at an inside ! interface FastEthernet0/0.99 encapsulation dotIQ 99 ip address 192.168.10.81 255.255.255.254 ip address 192.168.10.81 255.255.255.254 ip address 192.168.10.81 255.255.255.255 interface Serial0/0 ip address 63.88.27.66 255.255.255.254 ! interface Valant interface Serial0/0 ip address 63.88.27.66 255.255.255.255 ! interface Valant interface Valant ip address 63.88.27.66 255.255.255.255 ! interface Valant interface Valant interface Valant ip address 192.168.10.2 255.255.255.255.255 ip address 192.168.10.3 255.255.255.255.254 interface Valant ip address 192.168.10.3 255.255.255.255.255 ip route outon frame-relay frame-relay map ip 63.88.27.65 102 ! ip nat inside source list 1 interface Serial0/0 overload ip route 0.0.0.0.0.0.0.0.63.88.27.65 ip route 192.168.10.0.0.0.31 access-list 1 permit 192.168.10.30.0.0.15 i ! coutput omitted> ! line con 0 exec-timeout 0 0 login ip thy server ! line con 0 exec-timeout 0 0 login in access-list 1 permit 192.168.10.00.0.15 i ! coutput omitted> ! line con 0 exec-timeout 0 0 login in access-list 1 permit 192.168.10.30.00.0.15 i ! coutput omitted> ! line con 0 exec-timeout 0 0 login in ext y 5 15 login in	· · · · · · · · · · · · · · · · · · ·	interface GigabitEthernet0/2	port security max-mac-count 1
encapsulation dot [Q 20]no ip address!ip address 192.168.10.65 255.255.252.400interface Vlan1interface Vlan1!ip ad inside!!interface FastEthernet0/0.99interface Vlan1ip address 192.168.10.81 255.255.255.2400ip nat inside!ip address 192.168.10.81 255.255.255.2401ip http server!!interface Serial0/0ip address 63.88.27.65 255.255.252ip address 63.88.27.65 102!interface Cache!interface Serial0/0!!ip address 63.88.27.65 102!interface Cache!interface Serial0/0!!ip at inside source list 1 interface Serial0/0!!ip at inside source list 1 interface Serial0/0!!ip classless!!!ip at inside source list 1 interface Serial0/0!!ip classless!!!ip toute 0.0.0.0.0.0.0.63.88.27.65!!ip route 0.0.0.0.0.0.0.63.88.27.65!!ip route 192.168.10.2 25.255.25.0.0 Null0!!ip http server!!!!!end!!!!!in creas-list 1 permit 192.168.10.2 0.0.0.31!access-list 1 permit 192.168.10.3 0.0.0	interface FastEthernet0/0.20	switchport mode trunk	switchport access vlan 99
ip address 192.168.10.65 255.255.252.240!interface Vlan1interface FastEthernet0/12interface FastEthernet0/0.99interface Vlan1jp address 192.168.10.2 255.255.252.240jp address 192.168.10.3 255.255.252.240ip address 192.168.10.81 255.255.255.240ip address 192.168.10.3 255.255.252.240jp address 192.168.10.3 255.255.252.240ip address 192.168.10.81 255.255.255.240ip address 192.168.10.3 255.255.252.240ip address 192.168.10.3 255.255.252.240ip address 63.88.27.66 255.255.255.252exec-timeout 0 0ine con 0ip address 63.88.27.66 255.255.255.252exec-timeout 0 0ine con 0ip address 63.88.27.65 102ine vty 0 4inac-address-table secure 0002.b34c.238aip att insideine vty 5 15ine vty 5 15ip castelsesine vty 5 15ine vty 5 15ip castelsesine vty 5 15ine con 0ip route 192.168.0.0.255.255.255.0.0 Null0ine vty 5 15ine vty 5 15ip castelsesine vty 5 15ine vty 5 15ip castelsesine vty 5 15ine vty 0 4ip route 192.168.0.0.255.255.0.0 Null0indine vty 5 15ip route 192.168.10.32 0.0.0.31indine vty 0 4access-list 1 permit 192.168.10.32 0.0.0.31ine vty 0 4access-list 1 permit 192.168.10.32 0.0.0.31ine vty 0 4access-list 1 permit 192.168.10.32 0.0.0.31ine vty 0 4access-list 1 permit 192.168.10.30 0.0.0.15ine vty 0 4ine con 0iscoiscois in permit 192.168.10.30 0.0.0.15ine vty 0 15ine con 0isco <t< td=""><td>encapsulation dot 10 20</td><td>no in address</td><td>!</td></t<>	encapsulation dot 10 20	no in address	!
interface FastEthemet0/0.99 encapsulation dot1Q 99 ip address 192.168.10.81 255.255.255.254 ip nat inside ! interface Serial0/0 ip address 63.88.27.66 255.255.255.252 ip nat outside encapsulation frame-relay frame-relay map ip 63.88.27.65 102 ! coutput omitted> ! interface Serial0/0 ip caties source list 1 interface Serial0/0 ip cate 192.168.00.00.03.38 zccess-list 1 permit 192.168.10.0.00.31 access-list 1 permit 192.168.10.32 0.00.31 access-list 1 permit 192.168.10.30 0.00.15 ! inc con 0 exec-timeout 0 0 borgin a sword cisco login 1 ine vty 5 15 login 2 ine vty 5 15 login 1 ine vty	ip address 192.168.10.65 255.255.255.240	!	interface FastEthernet0/12
P. Interface FastEthernet()(0.99 encapsulation dot1Q 99 ip address 192.168.10.81 255.255.255.255.24 ip nat insideip address 192.168.10.81 255.255.255.254 ip interface Serial0/0 line con 0 exec-timeout 0 0 loginswitchport access vlan 99 l interface VLAN1 ip address 192.168.10.3 255.255.255.254 u pi patients/ ip address 63.88.27.66 255.255.255.255 line con 0 encapsulation frame-relay frame-relay map ip 63.88.27.65 102 l l nat inside source list 1 interface Serial0/0 lip address 43.88.27.65 102in con 0 exec-timeout 0 0 login line vty 0 4 password cisco login loginmac-address-table secure 0002.b34c.2383 FastEthernet0/2 vlan 1 mac-address-table secure 0002.b34c.33aa FastEthernet0/10 vlan 20 mac-address-table secure 0002.b35d.e8bf FastEthernet0/10 vlan 99 mac-address-table secure 0002.b35d.e8bf l end1line vty 5 15 loginline vty 5 15 login synchronous line vty 0 4 password cisco login 1 line vty 0 4 password cisco login 1 line vty 0 4 password cisco lip route 192.168.10.255.255.255.05.25line vty 0 4 password cisco login 1 line vty 5 15 login 2 line vty 5 15 login 21line con 0 exec-timeout 0 0 login 3 line vty 5 15 login 1 line vty 5 15 login 1	ip nat inside	interface Vlan1	port security max-mac-count 1
<pre>interface FastEthernet0/0.99 encapsulation doTLQ 99 ip address 192.168.10.81 255.255.255.252 ip nat outside interface Serial0/0 ip address 63.88.27.66 255.255.255.252 ip nat outside encapsulation frame-relay frame-relay map ip 63.88.27.65 102 ! interface Serial0/0 ip nat inside source list 1 interface Serial0/0 ip nat inside source list 1 interface Serial0/0 ip nat inside source list 1 interface Serial0/0 ip route 0.0.0.0 0.0.0.0 63.88.27.65 ip route 192.168.10.20.0.0.31 access-list 1 permit 192.168.10.0 0.0.0.15 ic contput omitted> ! interface Serial0/0 ip thy server ! coutput omitted> ! interface Seria</pre>	1	in address 192 168 10 2 255 255 255 224	switchport access vlan 99
ancapulation dot10 99interface VLAN1ip address 192.168.10.81 255.255.255.250ip thip serverip and insideip thip serverinterface Serial0/0inc con 0ip address 63.88.27.66 255.255.255.252ip address 63.88.27.66 255.255.255.252ip address 63.88.27.65 102ine crup in at unsideine differenceine differenceine crup in at unsideine crup in at unsideine crup in at unsideine crup in at unside source list 1 interface Serial0/0ip address 7.65ip at unside source list 1 interface Serial0/0ip route 0.00.0 0.0.0.063.88.27.65ip route 0.00.0 0.0.0.063.88.27.65ip route 0.00.0 0.0.0.063.88.27.65ip route 192.168.10.0 0.0.0.31access-list 1 permit 192.168.10.0 0.0.0.31access-list 1 permit 192.168.10.0 0.0.0.51incess list 1 permit 192.168.10.0 0.0.0.51ince crup 0ince crup 0ince crup 0ince crup 0ince crup 0ince crup 0ince crup 0ip at an isside source 0.00.15ip classlessip route 192.168.10.0 0.0.0.31access-list 1 permit 192.168.10.32 0.0.0.31access-list 1 permit 192.168.10.44 0.0.0.15access-list 1 permit 192.168.10.80 0.0.0.15ine crup 0ine crup 0 <td< td=""><td>interface FastEthernet0/0.99</td><td>no in route-cache</td><td></td></td<>	interface FastEthernet0/0.99	no in route-cache	
in particulation of the sector	encapsulation dot 10 99	!	interface VLAN1
ip nations of local bases of the productip matrixip productip nations of local bases of the productip matrixin or ip directed-broadcastinterface Serial0/0line con 0!ip address 63.88.27.66 255.255.252exec-timeout 0 0mac-address-table secure 0002.b34b.a16finterface Serial0/0line con 0!encapsulation frame-relayline vty 0 4mac-address-table secure 0002.b34c.2383frame-relay map ip 63.88.27.65 102password ciscoFastEthernet0/7 vlan 20!loginmac-address-table secure 0002.b34c.33aacoutput omitted>loginmac-address-table secure 0002.b34c.33aa!loginmac-address-table secure 0002.b35d.e8bf!loginmac-address-table secure 0002.b35d.e8bf!loginmac-address-table secure 0002.b35d.e8bf!loginmac-address-table secure 0002.b35d.e8bf!loginmac-address-table secure 0002.b35d.e8bf!loginmac-address-table secure 0002.b35d.e8bf!end!!login synchronous!end!line con 0!sccess-list 1 permit 192.168.10.0 0.0.031access-list 1 permit 192.168.10.0 0.0.015line vty 5 15!login!end!end!end!end!end!end!end!end!end!end!!!<	in address 192 168 10 81 255 255 255 240	in http server	in address 192 168 10 3 255 255 255 224
Image: Instant of the interface serial 0/0Image: Instant of the interface definition of the interface serial 0/0ip address 63,88,27.66 255,255,252Image: Interface definition of the interface serial 0/0Image: Interface definition of the interface def	ip nat inside		no in directed-broadcast
interface Serial0/0ine con 0is protectionip address 63.88.27.66 255.255.252ine con 0imac-address-table secure 0002.b34b.a16fip nat outsidelogging synchronousimac-address-table secure 0002.b34b.a16fencapsulation frame-relayline vty 0 4mac-address-table secure 0002.b34c.2383frame-relay map ip 63.88.27.65 102password ciscoFastEthernet0/7 vlan 20!line vty 5 15loginmac-address-table secure 0002.b34c.33aacoutput omitted>line vty 5 15FastEthernet0/10 vlan 99!loginmac-address-table secure 0002.b3d.e.25d.e.8bfip rata inside source list 1 interface Serial0/0end!overload!end!ip route 0.0.0.0.0.0.0.63.88.27.65end!ip route 192.168.0.0 255.255.0.0 Null0end!ip http server!line vty 0 4access-list 1 permit 192.168.10.0 0.0.0.31stopbits 1access-list 1 permit 192.168.10.64 0.0.0.15line vty 5 15!line vty 5 15!line vty 5 15!!!end!!			no in route-cache
Income beamIncome beamIncome beamip address 63.88.27.66 255.255.255.252exec-timeout 0 0mac-address-table secure 0002.b34b.a16fip address 63.88.27.65 102login gsynchronousmac-address-table secure 0002.b34c.2383frame-relay map ip 63.88.27.65 102loginmac-address-table secure 0002.b34c.33aasoutput omitted>line vty 5 15mac-address-table secure 0002.b34c.33aaip classlessline vty 5 15mac-address-table secure 0002.b35d.e8bfip classlessline vty 5 15mac-address-table secure 0002.b35d.e8bfip classlessline vty 5 15line con 0ip route 0.0.0.0 0.0.0.0 63.88.27.65line con 0ip route 192.168.0.0 255.255.0.0 Null0endip tht serverline vty 0 4access-list 1 permit 192.168.10.32 0.0.0.31stopits 1access-list 1 permit 192.168.10.80 0.0.0.15line vty 5 15line con 0loginexec-timeout 0 0loginline vty 5 15loginline con 0stopits 1ine vty 5 15loginline vty 5 15loginine con 0stopits 1ine vty 5 15loginine vty 5 15loginline vty 5 15loginloginloginline vty 5 15lo	interface Serial0/0	line.con ()	I I I I I I I I I I I I I I I I I I I
ip nations of the Energiesinstance of the information of the inf	in address 63 88 27 66 255 255 255 252	exec-timeout 0.0	mac-address-table secure 0002 b34b a16f
approximationapproximationapproximationapproximationapproximationapproximationapproximationapproximationapproximationapproximationapproximationframe-relay map ip 63.88.27.65 102line vty 0.4approximationapproximationapproximationine vty 0 atapproximationapproximationapproximationapproximationapproximationstatistic formapproximationapproximationapproximationapproximationapproximationine vty 0 atapproximationapproximationapproximationapproximationapproximationine vty 0 atapproximationapproximationapproximationapproximationapproximationine vty 0 atapproximationapproximationapproximationapproximationapproximationine vty 0 atapproximationapproximationapproximationapproximationapproximationip classlessip route 0.0.0.0.0.0.053.88.27.65ip route 192.168.0.0.0.0.0.031approximationapproximationine vty 0 4access-list 1 permit 192.168.10.0.0.0.0.31approximationapproximationapproximationapproximationaccess-list 1 permit 192.168.10.64.0.0.0.15approximationapproximationapproximationapproximationiline vty 0 atapproximationapproximationapproximationapproximationapproximationiline vty 0 atapproximationapproximationapproximationapproximationapproximationip classlessip classless	ip nat outside	logging synchronous	FastEthernet0/2 vlan 1
Interpolation name roleInterty of the roleInterty of the roleInterty of the roleframe-relay map ip 63.88.27.65 102password cisconac-address-table secure 0002.b34c.33aa <output omitted="">line vty 5 15rac-address-table secure 0002.b35d.e8bfip nat inside source list 1 interface Serial0/0endivoverloadendiip classlessendiine vty 5 15ip route 0.0.0 0 0.0.0 63.88.27.65iiip route 192.168.0.0 255.255.0.0 Null0endiine vty 0ip thy serveriiine vty 0iaccess-list 1 permit 192.168.10.0 0.0.31stopbits 1access-list 1 permit 192.168.10.64 0.00.15iine vty 0 4access-list 1 permit 192.168.10.64 0.00.15iine vty 5 15icoutput omitted>iiine vty 0 1iiine vty 5 15iiine vty 0 4access-list 1 permit 192.168.10.80 0.0.15iiine vty 5 15iiine vty 5 15iiine</output>	encansulation frame-relay	line vtv 0.4	mac-address-table secure 0002 b34c 2383
Interfoldy imp problem (162)password casesinterfoldy imp problem (162)!loginmac-address-table secure 0002.b34c.33aaline vty 5 15line vty 5 15ip nat inside source list 1 interface Serial0/0!overload!ip classless!ip route 0.0.0.0.0.0.6 63.88.27.65!ip route 192.168.0.0 255.255.0.0 Null0!ip http server!!access-list 1 permit 192.168.10.0 0.0.31access-list 1 permit 192.168.10.0 0.0.31stopbits 1access-list 1 permit 192.168.10.64 0.0.015line vty 5 15ig contput omitted>!!login.end!!	frame-relay man in 63.88.27.65.102	nassword cisco	FastEthernet0/7 vlan 20
coutput omitted>Ine vty 5 15FastEthernet0/10 vlan 99ip nat inside source list 1 interface Serial0/0!FastEthernet0/10 vlan 99overload!end!ip classlessend!ip route 0.0.0 0.0.0.0 63.88.27.65end!ip route 192.168.0.0 255.255.0.0 Null0ine vty 5 15ine con 0ip thtp server!ine con 0!access-list 1 permit 192.168.10.0 0.0.0.31ine vty 0 4access-list 1 permit 192.168.10.32 0.0.0.31password ciscoaccess-list 1 permit 192.168.10.64 0.0.0.15line vty 5 15!.line vty 5 15!!!!!!!.	1	login	mac-address-table secure 0002 b34c 33aa
Source list 1interface Serial0/0interface Serial0/0interface Serial0/0interface Serial0/0overloadip classlessiendimac-address-table secure 0002.b35d.e8bfip classlessiend!iine con 0ip route 0.0.0 0.0.0 63.88.27.65iend!ip route 192.168.0.0 255.255.0.0 Null0iondlogin yrnchronousip thtp server!ine vty 0 4access-list 1 permit 192.168.10.0 0.0.31access-list 1 permit 192.168.10.64 0.0.15access-list 1 permit 192.168.10.64 0.0.015line vty 0 4access-list 1 permit 192.168.10.80 0.0.015line vty 5 15!loginine vty 5 15!loginine vty 0 1ine vty 5 15!loginine vty 5 15!loginine vty 0 0loginine vty 5 15!loginine vty 5 15!loginine vty 0 0loginine vty 5 15!loginine vty 0 1ine vty 5 15!loginine vty 0 1ine vty 0 1ine vty 5 15!loginine vty 0 1ine vty 5 15!loginine vty 5 15!ine vty 5 15!ine vty 5 15!ine vty 5 15!ine vty 5 15 <tr< td=""><td><output omitted=""></output></td><td>line vtv 5 15</td><td>FastEthernet0/10 vlan 99</td></tr<>	<output omitted=""></output>	line vtv 5 15	FastEthernet0/10 vlan 99
InstructionInstructionip nat inside source list 1 interface Serial0/0 overload!FastEthernet0/4 vlan 10ip classlessend!ip route 0.0.0.0 0.0.0.63.88.27.65ine con 0exec-timeout 0 0ip route 192.168.0.0 255.255.0.0 Null0logging synchronouslogging synchronousip http servertransport input nonestopbits 1access-list 1 permit 192.168.10.0 0.0.0.31line vty 0 4password ciscoaccess-list 1 permit 192.168.10.64 0.0.0.15logginline vty 5 15!line vty 5 15!!!!!!!!!!!!!!!!!!!!!!<		login	mac-address-table secure 0002 b35d e8bf
and minimum bounder bornalistsiip route bornalistsiip classlessiine con 0ip route 0.0.0.0 0.0.0 63.88.27.65iine con 0ip route 192.168.0.0 255.255.0.0 Nullologging synchronousip http servertransport input none!stopbits 1access-list 1 permit 192.168.10.0 0.0.0.31line vty 0 4access-list 1 permit 192.168.10.64 0.0.0.15password ciscoaccess-list 1 permit 192.168.10.80 0.0.0.15line vty 5 15!line vty 5 15!logjin vottput omitted>!end !end	in nat inside source list 1 interface Serial0/0	1	FastEthernet0/4 vlan 10
ip classless line con 0 ip route 0.0.0.0 0.0.0 63.88.27.65 line con 0 ip route 192.168.0.0 255.255.0.0 Null0 logging synchronous ip http server transport input none ! stopbits 1 access-list 1 permit 192.168.10.0 0.0.0.31 password cisco access-list 1 permit 192.168.10.64 0.0.0.15 loggin access-list 1 permit 192.168.10.80 0.0.0.15 line vty 5 15 ! line con 0 exec-timeout 0 0 loggin ! line vty 5 15 ! longin ! longin ! longin ! loggin	overload	end	
ip route 0.0.0 0.0.0 63.88.27.65 exec-timeout 0 0 ip route 192.168.0.0 255.255.0.0 Null0 logging synchronous ip ttp server transport input none ! stopbits 1 access-list 1 permit 192.168.10.0 0.0.0.31 line vty 0 4 access-list 1 permit 192.168.10.64 0.0.0.15 loggin access-list 1 permit 192.168.10.80 0.0.0.5 line vty 5 15 ! line vty 5 15 ! loggin ! end	in classless		line con 0
ip route onlow of loss	ip route $0.0.0.0.0.0.63$ 88 27 65		exec-timeout 0.0
ip house 1921/100/00 2001/2010/01 2001/2010/01 2001/2010/01 2001/2010/01 2001/2010/2010	ip route 192 168 0.0 255 255 0.0 Null0		logging synchronous
introduction introduction introduction introduction introduction stopbits 1 introduction introduction interval introduction interval introduction interval interval interval	in http server		transport input none
access-list 1 permit 192.168.10.0 0.0.0.31 line vty 0 4 access-list 1 permit 192.168.10.32 0.0.0.31 password cisco access-list 1 permit 192.168.10.64 0.0.0.15 login access-list 1 permit 192.168.10.80 0.0.0.15 line vty 5 15 ! login ! end ! end line con 0 exec-timeout 0 0 logging synchronous logging synchronous			stophits 1
access list 1 permit 192.168.10.32 0.0.0.31 password cisco access-list 1 permit 192.168.10.64 0.0.0.15 login access-list 1 permit 192.168.10.80 0.0.0.15 line vty 5 15 ! login ! end ! end line con 0 exec-timeout 0 0 exec-timeout 0 0 logging synchronous	access-list 1 permit 192 168 10 0 0 0 0 31		line vtv 0.4
access list 1 permit 192.168.10.64 0.0.0.15 login access-list 1 permit 192.168.10.80 0.0.0.15 line vty 5 15 ! login ! end ! end line con 0 exec-timeout 0 0 logging synchronous loging synchronous	access-list 1 permit 192.168.10.32.0.0.31		password cisco
access-list 1 permit 192.108.10.04 0.00.15 access-list 1 permit 192.168.10.80 0.0.0.15 ! <pre>coutput omitted> ! ! line con 0 exec-timeout 0 0 logging synchronous</pre>	access list 1 permit 192.168.10.64.0.0.0.15		login
i login ! end ! interversion ! end	access-list 1 permit 192.108.10.04 0.0.0.15		line vtv 5 15
<pre>coutput omitted> ! line con 0 exec-timeout 0 0 logging synchronous</pre>	l		login
i i i end line con 0 end exec-timeout 0 0 i	<output omitted=""></output>		10511
line con 0 exec-timeout 0 0 logging synchronous	Sourput omnitue>		· end
exec-timeout 0 0	line.con ()		
logging synchronous	exec_timeout 0.0		
	logging synchronous		

Corporate 11/22/06 (OSPF)	Distribution 11/22/06 (OSPF)	Access 11/22/06 (OSPF)
line aux 0		
line vty 0 4		
password cisco		
login		
1		
end		

OSPF Routing tables:

0
Corporate Router (OSPF)

Code	s: C - connected, S - static, I - IGRP, R - RIP, M - mobile, B - BGP
	D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
	N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
	E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
	i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter
area	
	* - candidate default, U - per-user static route, o - ODR
	P - periodic downloaded static route
Gate	way of last resort is 63.88.27.65 to network 0.0.0.0
	192.168.10.0/24 is variably subnetted, 4 subnets, 2 masks
С	192.168.10.64/28 is directly connected, FastEthernet0/0.20
С	192.168.10.80/28 is directly connected, FastEthernet0/0.99
С	192.168.10.32/27 is directly connected, FastEthernet0/0.10
С	192.168.10.0/27 is directly connected, FastEthernet0/0.1
	63.0.0/30 is subnetted, 1 subnets
С	63.88.27.64 is directly connected, Serial0/0
S*	0.0.0.0/0 [1/0] via 63.88.27.65
S	192.168.0.0/16 is directly connected, Null0

ISP Router (OSPF)

Codes: C - connected, S - static, I - IGRP, R - RIP, M - mobile, B - BGP
D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
NI - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
El - OSPF external type 1, E2 - OSPF external type 2, E - EGP
i - IS-IS, su - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS level-2
ia - IS-IS inter area, * - candidate default, U - per-user static route
o - ODR, P - periodic downloaded static route
Gateway of last resort is 207.62.41.26 to network 0.0.0.0
172.16.0.0/16 is variably subnetted, 2 subnets, 2 masks
0 172.16.0.128/26 [110/65] via 207.62.41.22, 00:23:43, Serial0/3
0 172.16.0.0/25 [110/65] via 207.62.41.26, 00:23:43, Serial0/1
207.62.41.0/24 is variably subnetted, 5 subnets, 2 masks
C 207.62.41.24/30 is directly connected, Serial0/1
C 207.62.41.26/32 is directly connected, Serial0/1
0 207.62.41.28/30 [110/845] via 207.62.41.22, 00:23:43, Serial0/3
[110/845] via 207.62.41.26, 00:23:43, Serial0/1
C 207.62.41.20/30 is directly connected. Serial0/3
C 207.62.41.22/32 is directly connected. Serial0/3
63.0.0.0/8 is variably subnetted, 2 subnets, 2 masks
C 63.88.27.64/30 is directly connected Serial0/0
C 63 88 27 128/25 is directly connected FastEthernet0/0
$0 \times E^2 = 0.000127.1207.25$ is allevely connected, rasthemetheticto/0
0 H2 0.0.000 [110/1] VIA 207.02.11.20, 00.23.10, Sellat0/1

BR_1 Router (OSPF)
Codes: C - connected, S - static, I - IGRP, R - RIP, M - mobile, B - BGP
D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
i - IS-IS, su - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS level-2
ia - IS-IS inter area, * - candidate default, U - per-user static route
o - ODR, P - periodic downloaded static route
Gateway of last resort is 207.62.41.30 to network 0.0.0.0
172.16.0.0/16 is variably subnetted, 2 subnets, 2 masks
C 172.16.0.128/26 is directly connected, FastEthernet0/0
0 172.16.0.0/25 [110/782] via 207.62.41.30, 00:26:34, Serial0/0
207.62.41.0/24 is variably subnetted, 5 subnets, 2 masks
O 207.62.41.24/30 [110/845] via 207.62.41.21, 00:26:34, Serial0/1
C 207.62.41.28/30 is directly connected, Serial0/0
C 207.62.41.30/32 is directly connected, Serial0/0
C 207.62.41.20/30 is directly connected, Serial0/1
C 207.62.41.21/32 is directly connected, Serial0/1
63.0.0.0/8 is variably subnetted, 2 subnets, 2 masks
O 63.88.27.64/30 [110/845] via 207.62.41.21, 00:26:34, Serial0/1
0 63.88.27.128/25 [110/782] via 207.62.41.21, 00:26:34, Serial0/1
O*E2 0.0.0.0/0 [110/1] via 207.62.41.30, 00:26:34, Serial0/0

BR_2 Router (OSPF)		
Codes	s: C - connected, S - static, I - IGRP, R - RIP, M - mobile, B - BGP	
	D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area	
	N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2	
	E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP	
	i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter	
area		
	* - candidate default, U - per-user static route, o - ODR	
	P - periodic downloaded static route	
~ .		
Gatev	ay of last resort is 0.0.0.0 to network 0.0.0.0	
	172 16 0 0/16 is variably subpatted 2 subpats 2 masks	
0	172.16.0.128/26 [110/782] via 207.62 41 29 00.24.57 Social0/0	
C	172.10.0.120/20 [110/702] Via 207.02.41.29, 00.24.37, Seriat0/0 172 16 0 0/25 is directly connected EastEthernet0/0	
C	207.62.41.0/24 is variably subpatted 5 subpats 2 masks	
C	207.62.41.0/24 is variably sublicited, 5 sublicits, 2 masks	
C	207.02.41.24/30 is directly connected. Serial0/1	
C	207.62.41.28/30 is directly connected. Serial $0/0$	
C	207.62.41.29/32 is directly connected. Serial0/0	
0	207.62.41.20/30 [110/845] via 207.62.41.25. 00:24:58. Serial0/1	
0	10.0.0/30 is subnetted. 1 subnets	
С	10.10.10.8 is directly connected. Loopback100	
-	63.0.0.0/8 is variably subnetted, 2 subnets, 2 masks	
0	63.88.27.64/30 [110/845] via 207.62.41.25, 00:24:58, Serial0/1	
0	63.88.27.128/25 [110/782] via 207.62.41.25, 00:24:59, Serial0/1	
S*	0.0.0.0/0 is directly connected, Loopback100	

Corporate Outputs						
corporate# show ip int brie Interface Prot	f IP-Address	OK?	Method	Status		
ocol FastEthernet0/0	unassigned	YES	unset	up		up
FastEthernet0/0.1	192.168.10.1	YES	manual	up		up
FastEthernet0/0.10	192.168.10.33	YES	manual	up		up
FastEthernet0/0.20	192.168.10.65	YES	manual	up		up
FastEthernet0/0.99	192.168.10.81	YES	manual	up		up
Serial0/0	63.88.27.66	YES	manual	up		up
BRI0/0 down	unassigned	YES	unset	administra	tively down	
BRI0/0:1 down	unassigned	YES	unset	administra	tively down	
BRI0/0:2 down	unassigned	YES	unset	administra	tively down	
FastEthernet0/1 down	unassigned	YES	unset	administra	tively down	
Serial0/1 down	unassigned	YES	unset	administra	tively down	
corporate# show frame-relay map Serial0/0 (up): ip 0.0.0.0 dlci 104(0x68,0x1880) broadcast,						
CISCO, status defined, inactive Serial0/0 (up): ip 0.0.0.0 dlci 103(0x67,0x1870) broadcast,						
CISCO, status defined, inactive Serial0/0 (up): ip 63.88.27.65 dlci 102(0x66,0x1860), static, CISCO, status defined, active						
corporate# show ip dhcp bin	ding	Teere			T r r r	
Hardware	/ address	Lease	expira		туре	
192.168.10.34 0100.02b3	.5de8.bf	Mar O	2 1993 3	12:18 AM	Automatic	
192.168.10.66 0100.02b3.4c23.83		Mar O	2 1993 1	12:19 AM	Automatic	
192.168.10.82 0100.02b3.4c33.aa Mar 02 1993 12:19 AM Automatic						
corporate# snow ip nat statistics Total active translations: 0 (0 static, 0 dynamic: 0 extended)						
Outside interfaces:						
Serial0/0						
Inside interfaces:						
FastEthernet0/0.1, FastEthernet0/0.10, FastEthernet0/0.20						
Hits: 531 Misses: 67						

Expired translations: 67 Dynamic mappings: -- Inside Source [Id: 1] access-list 1 interface Serial0/0 refcount 0

Acces	ss Outp	outs									
acces	ss# sho v	w vlan									
VLAN	Name				Sta	tus	Por	ts			
-											
1	defau	lt			act	ive	Fa0)/2, 1	Fa0/3		
<mark>10</mark>	accou	nting			act	ive	Fa0)/4, 1	Fa0/5, Fa(<mark>)/6</mark>	
<mark>20</mark>	market	ting			act	ive	FaO)/7,]	Fa0/8, Fa(<mark>)/9</mark>	
<mark>99</mark>	engine	eering			act	ive	Fa0)/10,	Fa0/11, H	Fa0/12	
1002	fddi-o	default			act	ive					
1003	token	-ring-defau	ılt		act	ive					
1004	fddine	et-default			act	ive					
1005	trnet	-default			act	ive					
VLAN	Туре	SAID	MTU	Parent	RingNo	Bridge	≥No	Stp	BrdgMode	Transl	Trans2
1	onot	100001	1500							0	0
10	onot	100001	1500	-	-	-		-	-	0	0
20	onot	100010	1500	_	_	_		_	_	0	0
20	onot	100020	1500					_	_	0	0
1002	faat	101002	1500	_	0	_		_	_	0	0
1002	taar	101002	1500	-	0	-		-	= awb	0	0
1003	LI Edmot	101003	1500	-	0	-		-	SID	0	0
1004	tunet	101004	1500	-	-	-		ibm	-	0	0
acces	ss# sho v	w spanning-	tree					TDu		0	0
<pre>Spanning tree 1 is executing the IEEE compatible Spanning Tree protocol Bridge Identifier has priority 32768, address 0003.e334.a0c0 Configured hello time 2, max age 20, forward delay 15 Current root has priority 24577, address 000b.fc28.d400 Root port is 13, cost of root path is 19 Topology change flag not set, detected flag not set, changes 21 Times: hold 1, topology change 35, notification 2 hello 2, max age 20, forward delay 15 Timers: hello 0, topology change 0, notification 0</pre>											
<pre>Interface Fa0/1 (port 13) in Spanning tree 1 is FORWARDING Port path cost 19, Port priority 128 Designated root has priority 24577, address 000b.fc28.d400 Designated bridge has priority 24577, address 000b.fc28.d400 Designated port is 25, path cost 0 Timers: message age 2, forward delay 0, hold 0 BPDU: sent 6, received 8667</pre>											
<pre>Interface Fa0/2 (port 14) in Spanning tree 1 is FORWARDING Port path cost 19, Port priority 128 Designated root has priority 24577, address 000b.fc28.d400 Designated bridge has priority 32768, address 0003.e334.a0c0 Designated port is 14, path cost 19 Timers: message age 0, forward delay 0, hold 0 BPDU: sent 8695, received 0 Interface Fa0/3 (port 15) in Spanning tree 1 is down</pre>											
Po	Port path cost 100, Port priority 128										

Access Outputs

Designated root has priority 24577, address 000b.fc28.d400 Designated bridge has priority 32768, address 0003.e334.a0c0 Designated port is 15, path cost 19 Timers: message age 0, forward delay 0, hold 0 BPDU: sent 2, received 0 access#show int fa 0/1 switchport Name: Fa0/1 Switchport: Enabled Administrative mode: trunk Operational Mode: trunk Administrative Trunking Encapsulation: dotlq Operational Trunking Encapsulation: dotlq Negotiation of Trunking: Disabled Access Mode VLAN: 0 ((Inactive)) Trunking Native Mode VLAN: 1 (default) Trunking VLANs Enabled: ALL Trunking VLANs Active: 1,10,20,99 Pruning VLANs Enabled: 2-1001 Priority for untagged frames: 0 Override vlan tag priority: FALSE Voice VLAN: none Appliance trust: none

Distribution Outputs

aist	ripuli	on#snow via	n							
VLAN	Name				Stat	tus I	Ports			
_										
1	defau	lt			act:	ive B	Fa0/1, 1	Fa0/2, Fa	0/3, Fa)/4
						I	Fa0/5, 1	Fa0/6		
10	accou	nting			act	ive B	Fa0/7, 1	Fa0/8, Fa	0/9, Fa	0/10
						. I	Fa0/11,	Fa0/12		
20	marke	ting			act:	ive I	Fa0/13,	Fa0/14, 1	Fa0/15,	Fa0/16
99	ongin	ooring			aat		FaU/1/, Fa0/10	Fa0/18	⊡⊃0/21	平っ 0/22
))	engrin	sering			act.	IVE I	Fa0/23.	Fa0/20, 1	.au/21,	Fa0/22
1002	fddi-	default			act:	ive	1 40 / 20 /	100/21		
1003	token	-ring-defau	lt		act	ive				
1004	fddin	et-default			act:	ive				
1005	trnet	-default			act:	ive				
171 3 1 1	T = = = =		MITTT	Demonst		Desideral		Deedeweede	T	
VLAN	туре	5AID	MIU 				NO SUP	Bragmode		
1	enet	100001	1500	_	_	_	-	_	0	0
10	enet	100010	1500	_	-	-	-	_	0	0
20	enet	100020	1500	-	-	-	-	-	0	0
99	enet	100099	1500	-	-	-	-	-	0	0
1002	fddi	101002	1500	-	-	-	-	-	0	0
	_	63 55		-				- 1 - 1	- 1	
VLAN	туре	SALD	M.T.O	Parent	KINGNO	sriagel	NO STP	sragmode	iransl	Trans2
1003	tr	101003	1500	_	_	_	_	_	0	0
1004	fdnet	101004	1500	_	-	-	ieee	-	0	0

Distribution O	outputs							
1005 trnet 1	01005 15	00 -	-	-	ibm	-	0	0
Remote SPAN	VLANs							
Drimary Seco	ndary Type		Dort					
distribution	#show spanni:	ng-tree						
VLAN0001								
Spanning t Root ID	ree enabled p Priority Address This bridge	protocol 24577 000b.fo is the	l ieee c28.d400 root					
	Hello Time	2 sec	Max Age	20 sec	Forward	d Delay 15	sec	
Bridge ID	Priority Address Hello Time	24577 000b.fc	(priority 28.d400 Max Age	24576	sys-id-e	ext 1) Delay 15	SPC	
	Aging Time	300	nan nge	20 500	1 OI WALC		500	
Interface	Port ID			De	signated			Port ID
Name Prio.Nbr	Prio.Nb	r (Cost Sts	Cos	st Bridge	e ID		
- Fa0/1	128.1		19 FWD		0 24577	000b.fc28	.d400	128.1
Fa0/3	128.3		19 FWD		0 24577	000b.fc28	.d400	128.3
Fa0/4	128.4		19 FWD		0 24577	000b.fc28	.d400	128.4
Fa0/5	128.5		19 FWD		0 24577	000b.fc28	.d400	128.5
Fa0/6	128.6		19 FWD		0 24577	000b.fc28	.d400	128.6
Gi0/1 Gi0/2	128.25 128.26		19 FWD 19 FWD		0 24577 0 24577	000b.fc28	.d400 .d400	128.25
VLAN0010								
Spanning t	ree enabled g	protocol	l ieee					
Root ID	Priority	32768						
	Address	0003.e3	334.a0c1					
	Cost Port	19 25 (Gio	abitEthe	net0/1)			
	Hello Time	2 sec	Max Age	20 sec	Forward	d Delay 15	sec	
Bridge ID	Priority	32778	(priority	y 32768	sys-id-e	ext 10)		
	Address	000b.fc	c28.d400					
	Hello Time Aging Time	2 sec 300	Max Age	20 sec	Forward	l Delay 15	sec	
Interface	Port ID			Des	signated			Port ID
Name	Prio.Nb:	r (Cost Sts	Co	st Bridge	e ID		
Prio.Nbr					_			

Distribution O	utputs			
- Gi0/1 Gi0/2	128.25 128.26	19 FWD 19 FWD	0 32768 0003.e334.a0c 19 32778 000b.fc28.d40	1 128.13 0 128.26
VLAN0020 Spanning to Root ID	ree enabled pro Priority 3 Address 0 Cost 1 Port 2 Hello Time 5	otocol ieee 2768 003.e334.a0c2 9 5 (GigabitEthernet 2 sec Max Age 20	0/1) sec Forward Delay 15 sec	
Bridge ID	Priority 3 Address 0 Hello Time 3 Aging Time 30	2788 (priority 32 00b.fc28.d400 2 sec Max Age 20)	768 sys-id-ext 20) sec Forward Delay 15 sec	
Interface Name Prio.Nbr	Port ID Prio.Nbr	Cost Sts	Designated Cost Bridge ID	Port ID
- Gi0/1 Gi0/2	128.25 128.26	19 FWD 19 FWD	0 32768 0003.e334.a0c 19 32788 000b.fc28.d40	2 128.13 0 128.26
VLAN0099 Spanning ti Root ID	ree enabled pro Priority 3 Address 0 Cost 1 Port 2 Hello Time	otocol ieee 2768 003.e334.a0c3 9 5 (GigabitEthernet 2 sec Max Age 20	0/1) sec Forward Delay 15 sec	
Bridge ID	Priority 3: Address 0 Hello Time 30 Aging Time 30	2867 (priority 32 00b.fc28.d400 2 sec Max Age 20)	768 sys-id-ext 99) sec Forward Delay 15 sec	
Interface Name Prio.Nbr	Port ID Prio.Nbr	Cost Sts	Designated Cost Bridge ID	Port ID
- Gi0/1 Gi0/2	128.25 128.26	19 FWD 19 FWD	0 32768 0003.e334.a0c 19 32867 000b.fc28.d40	3 128.13 0 128.26
distribution# show int gi 0/1 switchport Name: Gi0/1 Switchport: Enabled Administrative Mode: trunk Operational Mode: trunk Administrative Trunking Encapsulation: dotlq Operational Trunking Encapsulation: dotlq Negotiation of Trunking: On				

Distribution Outputs

Access Mode VLAN: 1 (default) Trunking Native Mode VLAN: 1 (default) Administrative private-vlan host-association: none Administrative private-vlan mapping: none Operational private-vlan: none Trunking VLANs Enabled: ALL Pruning VLANs Enabled: 2-1001

Protected: false

Voice VLAN: none (Inactive) Appliance trust: none distribution# show int gi 0/2 switchport Name: Gi0/2 Switchport: Enabled Administrative Mode: trunk Operational Mode: trunk Administrative Trunking Encapsulation: dotlg Operational Trunking Encapsulation: dotlq Negotiation of Trunking: On Access Mode VLAN: 1 (default) Trunking Native Mode VLAN: 1 (default) Administrative private-vlan host-association: none Administrative private-vlan mapping: none Operational private-vlan: none Trunking VLANs Enabled: ALL Pruning VLANs Enabled: 2-1001

Protected: false

Voice VLAN: none (Inactive) Appliance trust: none

EIGRP Running Configurations:

	uons.	
ISP 11/22/06 (EIGRP)	BR_1 11/22/06 (EIGRP)	BR_2 11/22/06 (EIGRP)
Current configuration : 1237 bytes	Current configuration : 1017 bytes	Current configuration : 1189 bytes
<output omitted=""></output>	<output omitted=""></output>	<output omitted=""></output>
1	1	!
hostname isp	hostname br 1	hostname br 2
1	-	-
enable secret 5	enable secret 5	enable secret 5
\$1\$3hV6\$gLta9al4ACLDRZ.lr5sD50	\$1\$2F6h\$lkPUiSNTHp44uCTXawKKh	\$1\$Vawa\$1E8e5tenig47DNIgBrPVT0
1	1	1
username br 1 password 0 cisco	username br. 2 password 0 cisco	username br 1 password 0 cisco
username br 2 password 0 cisco	username isp password 0 cisco	username isp password 0 cisco
in subnet-zero	memory-size iomem 15	memory-size jomem 15
	in subnet-zero	in subnet-zero
no in domain-lookun	no in domain-lookun	no in domain-lookun
<output omitted=""></output>	<output omitted=""></output>	· <output omitted=""></output>
\output officieu>		soutput onneted>
: interface EastEthernot(/)	: interface EastEthernot(/()	interface Loophack100
in address 62.88.27.120.255.255.255.128	in address 172 16 0 120 255 255 255 102	in address 10.10.10.10.255.255.255.252
lp address 05.00.27.129 255.255.255.120	durlay outo	Ip address 10.10.10.10 255.255.255.252
apped auto	amond auto	! interface FeetEthermat0/0
speed auto	speed auto	in address 172 16 0 1 255 255 255 129
interface Seriel0/0	! interface Seriel0/0	Ip address 1/2.10.0.1 255.255.255.128
interface Serial0/0	interface Serial0/0	duplex auto
ip address 63.88.27.65 255.255.255.252	1p address 207.62.41.29 255.255.255.252	speed auto
encapsulation frame-relay	encapsulation ppp	
frame-relay map 1p 63.88.27.66 201	ppp authentication chap	interface Serial0/0
		1p address 207.62.41.30 255.255.255.252
interface FastEthernet0/1	interface Serial0/1	encapsulation ppp
no ip address	1p address 207.62.41.22 255.255.255.252	no fair-queue
shutdown	encapsulation ppp	clockrate 64000
duplex auto	clockrate 64000	ppp authentication chap
speed auto	ppp authentication chap	
		interface Serial0/1
interface Serial0/1	router eigrp 1	ip address 207.62.41.26 255.255.255.252
ip address 207.62.41.25 255.255.255.252	passive-interface FastEthernet0/0	encapsulation ppp
encapsulation ppp	network 172.16.0.128 0.0.0.63	clockrate 64000
ppp authentication chap	network 207.62.41.20 0.0.0.3	ppp authentication chap
!	network 207.62.41.28 0.0.0.3	!
interface Serial0/2	no auto-summary	router eigrp 1
no ip address		redistribute static
shutdown	ip classless	passive-interface FastEthernet0/0
1	ip http server	network 172.16.0.0 0.0.0.127
interface Serial0/3		network 207.62.41.24 0.0.0.3
ip address 207.62.41.21 255.255.255.252	<output omitted=""></output>	network 207.62.41.28 0.0.0.3
encapsulation ppp	!	no auto-summary
ppp authentication chap	line con 0	!
!	exec-timeout 0 0	ip classless
router eigrp 1	logging synchronous	ip route 0.0.0.0 0.0.0.0 Loopback100
redistribute connected	line aux 0	ip http server
redistribute static	line vty 0 4	1
passive-interface FastEthernet0/0	password cisco	<output omitted=""></output>
network 63.88.27.128 0.0.0.127	login	!

ISP 11/22/06 (EIGRP)	BR_1 11/22/06 (EIGRP)	BR_2 11/22/06 (EIGRP)
network 207.62.41.20 0.0.0.3	!	line con 0
network 207.62.41.24 0.0.0.3	end	exec-timeout 0 0
no auto-summary		logging synchronous
!		line aux 0
ip classless		line vty 0 4
ip http server		password cisco
!		login
<output omitted=""></output>		!
!		end
line con 0		
exec-timeout 0 0		
logging synchronous		
line aux 0		
line vty 0 4		
password cisco		
login		
!		
End		

EIGRP Routing tables:

ISP Router (EIGRP)
Codes: C - connected, S - static, I - IGRP, R - RIP, M - mobile, B - BGP
D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
i - IS-IS, su - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS level-2
ia - IS-IS inter area, * - candidate default, U - per-user static route
o - ODR, P - periodic downloaded static route
Gateway of last resort is 207.62.41.26 to network 0.0.0.0
172.16.0.0/16 is variably subnetted, 2 subnets, 2 masks
D 172.16.0.128/26 [90/2172416] via 207.62.41.22, 02:27:16, Serial0/3
D 172.16.0.0/25 [90/2172416] via 207.62.41.26, 02:27:02, Serial0/1
207.62.41.0/24 is variably subnetted, 7 subnets, 2 masks
C 207.62.41.24/30 is directly connected, Serial0/1
C 207.62.41.26/32 is directly connected, Serial0/1
D 207.62.41.28/30 [90/21024000] via 207.62.41.26, 02:29:52, Serial0/1
[90/21024000] via 207.62.41.22, 02:29:52, Serial0/3
D 207.62.41.29/32 [90/21024000] via 207.62.41.26, 02:29:56, Serial0/1
D 207.62.41.30/32 [90/21024000] via 207.62.41.22, 02:29:52, Serial0/3
C 207.62.41.20/30 is directly connected, Serial0/3
C 207.62.41.22/32 is directly connected, Serial0/3
63.0.0.0/8 is variably subnetted, 2 subnets, 2 masks
C 63.88.27.64/30 is directly connected, Serial0/0
C 63.88.27.128/25 is directly connected, FastEthernet0/0
D*EX 0.0.0.0/0 [170/2297856] via 207.62.41.26, 02:29:58, Serial0/1

BR_1 Router (EIGRP)
Codes: C - connected, S - static, I - IGRP, R - RIP, M - mobile, B - BGP
D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
i - IS-IS, su - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS level-2
ia - IS-IS inter area, * - candidate default, U - per-user static route
o - ODR, P - periodic downloaded static route
Gateway of last resort is 207.62.41.30 to network 0.0.0.0
172 16 0 0/16 is variably subnetted 2 subnets 2 masks
C = 172.16.0.128/26 is directly connected. FastEthernet0/0
$D = \frac{172.16.0.0}{25} \frac{90}{20514560} \text{ via } 207.62.41.30. 02:31:28. Serial0/0$
207.62.41.0/24 is variably subnetted, 7 subnets, 2 masks
D = 207.62.41.24/30 [90/21024000] via 207.62.41.30, 02:34:17, Serial0/0
[90/21024000] via 207.62.41.21, 02:34:17, Serial0/1
D 207.62.41.25/32 [90/21024000] via 207.62.41.30, 02:34:19, Serial0/0
D 207.62.41.26/32 [90/21024000] via 207.62.41.21, 02:34:17, Serial0/1
C 207.62.41.28/30 is directly connected, Serial0/0
C 207.62.41.30/32 is directly connected, Serial0/0
C 207.62.41.20/30 is directly connected, Serial0/1
C 207.62.41.21/32 is directly connected, Serial0/1
63.0.0.0/8 is variably subnetted, 2 subnets, 2 masks
D EX 63.88.27.64/30 [170/21024000] via 207.62.41.21, 02:34:19, Serial0/1
D 63.88.27.128/25 [90/20514560] via 207.62.41.21, 02:31:15, Serial0/1
D*EX 0.0.0.0/0 [170/20640000] via 207.62.41.30, 02:34:19, Serial0/0

BR 2 Router (EIGRP)

Codes: C - connected, S - static, I - IGRP, R - RIP, M - mobile, B - BGP D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2 E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area * - candidate default, U - per-user static route, o - ODR P - periodic downloaded static route Gateway of last resort is 0.0.0.0 to network 0.0.0.0 172.16.0.0/16 is variably subnetted, 2 subnets, 2 masks D 172.16.0.128/26 [90/20514560] via 207.62.41.29, 00:02:54, Serial0/0 172.16.0.0/25 is directly connected, FastEthernet0/0 $\,$ С 207.62.41.0/24 is variably subnetted, 7 subnets, 2 masks 207.62.41.24/30 is directly connected, Serial0/1 С С 207.62.41.25/32 is directly connected, Serial0/1 С 207.62.41.28/30 is directly connected, Serial0/0 С 207.62.41.29/32 is directly connected, Serial0/0 207.62.41.20/30 [90/21024000] via 207.62.41.25, 00:02:55, Serial0/1 D [90/21024000] via 207.62.41.29, 00:02:55, Serial0/0 207.62.41.21/32 [90/21024000] via 207.62.41.29, 00:02:55, Serial0/0 D 207.62.41.22/32 [90/21024000] via 207.62.41.25, 00:02:57, Serial0/1 D 10.0.0/30 is subnetted, 1 subnets С 10.10.10.8 is directly connected, Loopback100 63.0.0/25 is subnetted, 1 subnets

D	63.88.27.128 [90/20514560] via 207.62.41.25, 00:02:55, Serial0/1	
S*	0.0.0.0/0 is directly connected, Loopback100	

Command Summary:

CommandDescriptionHeletef flash:vlan.datClears the 'VLAN' data stored in flash#erase startup-configErase any previous running configs stored in memory#reloadRestarts the IOS after removing any stored startup- configs#clear mac-address-table secureClears any previously stored port-security data#vlan databaseAssign VLAN database to Cisco 2900XL#vtp dientAssigns switch status to 'client' – Propagates data w/ 'server'#vtp domain corporateAssigns the name 'marketing' to VLAN 20#vtp domain corporateAssigns ULAN database password to 'cisco'(config-if)#switchport mode access (config-if)#switchport access vlan 20Configue interface port #7 of Cisco 2900XL switch Assigns port #7 as 'access mode' on 2900XL switch Assigns maximum 1 mac address to port #7 on the switch Assigns ip address and subnet mask to 'VLAN 1'(config-if)#switchport access vlan 20Assigns 2950 as root switch and enables 'spanning tree'(config-if)#switchport port-security Enables port securityStassigns dher access 1 MAC addresses = 1 maximum 1 mac address to port security(config-if)#switchport port-security Fip dhep excluded-address Hip dhep pool vlan1 #network 192.168.10.0If port exceuds 1 MAC addresses = 1 Address cannot be issued during 'DHCP'192.168.10.01 252.552.525.224Address cannot be issued during 'DHCP'192.168.10.01 252.552.525.224Configure interface fast Ethernet 0/0.1 Enables he interface to accept 802.1Q VLAN packets Assigns in address and subnet mask for interface Enables Network Address Translation on incoming packets		
#delete flash:vlan.dat Clears the 'VLAN' data stored in flash #erase startup-config Erase any previous running configs stored in memory #reload Restarts the IOS after removing any stored startup-configs #dear port-security dynamic Clears any previously stored PAC addresses #dear port-security dynamic Clears previously stored port-security data #vtn database Assign SWLAN database to Cisco 2900XL #vtp server Create, delete, modify VLANS in 'vtp server mode' #vtp server Create, delete, modify VLANS in 'vtp server mode' #vtp assword cisco Assigns ULAN database password to 'cisco' (config-if)#in fa 0/7 Configure interface port #7 of Cisco 2900XL switch Assigns brut #7 as 'access mode' on 2900XL switch Assigns maximum 1 mac address to port #7 on the (config-if)#switchport mode access (config-if)#switchport port-security (config-if)#ip add 192.168.10.3 255.255.255.254 (config-if)#switchport port-security Enables port security (config-if)#switchport port-security Enables port security (config-if)#switchport port-security Sets maximum MAC addresses = 1 maximum 1 If port exceeds 1 MAC addresses = 1 (config-if)#switchport port-security Sets maximum MAC address	Command	Description
#erase startup-configErase any previous running configs stored in memory#reloadRestarts the IOS after removing any stored startup- configs#clear mac-address-table secureClears any previously stored MAC addresses#clear port-security dynamicClears previously stored port-security data#vlan databaseAssign VLAN database to Cisco 2900XL#vtp clientAssigns switch status to 'client' – Propagates data w/ 'server'#vtp serverCreate, delete, modify VLANS in 'vtp server mode'#vtp ame marketingAssigns the name 'marketing' to VLAN 20#vtp password ciscoAssigns domain name 'corporate'.(config-if)#switchport mode accessConfigure interface port #7 of Cisco 2900XL switch(config-if)#port security max 1Assigns maximum 1 mac address to port #7 on the switch(config-if)#port security max 1Assigns the 'access port #7' to 'VLAN 20'(config-if)#port security max 1Assigns in address and subnet mask to 'VLAN 1'(config-if)#switchport port-securityAssigns in address and subnet mask to 'VLAN 1'(config-if)#switchport port-securitySets maximum MAC addresses = 1(config-if)#switchport port-securitySets maximum MAC addresses = 1(config-if)#switchport port-securityShows port security messages#ip dhcp excluded-addressAddress cannot be issued during 'DHCP'192.168.10.65Hip of the pool vlan1#ip dhcp pool vlan1Assigns a range of ip addresses for VLAN 1#hetwork 192.168.10.1Configure interface fast Ethernet 0/0.1#ip add 192.168.10.1Configure interface to accept 802.	#delete flash:vlan.dat	Clears the 'VLAN' data stored in flash
#reloadRestarts the IOS after removing any stored startup- configs#clear mac-address-table secureClears any previously stored MAC addresses#clear port-security dynamicClears any previously stored port-security data#vlan databaseAssign VLAN database to Cisco 2900XL#vtp clientAssigns switch status to 'client' – Propagates data w/ 'server'#vtp serverCreate, delete, modify VLANS in 'vtp server mode'#vtp asword ciscoAssigns domain name 'corporate'.#vtp bassword ciscoAssigns VLAN database password to 'cisco'(config-if)#switchport mode accessConfigure interface port #7 of Cisco 2900XL switch(config-if)#port security max 1Assigns maximum 1 mac address to port #7 on the switch(config-if)#switchport access vlan 20Sasigns the 'access port #7' to 'VLAN 20'(config-if)#switchport port-securityAssigns and subnet mask to 'VLAN 1'(config-if)#switchport port-securityEnables port security(config-if)#switchport port-securityEnables port security(config-if)#switchport port-securityStes maximum MAC addresses = 1maximum 1If port security messages#ip dhcp exclude-addressAddress cannot be issued during 'DHCP'192.168.10.65Assigns a range of ip addresses for VLAN 1#ip dhcp pool vlan1Assigns a range of ip addresses for VLAN 1#hetwork 192.168.10.1Configure interface fast Ethernet 0/0.1#ip add 192.168.10.1Configure interface to accept 802.1Q VLAN packets#ip add 192.168.10.1Configure interface to accept 802.1Q VLAN packets#ip add 1	#erase startup-config	Erase any previous running configs stored in memory
configs#clear mac-address-table secureClears any previously stored MAC addresses#clear port-security dynamicClears any previously stored port-security data#vlan databaseAssign VLAN database to Cisco 2900XL#vtp clientAssigns switch status to 'client' – Propagates data w/ 'server'#vtp aserverCreate, delete, modify VLANS in 'vtp server mode'#vtp domain corporateAssigns the name 'marketing' to VLAN 20#vtp domain corporateAssigns VLAN database password to 'cisco'(config)#inf fa 0/7Configure interface port #7 of Cisco 2900XL switch(config-if)#switchport mode accessConfigure interface port #7 of Cisco 2900XL switch(config-if)#switchport access vlan 20Assigns maximum 1 mac address to port #7 on the switch(config-if)#switchport access vlan 20Assigns is address and subnet mask to 'VLAN 1'(config-if)#switchport port-securityAssigns port #7 is 'access mode' on 2900XL switch(config-if)#switchport port-securityAssigns port #7 to 'VLAN 20'(config-if)#switchport port-securityAssigns 2950 as root switch and enables 'spanning tree'(config-if)#switchport port-securityEnables port security(config-if)#switchport port-security violation shutdownIf port exceeds 1 MAC addresses = 1maximum 1Assigns dhcp to VLAN 1255.255.255.255.255.254Address cannot be issued during 'DHCP'192.168.10.65Hip dhcp pool vlan1 #network 192.168.10.1#ip add 192.168.10.1Configure interface fast Ethernet 0/0.1#ip add 192.168.10.1Configure interface to accept 802.1Q VLAN packets	#reload	Restarts the IOS after removing any stored startup-
#clear mac-address-table secureClears any previously stored MAC addresses#clear port-security dynamicClears previously stored port-security data#vlan databaseAssign VLAN database to Cisco 2900XL#vtp clientAssigns witch status to 'client' – Propagates data w/ 'server'#vtp aseverCreate, delete, modify VLANS in 'vtp server mode'#vtp assword ciscoAssigns the name 'marketing' to VLAN 20#vtp password ciscoAssigns VLAN database password to 'cisco'(config-if)#switchport mode accessConfigure interface port #7 of Cisco 2900XL switch(config-if)#switchport mode accessConfigure interface port #7 to 'VLAN 20'(config-if)#switchport access vlan 20switch(config-if)#switchport access vlan 20Assigns port #7 as 'access mode' on 2900XL switch(config-if)#switchport port-securityAssigns port #7 to 'VLAN 20'(config-if)#switchport port-securityAssigns ip address and subnet mask to 'VLAN 1'(config-if)#switchport port-securityEnables port security(config-if)#switchport port-securitySets maximum MAC addresses = 1maximum 1If port exceeds 1 MAC address, then action is to 'shutdown#bot pool vlan1Assigns dip to VLAN 1#network 192.168.10.0Assigns a range of ip addresses for VLAN 1255.255.252.24High the pool vlan1#ip dhcp pool vlan1Assigns a range of ip addresses for VLAN 1#hereary add 192.168.10.1Configure interface fast Ethernet 0/0.1(config)#int fa0/0.1Configure interface to accept 802.1Q VLAN packets#ip add 192.168.10.1Configure		configs
#clear port-security dynamicClears previously stored port-security data#vtn databaseAssign VLAN database to Cisco 2900XL#vtp clientAssigns witch status to 'client' – Propagates data w/ 'server'#vtp serverCreate, delete, modify VLANS in 'vtp server mode'#vtp asword corporateAssigns the name 'marketing' to VLAN 20#vtp domain corporateAssigns the name 'marketing' to VLAN 20#vtp asword ciscoAssigns the name 'corporate'.#vtp asword ciscoAssigns VLAN database password to 'cisco'(config-if)#mit fa 0/7Configure interface port #7 of Cisco 2900XL switch(config-if)#switchport mode accessConfigure interface port #7 of Cisco 2900XL switch(config-if)#switchport access vlan 20Assigns maximum 1 mac address to port #7 on the ssigns port #7 as 'access mode' on 2900XL switchAssigns ip address and subnet mask to 'VLAN 1'Assigns ip address and subnet mask to 'VLAN 1'(config-if)#switchport port-securityEnables port security(config-if)#switchport port-securitySets maximum MAC addresses = 1(config-if)#switchport port-securityIf port exceeds 1 MAC address, then action is to 'shutdown'#show port_securityShows port security messages#ip dhcp pool vlan1 #network 192.168.10.1Assigns drapt of paddress and subnet mask for 'VLAN 1Assigns default gatewayAssigns default gateway#ip dd 192.168.10.1Configure interface to accept 802.1Q VLAN packets Assigns ip address and subnet mask for interface fige-add log.125.255.255.255.255.254#ip dd 192.168.10.1Configure interface to accept 802.1Q VLAN packet	#clear mac-address-table secure	Clears any previously stored MAC addresses
#vlan databaseAssign VLAN database to Cisco 2900XL#vtp clientAssigns switch status to 'client' – Propagates data w/ 'server'#vtp serverCreate, delete, modify VLANS in 'vtp server mode'#vtp a20 name marketingAssigns be name 'marketing' to VLAN 20#vtp domain corporateAssigns domain name 'corporate'.#vtp password ciscoAssigns VLAN database password to 'cisco'(config)#int fa 0/7Configure interface port #7 of Cisco 2900XL switch(config-if)#switchport mode accessConfigure interface port #7 or Cisco 2900XL switch(config-if)#switchport access vlan 20Assigns port #7 as 'access mode' on 2900XL switch(config-if)#switchport access vlan 20Assigns in address and subnet mask to 'VLAN 12'(config-if)#switchport port-securityAssigns ip address and subnet mask to 'VLAN 12'(config-if)#switchport port-securityEnables port security(config-if)#switchport port-securityEnables port security(config-if)#switchport port-securityIf port exceeds 1 MAC address, then action is to 'shutdown'#show port_securityShows port security messages#ip dhcp pool vlan1Assigns dhcp to VLAN 1#network 192.168.10.1Assigns default gateway#ip add 192.168.10.1Configure interface to accept 802.1Q VLAN packetsAssigns dotl q 1 nativeConfigure interface to accept 802.1Q VLAN packets#ip add 192.168.10.1 255.255.255.255.224Assigns a range of ip address and subnet mask for interface#ip add 192.168.10.1 255.255.255.255.224Assigns betwork Address Translation on incoming packets	#clear port-security dynamic	Clears previously stored port-security data
#vtp clientAssigns switch status to 'client' – Propagates data w/ 'server'#vtp serverCreate, delete, modify VLANS in 'vtp server mode'#vtp assword ciscoAssigns domain name 'corporate'.#vtp password ciscoAssigns VLAN database password to 'cisco'(config-if)#switchport mode access (config-if)#switchport access vlan 20)Configure interface port #7 of Cisco 2900XL switch Assigns port #7 as 'access mode' on 2900XL switch Assigns maximum 1 mac address to port #7 on the switch Assigns ip address and subnet mask to 'VLAN 20'(config-if)#switchport access vlan 20Assigns ip address and subnet mask to 'VLAN 1'(config-if)#switchport port-securityAssigns ip address and subnet mask to 'VLAN 1'(config-if)#switchport port-securityEnables port security(config-if)#switchport port-securityEnables port security(config-if)#switchport port-securitySets maximum MAC addresses = 1(config-if)#switchport port-securityIf port exceeds 1 MAC address, then action is to 'shutdown'#show port_securityShows port security messages#ip dhcp pool vlan1 #network 192.168.10.1Assigns dhcp to VLAN 1252.55.252.24Configure interface fast Ethernet 0/0.1(config)#int fa0/0.1 #potale.10.1Configure interface fast Ethernet 0/0.1(config-if)#switchport port-securityShows port security messages#ip dhcp pool vlan1 #network 192.168.10.1 255.255.255.255.224Assigns and gubnet mask for interface Assigns and subnet mask for interface Assigns and subnet mask for interface Assigns ip address and subnet mask for interface Assigns ip address and subnet mask for interface <br< th=""><th>#vlan database</th><th>Assign VLAN database to Cisco 2900XL</th></br<>	#vlan database	Assign VLAN database to Cisco 2900XL
*server*server#vtp serverCreate, delete, modify VLANS in 'vtp server mode'#vtp and name marketingAssigns the name 'marketing' to VLAN 20#vtp domain corporateAssigns domain name 'corporate'.#vtp password ciscoAssigns domain name 'corporate'.#vtp password ciscoAssigns VLAN database password to 'cisco'(config-if)#switchport mode accessConfigure interface port #7 of Cisco 2900XL switch(config-if)#switchport access vlan 20Configure interface port #7 of 'VLAN 20'(config-if)#switchport access vlan 20Assigns ip address and subnet mask to 'VLAN 1'(config-if)#switchport port-securityAssigns ip address and subnet mask to 'VLAN 1'(config-if)#switchport port-securityEnables port security(config-if)#switchport port-securityIf port security(config-if)#switchport port-securitySets maximum MAC addresses = 1maximum 1If port exceeds 1 MAC address, then action is to 'shutdown'*shudownShows port security messages#ip dhcp pool vlan1Assigns dhcp to VLAN 1#network 192.168.10.0Assigns dhcp to VLAN 1255.255.252.224Assigns dhcp to VLAN 1(config-if)#switchport port-securityShows port security messages#ip dhcp pool vlan1Assigns a range of ip addresses for VLAN 1255.255.252.224Assigns default gateway#default-router 192.168.10.1Configure interface fast Ethernet 0/0.1(config-if)#switchport port-securityEnables Network Address Translation on incoming packets	#vtp client	Assigns switch status to 'client' – Propagates data w/
#vtp serverCreate, delete, modify VLANS in 'vtp server mode'#vtp a20 name marketingAssings the name 'marketing' to VLAN 20#vtp domain corporateAssigns domain name 'corporate'.#vtp password ciscoAssigns VLAN database password to 'cisco'(config-if)#switchport mode accessConfigure interface port #7 of Cisco 2900XL switch(config-if)#switchport access vlan 20Assigns maximum 1 mac address to port #7 on the(config-if)#switchport access vlan 20Assigns maximum 1 mac address to port #7 on the(config-if)#switchport access vlan 20Assigns ip address and subnet mask to 'VLAN 20'(config-if)#switchport port-securityAssigns ip address and subnet mask to 'VLAN 1'(config-if)#spanning-tree vlan 1 root primaryAssigns 2950 as root switch and enables 'spanning tree'(config-if)#switchport port-securityEnables port security(config-if)#switchport port-securitySets maximum MAC addresses = 1maximum 1If port exceeds 1 MAC address, then action is to 'shutdown'#show port_securityShows port security messages#ip dhcp pool vlan1Assigns dhcp to VLAN 1#network 192.168.10.0Assigns dhcp to VLAN 1255.255.252.254Assigns default gateway#default-router 192.168.10.1Configure interface fast Ethernet 0/0.1(config)#int fa0/0.1Configure interface fast Ethernet 0/0.1#ip add 192.168.10.1 255.255.255.254Assigns ip address and subnet mask for interface#ip add 192.168.10.1 255.255.255.254Assigns ip address and subnet mask for interface#ip add 192.168.10.1 255.255.255.254Assigns ip		'server'
#vlan 20 name marketingAssings the name 'marketing' to VLAN 20#vtp domain corporateAssings the name 'marketing' to VLAN 20#vtp domain corporateAssings domain name 'corporate'.#vtp password ciscoAssigns domain name 'corporate'.(config)#int fa 0/7Configure interface port #7 of Cisco 2900XL switch(config-if)#switchport mode accessAssigns maximum 1 mac address to port #7 on the(config-if)#port security max 1Configure interface port #7 of VLAN 20'(config-if)#switchport access vlan 20Assigns maximum 1 mac address to port #7 on the(config-if)#switchport access vlan 20Switch(config-if)#switchport port-securityAssigns ip address and subnet mask to 'VLAN 1'(config-if)#switchport port-securityEnables port security(config-if)#switchport port-securitySets maximum MAC addresses = 1(config-if)#switchport port-securityIf port exceeds 1 MAC address, then action is to 'shutdown'*shutownShows port security messages#ip dhcp pool vlan1Assigns dhca to VLAN 1#network 192.168.10.0Assigns a range of ip addresses for VLAN 1255.255.252.24Configure interface fast Ethernet 0/0.1(config)#int fa0/0.1Configure interface fast Ethernet 0/0.1#network 192.168.10.1 255.255.255.254Configure interface fast Ethernet 0/0.1#ip add 192.168.10.1 255.255.255.254Assigns ip address and subnet mask for interface#ip add 192.168.10.1 255.255.255.254Assigns ip address and subnet mask for interface#ip add 192.168.10.1 255.255.255.254Assigns ip address and subnet mask for interface<	#vtp server	Create, delete, modify VLANS in 'vtp server mode'
#vtp domain corporateAssigns domain name 'corporate'.#vtp password ciscoAssigns VLAN database password to 'cisco'(config.if)#switchport mode accessConfigure interface port #7 of Cisco 2900XL switch(config.if)#port security max 1Assigns port #7 as 'access mode' on 2900XL switch(config.if)#port security max 1Assigns maximum 1 mac address to port #7 on the(config.if)#switchport access vlan 20switch(config.if)#switchport access vlan 20Assigns the 'access port #7' to 'VLAN 20'(config.if)#switchport part.securityAssigns ip address and subnet mask to 'VLAN 1'(config.if)#spanning-tree vlan 1 root primaryAssigns 2950 as root switch and enables 'spanning tree'(config.if)#switchport port-securityEnables port security(config.if)#switchport port-securitySets maximum MAC addresses = 1(config.if)#switchport port-security violationIf port exceeds 1 MAC address, then action is to 'shutdown'#show port_securityShows port security messages#ip dhcp excluded-addressAddress cannot be issued during 'DHCP'192.168.10.65Address cannot be issued during 'DHCP'#ip dhcp pool vlan1Assigns a range of ip addresses for VLAN 1#network 192.168.10.1Configure interface fast Ethernet 0/0.1#encaps dot1q 1 nativeEnables the interface fast Ethernet 0/0.1#ip add 192.168.10.1 255.255.255.2254Enables Network Address Translation on incoming packets	#vlan 20 name marketing	Assings the name 'marketing' to VLAN 20
#vtp password ciscoAssigns VLAN database password to 'cisco'(config)#int fa 0/7Configure interface port #7 of Cisco 2900XL switch(config-if)#switchport mode accessAssigns vLAN database password to 'cisco'(config-if)#switchport access vlan 20Configure interface port #7 of Cisco 2900XL switch(config-if)#switchport access vlan 20Assigns maximum 1 mac address to port #7 on the(config-if)#switchport access vlan 20Switch(config-if)#switchport access vlan 20Assigns ip address and subnet mask to 'VLAN 20'(config-if)#switchport port-securityAssigns 2950 as root switch and enables 'spanning tree'(config-if)#switchport port-securityEnables port security(config-if)#switchport port-securitySets maximum MAC addresses = 1(config-if)#switchport port-securityIf port exceeds 1 MAC address, then action is to 'shutdown'#show port_securityShows port security messages#ip dhcp excluded-addressAddress cannot be issued during 'DHCP'#ip dhcp pool vlan1Assigns a range of ip addresses for VLAN 1#network 192.168.10.0Assigns a range of ip addresses for VLAN 1255.255.255.224Configure interface fast Ethernet 0/0.1#ip dhcp pool vlan1Assigns a range of ip addresses for VLAN 1#network 192.168.10.1Configure interface fast Ethernet 0/0.1#ip add 192.168.10.1Configure interface fast Ethernet 0/0.1#ip add 192.168.10.1Configure interface fast fast for interface#ip add 192.168.10.1Configure interface fast fast for interface#ip add 192.168.10.1Configure interface fast fast	#vtp domain corporate	Assigns domain name 'corporate'
Interpretain the outcome(config)#int ta 0/7(config)ifint fa 0/7(config-if)#switchport mode access(config-if)#switchport mode access(config-if)#switchport access vlan 20(config-if)#switchport port-security(config-if)#switchport port-security(config-if)#switchport port-security(config-if)#switchport port-security(config-if)#switchport port-security violationshutdown#ip dhcp excluded-address#ip dhcp pool vlan1#network 192.168.10.0255.255.255.224(config)#int fa0/0.1(config)#int fa0/0.1#ip add 192.168.10.1(config) ad	#vtp usinum corporate	Assigns VI AN database password to 'cisco'
Config-infly#witchport mode access (config-if)#switchport access vlan 20Assigns port #7 as 'access mode' on 2900XL switch Assigns maximum 1 mac address to port #7 on the switch (config-if)#switchport access vlan 20(config-if)#switchport access vlan 20Assigns maximum 1 mac address to port #7 on the switch Assigns maximum 1 mac address to port #7 on the switch (config-if)#switchport access vlan 20(config-if)#switchport access vlan 20Assigns maximum 1 mac address to port #7 on the switch Assigns ip address and subnet mask to 'VLAN 20'(config-if)#spanning-tree vlan 1 root primary (config-if)#switchport port-securityAssigns 2950 as root switch and enables 'spanning tree'(config-if)#switchport port-security maximum 1Enables port security(config-if)#switchport port-security maximum 1If port exceeds 1 MAC addresses = 1(config-if)#switchport port-security violation shutdownIf port exceeds 1 MAC address, then action is to 'shutdown'#show port_security 192.168.10.65Shows port security messages#ip dhcp pool vlan1 #network 192.168.10.1Assigns dhcp to VLAN 1 Assigns a range of ip addresses for VLAN 1 Assigns a range of ip addresses for VLAN 1 Assigns default gateway#default-router 192.168.10.1Configure interface fast Ethernet 0/0.1 Enables the interface fast Ethernet 0/0.1 Enables Network Address Translation on incoming packets	(config)#int fa $0/7$	Configure interface port #7 of Cisco 2000XL switch
(config-if)#switchport note access (config-if)#port security max 1 (config-if)#switchport access vlan 20Assigns maximum 1 mac address to port #7 on the switch Assigns maximum 1 mac address to port #7 on the switch (config-if)#switchport access vlan 20(config-if)#switchport access vlan 20Assigns maximum 1 mac address to port #7 on the switch Assigns ip address and subnet mask to 'VLAN 20'(config-if)#spanning-tree vlan 1 root primary (config-if)#switchport port-securityAssigns 2950 as root switch and enables 'spanning tree'(config-if)#switchport port-security (config-if)#switchport port-security maximum 1Enables port security(config-if)#switchport port-security violation shutdownIf port exceeds 1 MAC address, then action is to 'shutdown'#show port_security #spanned-address 192.168.10.65Shows port security messages#ip dhcp pool vlan1 #network 192.168.10.0 255.255.255.224Assigns dhcp to VLAN 1 Assigns a range of ip addresses for VLAN 1 Assigns default gateway(config)#int fa0/0.1 #encaps dot1q 1 native #ip add 192.168.10.1 255.255.255.224 #ip nat insideConfigure interface fast Ethernet 0/0.1 Enables the interface to accept 802.1Q VLAN packets Assigns ip address and subnet mask for interface Enables Network Address Translation on incoming packets	(config if)#switchport mode access	Assigns port #7 as 'access mode' on 2000XL switch
(config-if)#switchport access vlan 20(config.if)#int vlan1 (config.if)#ip add 192.168.10.3 255.255.224Assigns ip address and subnet mask to 'VLAN 1'(config-if)#spanning-tree vlan 1 root primary (config-if)#switchport port-security (config-if)#switchport port-security maximum 1Assigns 2950 as root switch and enables 'spanning tree'(config-if)#switchport port-security (config-if)#switchport port-security maximum 1Enables port security Sets maximum MAC addresses = 1(config-if)#switchport port-security maximum 1If port exceeds 1 MAC address, then action is to 'shutdown'#show port_security #show port_securityShows port security messages#ip dhcp excluded-address 192.168.10.65Address cannot be issued during 'DHCP'#uetwork 192.168.10.0 255.255.255.224 #default-router 192.168.10.1Assigns dhcp to VLAN 1 Assigns a range of ip addresses for VLAN 1 Assigns default gateway#default-router 192.168.10.1 #metages dot1q 1 native #ip add 192.168.10.1 255.255.255.225Configure interface fast Ethernet 0/0.1 Enables the interface to accept 802.1Q VLAN packets Assigns ip address and subnet mask for interface Enables Network Address Translation on incoming packets	(config if)#port socurity may 1	Assigns maximum 1 mac address to port #7 on the
SwitchSwitch(config)#int vlan1 (config:ib#ip add 192.168.10.3 255.255.255.224Assigns ip address and subnet mask to 'VLAN 1'(config-ib#spanning-tree vlan 1 root primary (config-ib)#switchport port-securityAssigns 2950 as root switch and enables 'spanning tree'(config-if)#switchport port-security (config-if)#switchport port-security maximum 1Enables port security(config-if)#switchport port-security maximum 1Sets maximum MAC addresses = 1(config-if)#switchport port-security violation shutdownIf port exceeds 1 MAC address, then action is to 'shutdown'#show port_security #show port_securityShows port security messages#ip dhcp excluded-address #ip dhcp pool vlan1 #network 192.168.10.0 255.255.255.224Assigns dhcp to VLAN 1 Assigns a range of ip addresses for VLAN 1 Assigns default gateway#default-router 192.168.10.1 #ip add 192.168.10.1 255.255.255.224 #ip add 192.168.10.1 255.25	(config if)#switchport scenes ylop 20	Assigns maximum 1 mae address to port π / on the address to port π
Assigns the access port #7 to VLAN 20(config)#int vlan1 (config-if)#ip add 192.168.10.3 255.255.255.224Assigns ip address and subnet mask to 'VLAN 1'(config-if)#spanning-tree vlan 1 root primary (config-if)#switchport port-security (config-if)#switchport port-security maximum 1Assigns 2950 as root switch and enables 'spanning tree'(config-if)#switchport port-security (config-if)#switchport port-security violation shutdownEnables port security(config-if)#switchport port-security violation shutdownIf port exceeds 1 MAC address, then action is to 'shutdown'#show port_security #show port_securityShows port security messages#ip dhcp exclude-address 192.168.10.65Address cannot be issued during 'DHCP'#ip dhcp pool vlan1 #network 192.168.10.0 (config)#int fa0/0.1 #encaps dot1q 1 native #ip add 192.168.10.1 255.255.255.2254 #ip add 192.168.10.1 255.255.255.2254 #ip add 192.168.10.1 255.255.255.2254 #ip add 192.168.10.1 255.255.255.224 #ip add 192.168.10.1 255.255.255.224 #ip add 192.168.10.1 255.255.255.225Configure interface fast Ethernet 0/0.1 Enables the interface to accept 802.1Q VLAN packets Assigns ip address and subnet mask for interface Enables Network Address Translation on incoming packets	(coning-in)#switchport access vian 20	Assigns the 'access port #7' to 'VI AN 20'
(config-if)#ip add 192.168.10.3Assigns ip address and subnet mask to VLAN 1(config-if)#ispanning-tree vlan 1 root primary (config-if)#switchport port-security (config-if)#switchport port-security (config-if)#switchport port-security (config-if)#switchport port-security violation shutdownAssigns 2950 as root switch and enables 'spanning tree'(config-if)#switchport port-security (config-if)#switchport port-security violation shutdownEnables port security Sets maximum MAC addresses = 1(config-if)#switchport port-security maximum 1If port exceeds 1 MAC address, then action is to 'shutdown'#show port_security #show port_securityShows port security messages#ip dhcp excluded-address 192.168.10.65Address cannot be issued during 'DHCP'#ip dhcp pool vlan1 #network 192.168.10.0 255.255.255.224 #ip add 192.168.10.1Assigns dhcp to VLAN 1 Assigns default gateway(config)#int fa0/0.1 #encaps dot1q 1 native #ip add 192.168.10.1 255.255.255.255.224 #ip nat insideConfigure interface fast Ethernet 0/0.1 Enables the interface to accept 802.1Q VLAN packets Assigns ip address and subnet mask for interface Enables Network Address Translation on incoming packets	(config) #int ylon1	Assigns in address and subnot most to 'VLAN 1'
(config-if)#ip add 192.168.10.3255.255.252.224(config-if)#spanning-tree vlan 1 root primary (config-if)#switchport port-security (config-if)#switchport port-security (config-if)#switchport port-security violation shutdownAssigns 2950 as root switch and enables 'spanning tree'(config-if)#switchport port-security (config-if)#switchport port-security violation shutdownEnables port security Sets maximum MAC addresses = 1(config-if)#switchport port-security violation shutdownIf port exceeds 1 MAC address, then action is to 'shutdown'#show port_securityShows port security messages#ip dhcp excluded-address 192.168.10.65Address cannot be issued during 'DHCP'192.168.10.65Assigns dhcp to VLAN 1#network 192.168.10.0 255.255.255.224 #ip add 192.168.10.1Assigns default gateway"default-router 192.168.10.1 (config)#int fa0/0.1 #encaps dot1q 1 native #ip add 192.168.10.1 255.255.255.255.224 #ip nat insideConfigure interface fast Ethernet 0/0.1 Enables the interface to accept 802.1Q VLAN packets Assigns ip address and subnet mask for interface Enables Network Address Translation on incoming packets	(config)#Int vian1 (config if)#in add 102 168 10 3	Assigns ip address and subnet mask to VLAIN I
InterventionInterventionAssigns 2950 as root switch and enables 'spanning tree'(config-if)#switchport port-securityEnables port security(config-if)#switchport port-securitySets maximum MAC addresses = 1(config-if)#switchport port-security violation shutdownIf port exceeds 1 MAC address, then action is to 'shutdown'#show port_securityShows port security messages#ip dhcp excluded-addressAddress cannot be issued during 'DHCP'192.168.10.65Assigns dhcp to VLAN 1#network 192.168.10.0Assigns a range of ip addresses for VLAN 1255.255.255.224Assigns default gateway#default-router 192.168.10.1Configure interface fast Ethernet 0/0.1(config)#int fa0/0.1Enables the interface to accept 802.1Q VLAN packets#ip add 192.168.10.1 255.255.255.224Assigns ip address and subnet mask for interface#ip nat insideEnables Network Address Translation on incoming packets	(comig-n)#1p add 192.108.10.5	
Config-in/#switchport port-securityFissigns 2500 as foor switch and chables spanning tree'(config-if)#switchport port-securityEnables port security(config-if)#switchport port-security violation shutdownIf port exceeds 1 MAC address, then action is to 'shutdown'#show port_securityShows port security messages#ip dhcp excluded-address 	(config-if)#spanning-tree vlan 1 root primary	Assigns 2950 as root switch and enables 'spanning
IndexIndex(config-if)#switchport port-securityEnables port security(config-if)#switchport port-securitySets maximum MAC addresses = 1maximum 1If port exceeds 1 MAC address, then action is to 'shutdown'(config-if)#switchport port-security violation shutdownIf port exceeds 1 MAC address, then action is to 'shutdown'#show port_securityShows port security messages#ip dhcp excluded-address 192.168.10.65Address cannot be issued during 'DHCP'#ip dhcp pool vlan1 #network 192.168.10.0 255.255.254Assigns dhcp to VLAN 1 Assigns a range of ip addresses for VLAN 1 Assigns default gateway#default-router 192.168.10.1 (config)#int fa0/0.1 #encaps dot1q 1 native #ip add 192.168.10.1 255.255.255.224 #ip nat insideConfigure interface fast Ethernet 0/0.1 Enables the interface to accept 802.1Q VLAN packets Assigns ip address and subnet mask for interface Enables Network Address Translation on incoming packets		tree'
(config-if)#switchport port-securityEndotes port security(config-if)#switchport port-securitySets maximum MAC addresses = 1(config-if)#switchport port-security violation shutdownIf port exceeds 1 MAC address, then action is to 'shutdown'#show port_securityShows port security messages#ip dhcp excluded-address 192.168.10.65Address cannot be issued during 'DHCP'#ip dhcp pool vlan1 #network 192.168.10.0 255.255.254Assigns dhcp to VLAN 1 Assigns default gateway#default-router 192.168.10.1 (config)#int fa0/0.1 #encaps dot1q 1 native #ip add 192.168.10.1 255.255.255.254 #ip nat insideConfigure interface fast Ethernet 0/0.1 Enables the interface to accept 802.1Q VLAN packets Assigns ip address and subnet mask for interface Enables Network Address Translation on incoming packets	(config-if)#switchnort nort-security	Enables port security
maximum 1Sets maximum infine addresses = 1(config-if)#switchport port-security violation shutdownIf port exceeds 1 MAC address, then action is to 'shutdown'#show port_securityShows port security messages#ip dhcp excluded-address 192.168.10.65Address cannot be issued during 'DHCP'#ip dhcp pool vlan1 #network 192.168.10.0Assigns dhcp to VLAN 1#default-router 192.168.10.1Assigns default gateway(config)#int fa0/0.1 #ip add 192.168.10.1 255.255.255.224 #ip nat insideConfigure interface fast Ethernet 0/0.1 Enables the interface to accept 802.1Q VLAN packets Assigns ip address and subnet mask for interface Enables Network Address Translation on incoming packets	(config-if)#switchport port-security	Sets maximum MAC addresses -1
(config-if)#switchport port-security violation shutdownIf port exceeds 1 MAC address, then action is to 'shutdown'#show port_securityShows port security messages#ip dhcp excluded-address 192.168.10.65Address cannot be issued during 'DHCP'#ip dhcp pool vlan1 #network 192.168.10.0Assigns dhcp to VLAN 1 Assigns a range of ip addresses for VLAN 1 Assigns default gateway#default-router 192.168.10.1 (config)#int fa0/0.1 #ip add 192.168.10.1 255.255.255.224 #ip nat insideConfigure interface fast Ethernet 0/0.1 Enables the interface to accept 802.1Q VLAN packets Assigns ip address and subnet mask for interface Enables Network Address Translation on incoming packets	maximum 1	Sets maximum wirke addresses – 1
shutdown'shutdown'#show port_securityShows port security messages#ip dhcp excluded-addressAddress cannot be issued during 'DHCP'192.168.10.65Assigns dhcp to VLAN 1#ip dhcp pool vlan1Assigns dhcp to VLAN 1#network 192.168.10.0Assigns a range of ip addresses for VLAN 1255.255.255.224Assigns default gateway#default-router 192.168.10.1Configure interface fast Ethernet 0/0.1(config)#int fa0/0.1Configure interface to accept 802.1Q VLAN packets#ip add 192.168.10.1 255.255.254Assigns ip address and subnet mask for interface#ip nat insideEnables Network Address Translation on incoming packets	(config-if)#switchport port-security violation	If port exceeds 1 MAC address, then action is to
#show port_securityShows port security messages#ip dhcp excluded-addressAddress cannot be issued during 'DHCP'192.168.10.65Assigns dhcp to VLAN 1#ip dhcp pool vlan1Assigns dhcp to VLAN 1#network 192.168.10.0Assigns a range of ip addresses for VLAN 1255.255.254Assigns default gateway#default-router 192.168.10.1Configure interface fast Ethernet 0/0.1#encaps dot1q 1 nativeEnables the interface to accept 802.1Q VLAN packets#ip add 192.168.10.1 255.255.254Assigns ip address and subnet mask for interface#ip nat insideEnables Network Address Translation on incoming packets	shutdown	'shutdown'
#ip dhcp excluded-addressAddress cannot be issued during 'DHCP'192.168.10.65Address cannot be issued during 'DHCP'#ip dhcp pool vlan1Assigns dhcp to VLAN 1#network 192.168.10.0Assigns a range of ip addresses for VLAN 1255.255.255.224Assigns default gateway#default-router 192.168.10.1Configure interface fast Ethernet 0/0.1(config)#int fa0/0.1Configure interface to accept 802.1Q VLAN packets#ip add 192.168.10.1 255.255.254Assigns ip address and subnet mask for interface#ip nat insideEnables Network Address Translation on incoming packets	#show port_security	Shows port security messages
192.168.10.65#ip dhcp pool vlan1Assigns dhcp to VLAN 1#network 192.168.10.0Assigns a range of ip addresses for VLAN 1255.255.255.224Assigns default gateway#default-router 192.168.10.1Configure interface fast Ethernet 0/0.1(config)#int fa0/0.1Configure interface to accept 802.1Q VLAN packets#ip add 192.168.10.1 255.255.224Assigns ip address and subnet mask for interface#ip nat insideEnables Network Address Translation on incoming packets	#ip dhcp excluded-address	Address cannot be issued during 'DHCP'
#ip dhcp pool vlan1Assigns dhcp to VLAN 1#network 192.168.10.0Assigns a range of ip addresses for VLAN 1255.255.255.224Assigns default gateway#default-router 192.168.10.1Configure interface fast Ethernet 0/0.1(config)#int fa0/0.1Configure interface to accept 802.1Q VLAN packets#ip add 192.168.10.1 255.255.254Assigns ip address and subnet mask for interface#ip nat insideEnables Network Address Translation on incoming packets	192.168.10.65	
#network 192.168.10.0Assigns a range of ip addresses for VLAN 1255.255.255.224Assigns default gateway#default-router 192.168.10.1Configure interface fast Ethernet 0/0.1(config)#int fa0/0.1Configure interface to accept 802.1Q VLAN packets#ip add 192.168.10.1 255.255.255.224Assigns ip address and subnet mask for interface#ip nat insideEnables Network Address Translation on incoming packets	#ip dhcp pool vlan1	Assigns dhep to VLAN 1
255.255.254Assigns default gateway#default-router 192.168.10.1Assigns default gateway(config)#int fa0/0.1Configure interface fast Ethernet 0/0.1#encaps dot1q 1 nativeEnables the interface to accept 802.1Q VLAN packets#ip add 192.168.10.1 255.255.255.224Assigns ip address and subnet mask for interface#ip nat insideEnables Network Address Translation on incoming packets	#network 192.168.10.0	Assigns a range of ip addresses for VLAN 1
#default-router 192.168.10.1Configure interface fast Ethernet 0/0.1(config)#int fa0/0.1Configure interface fast Ethernet 0/0.1#encaps dot1q 1 nativeEnables the interface to accept 802.1Q VLAN packets#ip add 192.168.10.1 255.255.255.224Assigns ip address and subnet mask for interface#ip nat insideEnables Network Address Translation on incoming packets	255.255.255.224	Assigns default gateway
(config)#int fa0/0.1Configure interface fast Ethernet 0/0.1#encaps dot1q 1 nativeEnables the interface to accept 802.1Q VLAN packets#ip add 192.168.10.1 255.255.255.224Assigns ip address and subnet mask for interface#ip nat insideEnables Network Address Translation on incoming packets	#default-router 192.168.10.1	
#encaps dot1q 1 native #ip add 192.168.10.1 255.255.255.224 #ip nat insideEnables the interface to accept 802.1Q VLAN packets Assigns ip address and subnet mask for interface Enables Network Address Translation on incoming packets	(config)# int fa0/0.1	Configure interface fast Ethernet 0/0.1
#ip add 192.168.10.1 255.255.255.224Enables ine interface#ip nat insideEnables Network Address Translation on incoming packets	#encaps dot1a 1 native	Enables the interface to accept 802.10 VLAN packets
#ip nat inside Enables Network Address Translation on incoming packets	#in add 192.168.10.1 255.255.255.224	Assigns in address and subnet mask for interface
packets	#ip nat inside	Enables Network Address Translation on incoming
puerco	P	nackets
(config)#ip nat inside source list 1 int solo Provide Access I jets for specified networks used for	(config)#ip nat inside source list 1 int s0/0	Provide Access Lists for specified networks used for
overload NAT	overload	NAT
#access-list 1 permit 192.168.10.0	#access-list 1 nermit 192,168,10,0	

0.0.0.31	
(config)# int s0/0	Configure interface 'serial 0/0'
(config-if)#ip address 63.88.27.66 255.255.255.252	Assign ip address and subnet mask to serial port 's0/0'
(config-if)#ip nat outside	Enable Network Address Translation on outgoing
(config-if)# encaps frame-relay	packets
(config-if)# frame-relay map ip 63.88.27.65	Encapsulation used = frame relay $\frac{1}{2}$
102	Map frame relay packets to DLCI $102 \Rightarrow 63.88.27.65$
(config)#int s0/1	Configure Serial interface 0/1 of ISP
(config-if)#ip add 207.62.41.25	Assign ip address and subnet mask for S0/1
255.255.255.252	Use encapsulation PPP (Point to Point Protocol)
(config-if)# encaps ppp	Use 'chap'
(config-if)#ppp authentication chap	<u>r</u>
(config)#router ospf 10	Use OSPF
(config-router)#network 207.62.41.20 0.0.0.3	Enter networks and reverse subnet mask w/ area
area 0	number
Br-2(config)#int loopback100	Configure Loopback interface '100'
(config-if)#ip add 10.10.10.10.	Assign ip address and subnet mask to interface
255.255.255.252	
(config)#ip route 0.0.0.0 0.0.0.0	Next hop address when going through frame relay
63.88.27.65	

Troubleshooting/Reflection:

Problem: Static routes not being distributed between isp, br_1 and br_2. **Resolution:**

a) Static routes can be defined with a local interface or the next hop IP address. We HAD TO SPECIFY the next hop instead of the interface on both sides of the frame relay before isp router's static route was distributed by eigrp to br_1 and br_2.

b) In addition Gary recommended we use "redistribute connections" on isp's EIGRP configuration to properly handle the frame-relay correctly.

Problem: Switches could not ping router.

Resolution: Forgot to "no shut" the vlan 1 interface on both switches which caused ping to fail on these devices. This command was added to the copy/paste command file to prevent happening again.

Problem: Switches could not ping the router

Resolution: A cross-over cable was initially connected between the distribution switch and the corporate router which caused dhcp to fail. Installing the correct straight through cable fixed this. Only one cross-over cable is needed and that is between the two switches.Revised the wiring diagram to better clarify which cables should be used to prevent this from happening again.

Problem:Incorrect routing tables on isp, br_1 and br_2. **Resolution:** Typos were uncovered by visual inspections after the network did not converge. Most of the typos were network and IP addresses.

Problem:Hosts below the cloud could not ping the router or get dhcp addresses. **Resolution:** The Max 1 port security configured on access switch was blocking ports 4, 7 and 10. The fix was to clear the mac addresses that were added to the running config with "no ..."'s.A simpler method was found later which is issue the command "clear mac-address-table secure" on access (2900XL) and "clear port-security dynamic" on the distribution (2950). These commands were added to the copy/paste config files to prevent it from reoccurring.

Problem: Unable to type any commands into TeraTerm serial interface to Corporate. **Resolution:** Keyboard cable was not plugged in all the way into the back of the PC. Was dislodged by USB memory stick. Worked fine when pushed back in.

Problem: Istanbul host PC did not power up.

Resolution: The PCs have two power switches. The one on the back of the PC, on the power supply itselt, was switched off. Switching it back on solved the problem.

Problem: EIGRP error messages on adjacent neighbors.

Resolution: Added a "passive-interface fa 0/0" to the EIGRP section of ISP, br_1 and br_2. They were all connected into VLAN 1 ports on Distribution and even though they were configured as separate subnets the routing information was getting passed through the switch. The passive-interface command fixed this problem.

Problem: OSPF didn't like the no auto-summary command.

Resolution: Didn't use it and it still converged on Netlab and Cape Town.

Problem: OSPF did not distribute static route on ISP to br_1 and br_2 **Resolution:** Remove static route on ISP to Corporate and add that network into the OSPF networks instead. Also removed the redistribute static and redistribute connections from ISP. This worked and routing tables on br_1 and br_2 now included a route to the 63.88.27.64 network.

Test Plan:

The test methodology involved creating test cases for each Case Study requirement. For convergence this included end-to-end ping tests and verifying routing tables had routes to all networks. For NAT/PAT this included pinging both directions (outside to inside should fail) and using debug ip icmp to make sure address translation was happening. For DHCP testing we configured three hosts with DHCP on different corporate VLANs and then checked the assigned IP address for being in the proper subnet. To check VLSM we looked at the routing tables. We also check DHCP bindings on corporate. We used several commands on the switches to verify security and vlan configuration. Also we found one switch security defect with a peer review of running-configs. The test cases are documented in Appendix A.

Appendix A

Test Plan

Here is our test plan to make sure that everything is working.

BTC = Below the cloud OTC = Over the cloud

BTC-1) Verify RFC 1918, VLSM, DHCP

On corporate

show ip route verify we have four 192.168.x.x subnets and multiple subnet masks. verify default gateway configured save copy for the report

BTC-2) Verify DHCP

On host PCs

disable/enable network connections on Yellow. Purple and Green hosts
Yellow is on VLAN 10 and should get IP 192.168.10.34+ and GW
192.168.10.33
Purple is on VLAN 20 and should get IP 192.168.10.66+ and GW 192.168.10.65
Green is on VLAN 99 and should get IP 192.168.10.82+ and GW
192.168.10.81

On corporate

show ip dhcp binding

BTC-3) Verify end-to-end convergence and NAT

On isp

should fail: ping 192.168.10.1 ping 192.168.10.2 ping 192.168.10.3 ping 192.168.10.65 ping 192.168.10.81

debug ip icmp all pings tests (below) from corporate LAN should only use 63.88.27.66

Yellow PC

!ping corporate ports and sub-ifs
ping 192.168.10.1
ping 192.168.10.33
ping 192.168.10.65

ping 192.168.10.81 ping 63.88.27.66 !ping isp ports ping 63.88.27.65 ping 63.88.27.129 ping 207.62.41.21 ping 207.62.41.25 !ping isp host ping 63.88.27.130 !ping br_1 ports ping 172.16.0.129 ping 207.62.41.22 ping 207.62.41.29 !ping br_1 host ping 172.16.0.130 !ping br_2 ports ping 172.16.0.1 ping 207.62.41.30 ping 207.62.41.26 ping 10.10.10.10 traceroute 10.10.10.10 !ping br_2 host ping 172.16.0.2 Purple PC !ping corporate ports and sub-ifs

ping 192.168.10.1 ping 192.168.10.33 ping 192.168.10.65 ping 192.168.10.81 ping 63.88.27.66

!ping isp ports
ping 63.88.27.65
ping 63.88.27.129
ping 207.62.41.21
ping 207.62.41.25

!ping isp host ping 63.88.27.130 !ping br_1 ports ping 172.16.0.129 ping 207.62.41.22 ping 207.62.41.29 !ping br_1 host ping 172.16.0.130 !ping br_2 ports ping 172.16.0.1 ping 207.62.41.30 ping 207.62.41.26 ping 10.10.10.10 traceroute 10.10.10.10

!ping br_2 host ping 172.16.0.2

Green PC

!ping corporate ports and sub-ifs ping 192.168.10.1 ping 192.168.10.33 ping 192.168.10.65 ping 192.168.10.81 ping 63.88.27.66

!ping isp ports
ping 63.88.27.65
ping 63.88.27.129
ping 207.62.41.21
ping 207.62.41.25

!ping isp host ping 63.88.27.130

!ping br_1 ports ping 172.16.0.129 ping 207.62.41.22 ping 207.62.41.29

!ping br_1 host ping 172.16.0.130

!ping br_2 ports ping 172.16.0.1 ping 207.62.41.30 ping 207.62.41.26 ping 10.10.10.10 traceroute 10.10.10.10

!ping br_2 host ping 172.16.0.2

On corporate

show ip nat translation show ip nat statistics - save copy for report

BTC-4) Switch configuration

On both switches

!ping isp ports ping 63.88.27.65 ping 63.88.27.129 ping 207.62.41.21 ping 207.62.41.25

!ping isp host

ping 63.88.27.130 ping 207.62.41.25

!ping br_1 ports ping 172.16.0.129 ping 207.62.41.22 ping 207.62.41.29

!ping br_1 host ping 172.16.0.130

!ping br_2 ports
ping 172.16.0.1
ping 207.62.41.30
ping 207.62.41.26
ping 10.10.10.10
traceroute 10.10.10.10

!ping br_2 host ping 172.16.0.2

On Access

show vlanVerify each switch has at least one port on VLAN 1, 10, 20 and 99save copy for reportshow run

- verify each port manually configured as manual or trunk port

- verify each access port has Max 1 security configured

- save copy for report

show spanning-tree

- verify access is not root switch

- save copy for report

show int fa 0/1 switchport

- verify trunking

- save copy for report

On Distribution

show vlan

- Verify each switch has at least one port on VLAN 1, 10, 20 and 99

- save copy for report

show run

- verify each port manually configured as manual or trunk port

- verify each access port has Max 1 security configured

- save copy for report

show spanning-tree

- verify distribution is the root switch

- save copy for report

show int gi 0/1 switchport

- verify trunking

- save copy for report

show int gi 0/2 switchport

- verify trunking

- save copy for report

BTC-5) Be able to telnet to all switches

On corporate telnet 192.168.10.2 login and exit

telnet 192.168.10.3 login and exit

OTC-6) Convergence tests between top three routers

!ping isp ports ping 63.88.27.65 ping 63.88.27.129 ping 207.62.41.21 ping 207.62.41.25

!ping isp host ping 63.88.27.130 !ping br_1 ports ping 172.16.0.129 ping 207.62.41.22 ping 207.62.41.29 !ping br_1 host ping 172.16.0.130 !ping br_2 ports ping 172.16.0.1 ping 207.62.41.30 ping 207.62.41.26 ping 10.10.10.10 traceroute 10.10.10.10

!ping br_2 host ping 172.16.0.2

on isp, br_1 and br_2 verify ip routes for:

172.16.0.128/26 172.16.0.0/25

207.62.41.24/30 207.62.41.28/30 207.62.41.20/30

10.10.10.8

63.88.27.64/30 63.88.27.128/25

Default gateway (of last resort) is set

on br_2

telnet to isp, br_1, corporate and capture running configs telnet to both switches (via corporate) and capture running configs

Appendix B

Case Study Requirements

Here we show the case study requirements and how we met each requirement.

Corporate LAN

1. IP Addressing

Use RFC 1918 Use VLSM

We subnetted using the following:

VLAN 1	192.168.10.0/27
VLAN 10	192.168.10.32/27
VLAN 20	192.168.10.64/28
VLAN 99	192.168.10.80/28

2. Access and Distribution Switches

A. Configure ports as a member of VLAN 1, 10, 20, 99. Each switch must have at least one port in each VLAN.

Distribution Switch

VLAN	Name	Status	Ports
_			
1	default	active	Fa0/1, Fa0/2, Fa0/3, Fa0/4
			Fa0/5, Fa0/6
10	accounting	active	Fa0/7, Fa0/8, Fa0/9, Fa0/10
			Fa0/11, Fa0/12
20	marketing	active	Fa0/13, Fa0/14, Fa0/15, Fa0/16
			Fa0/17, Fa0/18
99	engineering	active	Fa0/19, Fa0/20, Fa0/21, Fa0/22
			Fa0/23, Fa0/24

Access Switch

VLAN	Name	Status	Ports
- 1 10 20 99	default accounting marketing engineering	active active active active	Fa0/2, Fa0/3 Fa0/4, Fa0/5, Fa0/6 Fa0/7, Fa0/8, Fa0/9 Fa0/10, Fa0/11, Fa0/12

B. All ports configured manually as access or trunk ports.

Distribution Switch - sample

```
interface FastEthernet0/24
switchport access vlan 99
switchport mode access
switchport port-security
no ip address
!
interface GigabitEthernet0/1
switchport mode trunk
no ip address
```

Access Switch - sample

```
interface FastEthernet0/1
switchport trunk encapsulation dot1q
switchport mode trunk
!
interface FastEthernet0/4
port security max-mac-count 1
switchport access vlan 10
```

C. Port security configured on all access ports to allow only 1 MAC address.

Distribution Switch – sample

distribution	#show port-secu	rity		
Secure Port	MaxSecureAddr (Count)	CurrentAddr (Count)	SecurityViolation (Count)	Security Action
Fa0/1	1	0	0	Shutdown
Fa0/2	1	0	0	Shutdown
Fa0/3	1	0	0	Shutdown

Access Switch – sample

```
access#show run
```

```
interface FastEthernet0/2
port security max-mac-count 1
!
interface FastEthernet0/3
port security max-mac-count 1
```

D. STP Root Bridge is the Distribution switch

distribution#show spanning-tree

```
VLAN0001
Spanning tree enabled protocol ieee
Root ID Priority 24577
Address 000b.fc28.d400
This bridge is the root
Hello Time 2 sec Max Age 20 sec Forward Delay 15 sec
```

3. Configure trunking to allow for all VLANs to intercommunicate.

```
distribution#show vtp status
                              : 2
VTP Version
Configuration Revision
                             : 1
Maximum VLANs supported locally : 250
Number of existing VLANs : 8
VTP Operating Mode
                             : Server
VTP Domain Name
                             : corporate
Access#show vtp status
                              : 2
VTP Version
Configuration Revision : 1
Maximum VLANs supported locally : 68
Number of existing VLANs : 8
VTP Operating Mode
                             : Client
VTP Domain Name
                             : corporate
corporate#show ip route
Codes: C - connected, S - static, I - IGRP, R - RIP, M - mobile, B - BGP
    192.168.10.0/24 is variably subnetted, 4 subnets, 2 masks
С
       192.168.10.64/28 is directly connected, FastEthernet0/0.20
       192.168.10.80/28 is directly connected, FastEthernet0/0.99
С
       192.168.10.32/27 is directly connected, FastEthernet0/0.10
С
С
       192.168.10.0/27 is directly connected, FastEthernet0/0.1
    63.0.0/30 is subnetted, 1 subnets
С
       63.88.27.64 is directly connected, Serial0/0
S*
    0.0.0.0/0 [1/0] via 63.88.27.65
```

4. Corporate Router

A. Default Gateway for Corporate LAN

corporate#show ip route

Gateway of last resort is 63.88.27.65 to network 0.0.0.0

```
63.0.0/30 is subnetted, 1 subnets
С
        63.88.27.64 is directly connected, Serial0/0
S*
     0.0.0.0/0 [1/0] via 63.88.27.65
       B. DHCP Server for Corporate LAN
corporate#show run
ip dhcp excluded-address 192.168.10.1 192.168.10.3
ip dhcp excluded-address 192.168.10.33
ip dhcp excluded-address 192.168.10.65
ip dhcp excluded-address 192.168.10.81
I.
ip dhcp pool vlan1
   network 192.168.10.0 255.255.255.224
   default-router 192.168.10.1
I
ip dhcp pool vlan10
   network 192.168.10.32 255.255.255.224
   default-router 192.168.10.33
T
ip dhcp pool vlan20
  network 192.168.10.64 255.255.255.240
  default-router 192.168.10.65
T
ip dhcp pool vlan99
  network 192.168.10.80 255.255.255.240
   default-router 192.168.10.81
```

C. NAT/PAT for Corporate LAN

```
corporate#show run
interface FastEthernet0/0.1
 encapsulation dot1Q 1 native
 ip address 192.168.10.1 255.255.254
 ip nat inside
!
interface FastEthernet0/0.10
 encapsulation dot1Q 10
 ip address 192.168.10.33 255.255.255.224
 ip nat inside
1
interface FastEthernet0/0.20
 encapsulation dot1Q 20
 ip address 192.168.10.65 255.255.255.240
 ip nat inside
Т
interface FastEthernet0/0.99
 encapsulation dot1Q 99
 ip address 192.168.10.81 255.255.255.240
 ip nat inside
I.
interface Serial0/0
 ip address 63.88.27.66 255.255.255.252
 ip nat outside
```

ip nat inside source list 1 interface Serial0/0 overload corporate#show ip nat statistics Total active translations: 0 (0 static, 0 dynamic; 0 extended) Outside interfaces: Serial0/0 Inside interfaces: FastEthernet0/0.1, FastEthernet0/0.10, FastEthernet0/0.20 FastEthernet0/0.99 Hits: 89 Misses: 35 Expired translations: 35 Dynamic mappings: -- Inside Source [Id: 1] access-list 1 interface Serial0/0 refcount 0 isp#debug ip icmp ICMP packet debugging is on isp# 02:54:17: ICMP: echo reply sent, src 63.88.27.65, dst 63.88.27.66 isp# 02:54:42: ICMP: echo reply sent, src 63.88.27.129, dst 63.88.27.66 isp# 02:55:14: ICMP: echo reply sent, src 207.62.41.21, dst 63.88.27.66 isp# 02:55:25: ICMP: echo reply sent, src 207.62.41.25, dst 63.88.27.66 D. Connected to ISP Router using Frame Relay a. DLCI 102 b. Use Frame Relay Map statement c. Default Route to ISP (use next hop address, issue with Adtran) d. /30 Subnet corporate#show run interface Serial0/0 ip address 63.88.27.66 255.255.255.252 ip nat outside encapsulation frame-relay frame-relay map ip 63.88.27.65 102 corporate#show ip route 63.0.0/30 is subnetted, 1 subnets С 63.88.27.64 is directly connected, Serial0/0 S* 0.0.0/0 [1/0] via 63.88.27.65 corporate#show frame-relay map Serial0/0 (up): ip 63.88.27.65 dlci 102(0x66,0x1860), static, CISCO, status defined, active

5. Other A. Ability to remotely manage all switches (telnet).

corporate#telnet 192.168.10.2 Trying 192.168.10.2 ... Open User Access Verification Password: distribution>en Password: distribution#copy run tftp Address or name of remote host []? 63.88.27.130 Destination filename [distribution-confg]? !! 2766 bytes copied in 3.792 secs (922 bytes/sec) distribution# corporate#telnet 192.168.10.3 Trying 192.168.10.3 ... Open User Access Verification Password: access>en Password: access#copy run tftp Address or name of remote host []? 63.88.27.130 Destination filename [running-config]? !! 1801 bytes copied in 3.874 secs (600 bytes/sec)

Network

1. ISP Router

A. Static route to Corporate LAN

isp#sh ip route

63.0.0.0/8 is variably subnetted, 2 subnets, 2 masks C 63.88.27.64/30 is directly connected, Serial0/0 C 63.88.27.128/25 is directly connected, FastEthernet0/0 O*E2 0.0.0.0/0 [110/1] via 207.62.41.26, 01:05:14, Serial0/1 isp#show run

ip route 63.88.27.64 255.255.255.252 63.88.27.66

B. Connected to ISP Router using Frame Relay

- a. DLCI 201
- b. Use Frame Relay Map statement
- c. Default Route to ISP (use next hop address, issue with Adtran)
- d. /30 Subnet

isp#show run

```
interface Serial0/0
ip address 63.88.27.65 255.255.255.252
encapsulation frame-relay
frame-relay map ip 63.88.27.66 201
frame-relay lmi-type ansi
```

isp#sh ip route

63.0.0.0/8 is variably subnetted, 2 subnets, 2 masks C 63.88.27.64/30 is directly connected, Serial0/0 C 63.88.27.128/25 is directly connected, FastEthernet0/0 O*E2 0.0.0.0/0 [110/1] via 207.62.41.26, 01:05:14, Serial0/1

isp#show frame-relay map

Serial0/0 (up): ip 63.88.27.66 dlci 201(0xC9,0x3090), static, CISCO, status defined, active

2. ISP, Branch Office 1, Branch Office 2

- A. Serial Connections
 - a. PPP
 - b. Chap Authentication
 - c. /30 Subnets

ISP Router

isp#show run

```
interface Serial0/1
ip address 207.62.41.25 255.255.255.252
encapsulation ppp
ppp authentication chap
!
interface Serial0/3
ip address 207.62.41.21 255.255.252
encapsulation ppp
ppp authentication chap
```

BR_1 Router

BR_1#show run

```
interface Serial0/0
ip address 207.62.41.29 255.255.255.252
encapsulation ppp
no fair-queue
ppp authentication chap
!
interface Serial0/1
ip address 207.62.41.22 255.255.255.252
encapsulation ppp
clockrate 64000
ppp authentication chap
```

BR_2 Router

BR_2#show run

```
interface Serial0/0
ip address 207.62.41.30 255.255.255.252
encapsulation ppp
clockrate 64000
ppp authentication chap
!
interface Serial0/1
ip address 207.62.41.26 255.255.255.252
encapsulation ppp
clockrate 64000
ppp authentication chap
```

3. Routing Protocol

A. EIGRP or OSPF

We did both. Both running configurations & routing tables are included in the main document.

B. Default traffic sent to Branch Office 2, Loopback 100

br_2#sh ip int brief			
Interface Protocol	IP-Address	OK? Method Status	
FastEthernet0/0	172.16.0.1	YES manual up	up
Serial0/0	207.62.41.30	YES manual up	up
Serial0/1	207.62.41.26	YES manual up	up

	Loopback100	10.10.10.10	YES manual up
--	-------------	-------------	---------------

up

br_2#sh ip route

S* 0.0.0.0/0 is directly connected, Loopback100

br_1#sh ip route

Gateway of last resort is 207.62.41.30 to network 0.0.0.0

O*E2 0.0.0.0/0 [110/1] via 207.62.41.30, 01:00:31, Serial0/0

4. Configure LAN interfaces for Branch Office 1 and Branch Office 2

A. Branch Office 1 and Branch Office 2 are VLSM networks, part of 172.16.0.0

br_1#sh ip route

	172.16.0.0/16 is variably subnetted, 2 subnets, 2 masks
С	172.16.0.128/26 is directly connected, FastEthernet0/0
0	172.16.0.0/25 [110/782] via 207.62.41.30, 01:00:31, Serial0/0

br_2#sh ip route

172.16.0.0/16 is variably subnetted, 2 subnets, 2 masks
0 172.16.0.128/26 [110/782] via 207.62.41.29, 00:53:04, Serial0/0
C 172.16.0.0/25 is directly connected, FastEthernet0/0

Verification

1. Workstation on Corporate LAN should be able to ping all other interfaces in network.

Sample

C:\Documents and Settings\cisco>ping 10.10.10.10

Pinging 10.10.10.10 with 32 bytes of data:

Minimum = 48ms, Maximum = 51ms, Average = 49ms

Pinging 172.16.0.2 with 32 bytes of data: Reply from 172.16.0.2: bytes=32 time=58ms TTL=125 Reply from 172.16.0.2: bytes=32 time=51ms TTL=125 Reply from 172.16.0.2: bytes=32 time=49ms TTL=125 C:\Documents and Settings\cisco>ping 207.62.41.26 Pinging 207.62.41.26 with 32 bytes of data: Reply from 207.62.41.26: bytes=32 time=51ms TTL=253 Reply from 207.62.41.26: bytes=32 time=49ms TTL=253 Reply from 207.62.41.26: bytes=32 time=49ms TTL=253 Reply from 207.62.41.26: bytes=32 time=48ms TTL=253 Reply from 207.62.41.26: bytes=32 time=46ms TTL=253

C:\Documents and Settings\cisco>ping 172.16.0.2

Reply from 172.16.0.130: bytes=32 time=55ms TTL=125 Reply from 172.16.0.130: bytes=32 time=48ms TTL=125 Reply from 172.16.0.130: bytes=32 time=51ms TTL=125 Reply from 172.16.0.130: bytes=32 time=50ms TTL=125

C:\Documents and Settings\cisco>ping 63.88.27.130

Pinging 63.88.27.130 with 32 bytes of data:

Reply from 63.88.27.130: bytes=32 time=37ms TTL=126 Reply from 63.88.27.130: bytes=32 time=35ms TTL=126 Reply from 63.88.27.130: bytes=32 time=34ms TTL=126 Reply from 63.88.27.130: bytes=32 time=32ms TTL=126

C:\Documents and Settings\cisco>ping 192.168.10.81

Pinging 192.168.10.81 with 32 bytes of data:

Reply from 192.168.10.81: bytes=32 time=1ms TTL=255 Reply from 192.168.10.81: bytes=32 time=1ms TTL=255 Reply from 192.168.10.81: bytes=32 time=1ms TTL=255 Reply from 192.168.10.81: bytes=32 time=1ms TTL=255