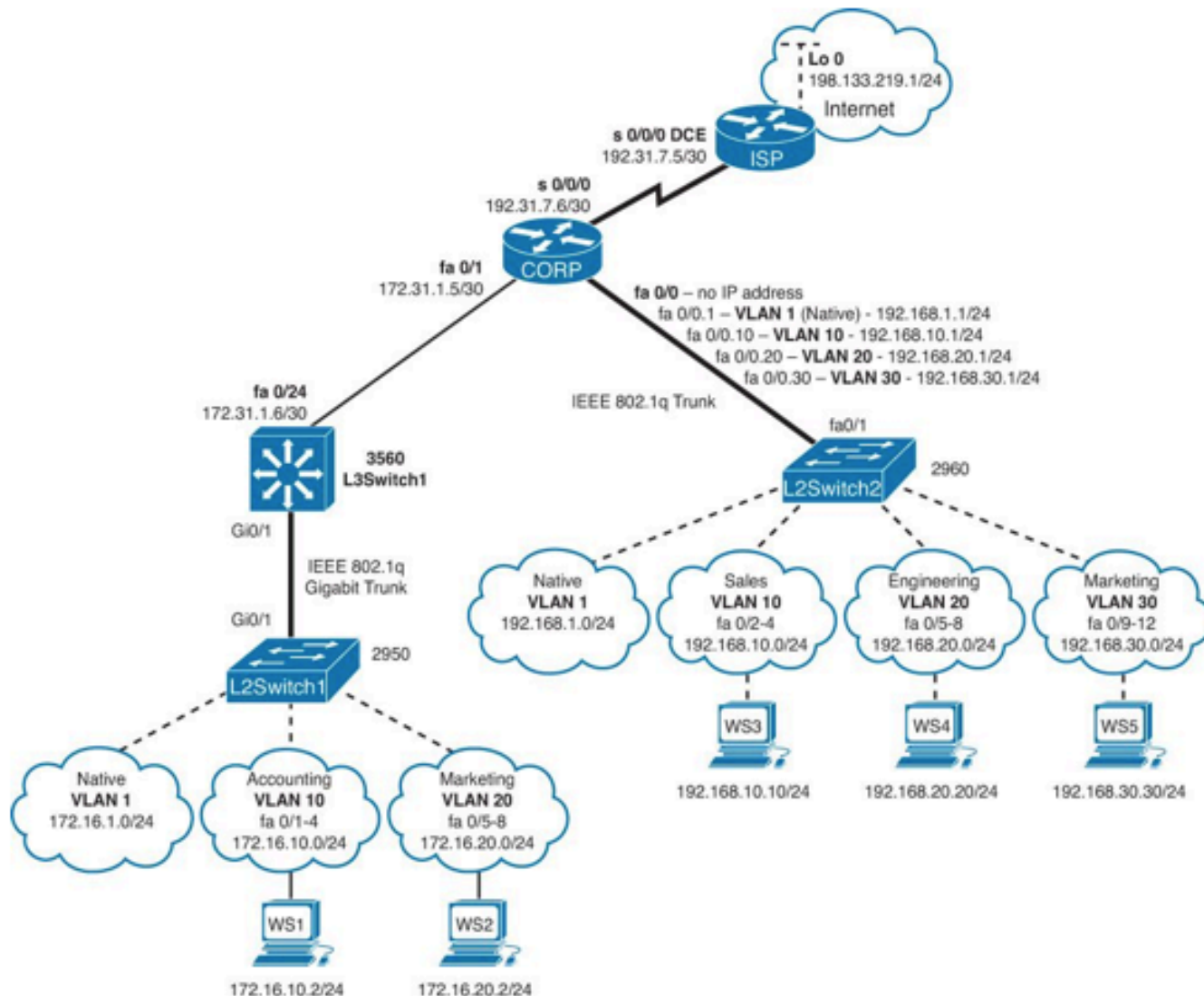# Configuration Example- Inter-VLAN Communication - pp113, Empson

CORP and L2Switch2 have a ROAS configuration
L3Switch1 and L2Switch1 have a VTP Client/Server relationship
ISPRouter demonstrates the need for setting clock rates
Throughout this entire setup is EIGRP routing.

ISP Router
Router>enable.
Router>#configure terminal
Router(config)#hostname ISP

ISP(config)#interface loopback 0
ISP(config-if)#description simulated address for remote website
ISP(config-if)#ip address 198.133.219.1 255.255.255.0
ISP(config-if)#interface serial 0/0/0
ISP(config-if)#description WAN link to the Corporate Router
ISP(config-if)#ip address 192.31.7.5 255.255.255.252
ISP(config-if)#clock rate 56000 --*DCE cable so don't forget the clock rate*
ISP(config-if)#no shutdown

ISP(config-if)#router eigrp 10   --- *initialize EIGRP for AS*
ISP(config-router)#network 198.133.219.0
ISP(config-router)#network 192.31.7.0
ISP(config-router)#no auto-summary
ISP#copy running-config startup-config

CORP Router
Router>enable.
Router>#configure terminal
Router(config)#hostname CORP

CORP(config)#interface serial 0/0/0
CORP(config-if)#description link to ISP Router
CORP(config-if)#ip address 192.31.7.6 255.255.255.252
CORP(config-if)#no shutdown
CORP(config)#interface fastethernet 0/1
CORP(config-if)#description link to 3560 Switch
CORP(config-if)#ip address 172.31.1.5 255.255.255.252
CORP(config-if)#no shutdown
CORP(config)#interface fastethernet 0/0
CORP(config-if)#description link to L2Switch2
CORP(config-if)#duplex full ---*full-duplex to ensure trunking will take effect with L2Switch2.*
CORP(config-if)#no shutdown

CORP(config-if)#interface fastethernet 0/0.1 ---*Creates a virtual subinterface*
CORP(config-subif)#description Management VLAN 1 – Native VLAN
CORP(config-subif)#encapsulation dot1q 1 native
CORP(config-subif)#ip address 192.168.1.1 255.255.255.0
CORP(config-subif)#interface fastethernet 0/0.10
CORP(config-subif)#description Sales VLAN 10
CORP(config-subif)#encapsulation dot1q 10
CORP(config-subif)#ip address 192.168.10.1 255.255.255.0
CORP(config-subif)#interface fastethernet 0/0.20
CORP(config-subif)#description Engineering VLAN 20
CORP(config-subif)#encapsulation dot1q 20
CORP(config-subif)#ip address 192.168.20.1 255.255.255.0
CORP(config-subif)#interface fastethernet 0/0.30
CORP(config-subif)#description Marketing VLAN 30
CORP(config-subif)#encapsulation dot1q 30
CORP(config-subif)#ip add 192.168.30.1 255.255.255.0

CORP(config)#router eigrp 10
CORP(config-router)#network 192.168.1.0 ---*Advertise our networks*
CORP(config-router)#network 192.168.10.0
CORP(config-router)#network 192.168.20.0
CORP(config-router)#network 192.168.30.0
CORP(config-router)#network 172.31.0.0
CORP(config-router)#network 192.31.7.0
CORP(config-router)#no auto-summary

L2Switch2 (Catalyst 2960)
Switch(config)#hostname L2Switch2
L2Switch2(config)#vlan 10
L2Switch2(config-vlan)#name Sales ---*Assign names to the VLANs*
L2Switch2(config-vlan)#exit.
L2Switch2(config)#vlan 20
L2Switch2(config-vlan)#name Engineering
L2Switch2(config-vlan)#vlan 30
L2Switch2(config-vlan)#name Marketing
L2Switch2(config-vlan)#exit

L2Switch2(config)#interface range fastethernet 0/2 - 4   ---*Assign access ports to the VLANs*
L2Switch2(config-if-range)#switchport mode access
L2Switch2(config-if-range)#switchport access vlan 10
L2Switch2(config-if-range)#interface range fastethernet 0/5 - 8
L2Switch2(config-if-range)#switchport mode access
L2Switch2(config-if-range)#switchport access vlan 20
L2Switch2(config-if-range)#interface range fastethernet 0/9 - 12
L2Switch2(config-if-range)#switchport mode access
L2Switch2(config-if-range)#switchport access vlan 30
L2Switch2(config-if-range)#exit

L2Switch2(config)#interface fastethernet 0/1

L2Switch2(config-if)#description Trunk Link to CORP Router
L2Switch2(config-if)#switchport mode trunk
L2Switch2(config)#interface vlan 1 ---*Creates virtual interface for VLAN 1*
L2Switch2(config-if)#ip address 192.168.1.2 255.255.255.0
L2Switch2(config-if)#no shutdown
L2Switch2(config-if)#exit
L2Switch2(config)#ip default-gateway 192.168.1.1 ---*Assigns the default gateway address.*
L2Switch2#copy running-config startup-config

L3Switch1 (Catalyst 3560)
Switch(config)#hostname L3Switch1
L3Switch1(config)#vtp mode server ---*Changes the switch to VTP server mode.*
L3Switch1(config)#vtp domain testdomain ---*Configures the VTP domain name to testdomain.*
L3Switch1(config)#vlan 10
L3Switch1(config-vlan)#name Accounting
L3Switch1(config-vlan)#exit
L3Switch1(config)#vlan 20
L3Switch1(config-vlan)#name Marketing
L3Switch1(config-vlan)#exit

L3Switch1(config)#interface gigabitethernet 0/1
L3Switch1(config-if)#description Gigabit Trunk to L2Switch1
L3Switch1(config-if)#switchport trunk encapsulation dot1q
L3Switch1(config-if)#switchport mode trunk
L3Switch1(config-if)#exit

L3Switch1(config)#ip routing ---*Enables IP routing on this device.*
L3Switch1(config)#interface vlan 1 ---Creates a virtual interface for VLAN 1
L3Switch1(config-if)#ip address 172.16.1.1 255.255.255.0
L3Switch1(config-if)#no shutdown
L3Switch1(config-if)#interface vlan 10
L3Switch1(config-if)#ip address 172.16.10.1 255.255.255.0
L3Switch1(config-if)#no shutdown
L3Switch1(config-if)#interface vlan 20
L3Switch1(config-if)#ip address 172.16.20.1 255.255.255.0
L3Switch1(config-if)#no shutdown
L3Switch1(config-if)#exit

L3Switch1(config)#interface fastethernet 0/24
L3Switch1(config-if)#description Link to CORP
L3Switch1(config-if)#no switchport ---*Creates a Layer 3 port on the switch.*
L3Switch1(config-if)#ip address 172.31.1.6 255.255.255.252
L3Switch1(config-if)#exit

L3Switch1(config)#router eigrp 10
L3Switch1(config-router)#network 172.16.0.0
L3Switch1(config-router)#network 172.31.0.0
L3Switch1(config-router)#no auto-summary

L2Switch1 (Catalyst 2960)
Switch(config)#hostname L2Switch1
L2Switch1(config)#vtp domain testdomain ---VTP domain name to testdomain.
L2Switch1(config)#vtp mode client ---Changes the switch to VTP client mode.

L2Switch1(config)#interface range fastethernet 0/1 - 4
L2Switch1(config-if-range)#switchport mode access
L2Switch1(config-if-range)#switchport access vlan 10
L2Switch1(config-if-range)#interface range fastethernet 0/5 - 8
L2Switch1(config-if-range)#switchport mode access
L2Switch1(config-if-range)#switchport access vlan 20
L2Switch1(config-if-range)#exit
L2Switch1(config)#interface gigabitethernet 0/1
L2Switch1(config-if)#switchport mode trunk
L2Switch1(config)#interface vlan 1
L2Switch1(config-if)#ip address 172.16.1.2 255.255.255.0 --VLAN1 on diagram is 172.16.1.0/24 - typo?
L2Switch1(config-if)#no shutdown
L2Switch1(config-if)#exit
L2Switch1(config)#ip default-gateway 172.16.1.1