Grading

Create a complex fully hierarchical and functional network topology as illustrated in ***Figure 1*** in Cisco PacketTracer. Design an IP scheme and configure all the devices. Configure the hostnames as shown on the ***Figure 1***. Students must configure router 6 and 7 via console connection using IOS commands. Label your project exactly as in ***Figure 1*** and add route tables, IP ranges, netmasks and/or CIDR notions where applicable. All end devices and intermediary devices are pingable except switches.

Routers are connected via serial connections: ***1 pt***
Switches are connected to the routers via GigE: ***2 pts***
Laptops are connected to the routers via GigE and/or via console: ***1 pt***
PC are connected to switches via FastEthernet: ***1 pts***
Proper Labeling throughout PacketTracer (*upload to Google Classroom when finished*): ***5 pts***

Network 1 - IPv4 only (Yellow) *20 pts*

Six (6) Vlans (1, 10, 20 , 30, 40, and 99)
R1 is the DHCP server for network 1 and will be forwarding from R7 to R1
SRV1 does FTP (username and password) and DNS (domain name)
ISR (SSID: Enology, Username “admin” and Password “ABC123!” with the Paraphrase “professoreno”)
R7 inter-vlan configured (RoaS)
Security on R1 and SW1 (console and vty passwords, encryption, session timeout, port security and ssh configured)
SW4 STP root bridge with SVI and Default Gateway
Network 1 VoIP phone connects to other Network 1 VoIP phones
Network 1 VoIP phone connects with network 2 VoIP phone
Network 1 VoIP phone connects with network 7 analog phone
Network 1 end devices ping R7 and other end device on Network 1
Network 1 end devices ping across the network (2, 3, 4, 5, 6, and 7)
Note: Phones are configured on router 9 (R9)

Network 2 - Dual stack IPv4 and IPv6 (Orange) *10 pts*

Three (3) VLANs (10, 15, (98 to SRV3 for mgmt))
SRV3 IPv6 Autoconfig EUI-64 and does NTP
Sync SW8, SW11, and CoreSW1 to the NTP server *(Hint: Switch#show clock)*
Update CoreSW1 to version *12.2(46)SE* with TFTP from SRV3
SRV3 has IPv4 and IPv6 (dual stack) addresses
SRV3 ping SRV1 (IPv4)
SRV3 ping SRV2 (IPv6)
*phones are only IPv4 and are configured on router 9 (R9)

Network 3 - Dual stack IPv4 and IPv6 (Blue) ***20 pts***

Static IPv6 and DHCPv6 (no eui-64)
Two (2) VLANs (30 to branch 2 and printer via AP2) and 99 to SRV2 for mfmt
SRV2 does DHCP, DNS, Web, and Email
PC7 to PC18 uses SRV2 DHCP server
Access point WPA2-PSK (passphrase)
Email: **@enology.com** (mike@enology.com, sara@enology.com, kyle@enology.com, and sky@enology.com)

Network 4 - Dual stack IPv4 and IPv6 (Pink) ***10 pts***

IPv6 Autoconfig EUI-64 for all devices
One (1) VLAN (VLAN 1 for everything)
Access point (passphrase) and WPA2-PSK

Network 5 - IPv4 only (Green) ***10 pts***

Three (3) VLANs (10, 20, (99 for mgmt))
SRV4 does DHCP, DNS, WEB, TFTP
Configuration files of SW9, SW10, and CoreSW4 on SRV4's TFTP serve

Network 6 - IPv4 only (Red) ***10 pts***

All tablets and phones are connected to ISR2
ISR (SSID, Login, Password, and Paraphrase)
TabletPC1 ping SRV1

Network 7 - IPv4 only (Purple) ***5 pts***

Three (3) VLANs (10, 20 and (99 for mgmt)
SRV4 does DHCP, DNS, WEB, TFTP
Put configuration files of SW9, SW10, and CoreSW4 on SRV4's TFTP server
Network 6 Analog phone (Line 3002) connects to Network 2 VoIP Phone (Line 2001)
Network 6 Analog phone (Line 3001) connects to Network 1 VoIP Phone (Line 104)

Frame Relay - Spoke and Hub for IPv4 (Navy Blue) *15 pts*

Hub	R1 connects Frame relay to R7
Spoke 1	R2 connects Frame relay to R5
Spoke 2	R3 connects Frame relay to R6
Spoke 3	R4 connects Frame relay to R8

R7 can ping R11