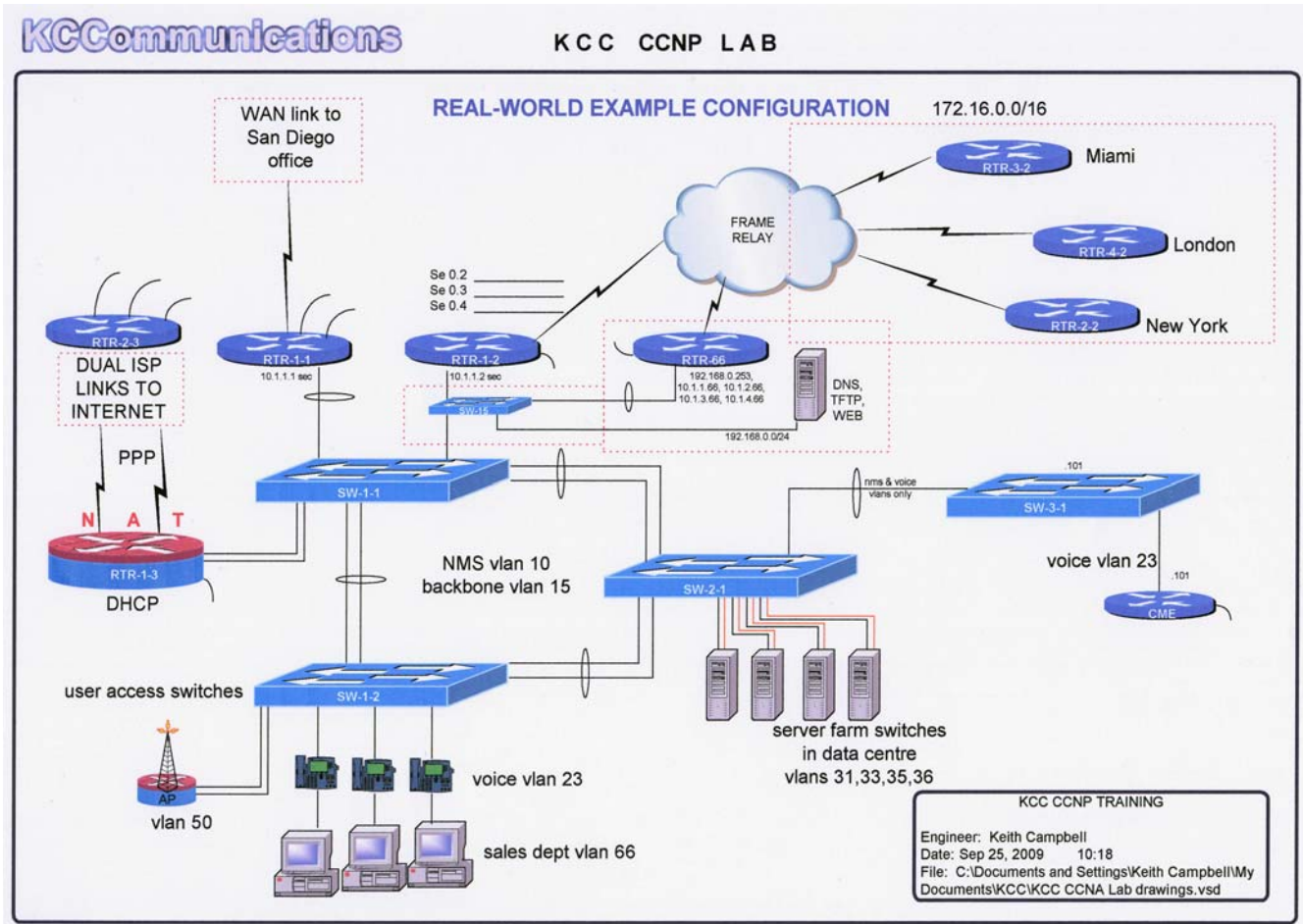


**KCC CCNP LAB 3**

**CCNP in italics / CCNA in normal fonts**

Use 172.16.0.0/16 in the following lab in addition to 10.1.x..x/16



Devices in red are not under our control. Address all devices so that full connectivity is enabled. Use the following VLANs and OSPF areas ;

- VLAN 1 make sure this can not be used to access the network
- VLAN 10 NMS place all layer-2 switches in this network plus room for 20 devices
- VLAN 15 BACKBONE
- VLAN 23 VOICE with room for 120 ip phones
- VLAN 31 server vlan for 12 servers
- VLAN 33 server vlan for 38 servers
- VLAN 35 server vlan for 5 servers
- VLAN 36 server vlan for iLO
- VLAN 50 WiFi vlan for 5 APs in ESS configuration
- VLAN 66 SALES vlan for 80 agents

10.1.1.0/24 must remain on at least two devices to enable remote VPN support  
 (10.1.1.x addressing is pre-configured on all devices to enable telnet access from VPN)

OSPF area 0 for BACKBONE  
OSPF area 30 for server farms  
OSPF area 23 for CME FastEthernet  
OSPF area 50 for WiFi  
*OSPF area 51 for loopback 51 on CME*

Ensure the loopback networks are not seen as host networks in OSPF.

Ensure that RTR-1-1 is always the DR for the BACKBONE

Configure to provide an OSPF cost of 200 between RTR-1-1 and RTR-1-3

Add a default route to RTR-1-3 toward the ISP *and redistribute into OSPF.*

Configure SW-1-1 as a VTP server in VTP domain kcc with password authentication.

Configure spanning tree using 802.1W with SW-1-1 as the root for the BACKBONE, SW-3-1 as the root for VOICE and SW-2-1 the root for the server farm.

*Enable etherchannel on the links between SW-1-1 and SW-2-1 and use spanning tree to load balance on all on the other switch to switch links*

Configure the server and users ports so they do not have to wait for spanning tree when they connect.

Configure DHCP on RTR-1-3 for all three pools.

Configure NAT on RTR-1-3 to allow a *single public address* to be used on the pair of serial links to the ISP for all connectivity through the ISP. *(CCNA – no need for multi-link PPP)*

Add a static route for the DNS networks on RTR-2 *and redistribute this into the OSPF* routing so all devices can make use of the DNS on 192.168.0.99. *CCNA add static routes where needed*

Configure an access-list to block web traffic from the sales department *during business hours of 9:00 – 17:00* to any public web server, but allow access to the internal web servers. *CCNA configured access-list without time restriction*

Configure the frame relay on RTR-1-2 to connect to MIAMI, LONDON and NEW YORK using point to point. Configure RIP version-2 over the frame relay networks.

*Redistribute the RIP networks into OSPF and the OSPF into the RIP network.*

*Configure RTR-1-2 such that traffic from VLAN 66 will be the first to be dropped by the frame relay carrier during congestion.*

*Configure EIGRP in AS23 for CME and RTR-1-1, redistribute EIGRP into OSPF.*