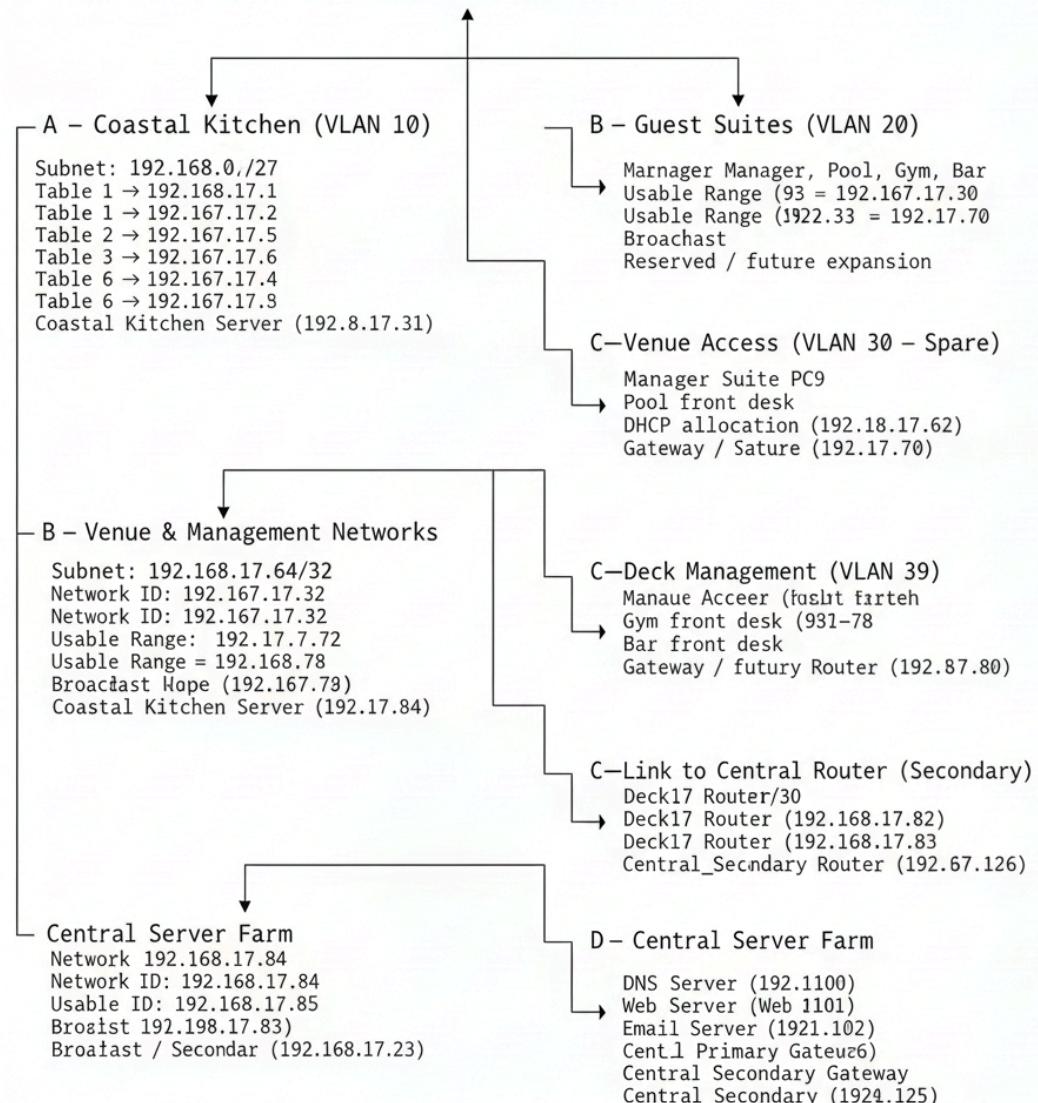


## VLSM Tree

Root Network: 192.168.17.0/24 (Total 256 IPs)



**IP address table:**

Device Name	Interface	IP Address	Subnet Mask	Default Gateway	Description
Deck17_Router	G0/0.10	192.168.17.30	255.255.255.224	N/A	Coastal Gateway
	G0/0.20	192.168.17.62	255.255.255.224	N/A	Guest Gateway
	G0/0.30	192.168.17.70	255.255.255.248	N/A	Mgmt Gateway
	G0/1	10.0.0.1	255.255.255.252	N/A	Link to Primary
	G0/2	10.0.0.5	255.255.255.252	N/A	Link to Backup
Central_Primary	G0/0	10.0.0.2	255.255.255.252	N/A	Link to Deck
	G0/1	192.168.17.126	255.255.255.224	N/A	Server Gateway
Table 1	NIC	192.168.17.1	255.255.255.224	192.168.17.30	Coastal PC 14
Guest PC	NIC	DHCP	DHCP	192.168.17.62	Guest Room 15

<b>Coastal Server</b>	NIC	192.168.17 .10	255.255.25 5.224	192.168.17 .30	Menu Server
<b>DNS Server</b>	NIC	192.168.17 .100	255.255.25 5.224	192.168.17 .126	Central DNS 16
<b>Web Server</b>	NIC	192.168.17 .101	255.255.25 5.224	192.168.17 .126	Central Web

## **Configuration commands for all routers:**

### **Deck 17 Router-**

```
en
conf t
int g0/0
no shut
exit
int g0/0.10
encap dot1Q 10
ip add 192.168.17.30 255.255.255.224
exit
int g0/0.20
encap dot1Q 20
ip add 192.168.17.62 255.255.255.224
exit
int g0/0.30
encap dot1Q 30
ip add 192.168.17.70 255.255.255.248
exit
int g0/1
ip add 10.0.0.1 255.255.255.252
no shut
exit
int g0/2
ip add 10.0.0.5 255.255.255.252
no shut
exit
ip dhcp pool Guest_Pool
network 192.168.17.32 255.255.255.224
default-router 192.168.17.62
dns-server 192.168.17.100
exit
ip route 0.0.0.0 0.0.0.0 10.0.0.2
ip route 0.0.0.0 0.0.0.0 10.0.0.6 10
access-list 100 permit ip 192.168.17.0 0.0.0.31 host 192.168.17.10
access-list 100 deny ip any host 192.168.17.10
access-list 100 permit ip any any end
write

show ip interface brief
show ip route
ping 10.0.0.2
```

**Central Primary:**

```
en
conf t
int g0/0
ip add 10.0.0.2 255.255.255.252
no shut
exit
int g0/1
ip add 192.168.17.126 255.255.255.224
no shut
exit
ip route 192.168.17.0 255.255.255.0 10.0.0.1
ip route 192.168.17.0 255.255.255.0 192.168.17.125 10
end
write
show ip interface brief
show ip route
ping 192.168.17.101
```

**Central Secondary:**

```
en
conf t
int g0/0
ip add 10.0.0.6 255.255.255.252
no shut
exit
int g0/1
ip add 192.168.17.125 255.255.255.224
no shut
exit
ip route 192.168.17.0 255.255.255.0 10.0.0.5
ip route 192.168.17.0 255.255.255.0 192.168.17.126 10
end
write

show ip interface brief
show ip route
```

### **List of any Assumptions:**

**Router-on-a-Stick:** Assumed the Deck Router supports 802.1Q encapsulation to handle three VLANs over a single physical cable.

**VLSM Growth:** Assumed Guest Suites (VLAN 20) will not exceed 30 users, allowing the use of a `/27` mask to minimize IP waste.

**Standard Gateways:** Assumed the highest usable IP in each subnet is reserved for the Router interface (Gateway).

**WAN Connectivity:** Assumed the use of HWIC-2T Serial Modules for dedicated, point-to-point backbone links between the Deck and Central routers.

**Clock Rate Timing:** Assumed the Central Primary router acts as the DCE device, providing the clocking signal for the serial links.

**Acceptable Downtime:** Assumed a 3–5 second delay during a primary link failure is acceptable for automatic failover to the secondary route.

**Security Logic:** Assumed "Security" means blocking Guest access to the Menu Server while maintaining full internet access for all users.

**External Services:** Assumed the Central Servers (DNS/Web) are managed externally and remain reachable via the provided Gateway IPs.