Project: John Wick
Group 810

In Router Little Russia:

```
en
erase startup-configure
reload
hostname LR
exit
show ip interface brief
conf t

interface FastEthernet0/0
ip address 198.50.208.1 255.255.248.0
no shut
exit

interface Serial2/0
ip address 198.50.221.1 255.255.255.252
clock rate 64000
no shut
exit

interface Serial3/0
ip address 198.50.221.21 255.255.255.252
clock rate 64000
no shut
exit

ip route 198.50.128.0 255.255.224.0 s3/0
ip route 198.50.220.0 255.255.255.0 s3/0

router rip
version 2
no auto-summary
network 198.50.208.0
network 198.50.221.0
passive-interface f0/0
copy run start
```

In Router Russian Alley:

```
en
erase startup-configure
reload
hostname RA
exit
show ip interface brief
conf t

interface FastEthernet0/0
ip address 198.50.192.1 255.255.248.0
no shut
exit

interface Serial2/0
ip address 198.50.221.2 255.255.255.252
clock rate 64000
no shut
exit

interface Serial3/0
ip address 198.50.221.5 255.255.255.252
clock rate 64000
no shut
exit

interface Serial6/0
ip address 198.50.221.25 255.255.255.252
clock rate 64000
no shut
exit

ip route 198.50.216.0 255.255.252.0 198.50.221.6
ip route 198.50.216.0 255.255.252.0 198.50.221.26 5

router rip
version 2
no auto-summary
network 198.50.192.0
network 198.50.221.0
passive-interface f0/0
copy run start
```

In Router Ms Perkins Warehouse:

```
en
erase startup-configure
reload
hostname MW
exit
show ip interface brief
conf t

interface FastEthernet0/0
ip address 198.50.128.1 255.255.224.0
no shut
exit

interface Serial2/0
ip address 198.50.221.18 255.255.255.252
clock rate 64000
no shut
exit

interface Serial3/0
ip address 198.50.221.22 255.255.255.252
clock rate 64000
no shut
exit

router rip
version 2
no auto-summary
network 198.50.160.0
network 198.50.221.0
passive-interface f0/0
copy run start
```

In Router Virgo's Place:

```
en
erase startup-configure
reload
hostname VP
exit
show ip interface brief
conf t

interface FastEthernet0/0
ip address 198.50.160.1 255.255.248.0
no shut
exit

interface Serial2/0
ip address 198.50.221.9 255.255.255.252
clock rate 64000
no shut
exit

interface Serial3/0
ip address 198.50.221.6 255.255.255.252
clock rate 64000
no shut
exit


ip route 198.50.208.0 255.255.248.0 s3/0
ip route 198.50.220.0 255.255.255.0 s2/0
```

In Router Marcus Lounge:

```
en
erase startup-configure
reload
hostname ML
exit
show ip interface brief
conf t

interface FastEthernet0/0
```

```
ip address 198.50.216.1 255.255.255.0
no shut
exit

interface Serial2/0
ip address 198.50.221.10 255.255.255.252
clock rate 64000
no shut
exit

interface Serial3/0
ip address 198.50.221.14 255.255.255.252
clock rate 64000
no shut
exit

ip route 198.50.192.0 255.255.240.0 s3/0
ip route 198.50.220.0 255.255.255.0 s3/0

router rip
version 2
no auto-summary
network 198.50.216.0
network 198.50.221.0
passive-interface f0/0
copy run start
```

In Router Safe House:

```
en
erase startup-configure
reload
hostname SH
exit
show ip interface brief
conf t

interface FastEthernet0/0
ip address 198.50.220.1 255.255.255.0
no shut
exit

interface Serial2/0
```

```
ip address 198.50.221.17 255.255.255.252
clock rate 64000
no shut
exit

interface Serial3/0
ip address 198.50.221.13 255.255.255.252
clock rate 64000
no shut
exit

interface Serial6/0
ip address 198.50.221.26 255.255.255.252
clock rate 64000
no shut
exit


ip route 198.50.128.0 255.255.224.0 s2/0
ip route 198.50.208.0 255.255.248.0 s2/0
ip route 198.50.192.0 255.255.240.0 198.50.221.25
ip route 198.50.216.0 255.255.252.0 198.50.221.14
```

IP Address Table:

Device	Interface	IP Address	Subnet Mask	Default Gateway	DNS Server
LR	fa0/0 se2/0 se3/0	198.50.208.1 198.50.221.1 198.50.221.21	255.255.248.0 255.255.255.252 255.255.255.252	N/A	N/A
RA	fa0/0 se2/0 se3/0 se6/0	198.50.192.1 198.50.221.2 198.50.221.5 198.50.221.25	255.255.240.0 255.255.255.252 255.255.255.252 255.255.255.252	N/A	N/A
SH	fa0/0 se2/0 se3/0 se6/0	198.50.220.1 198.50.221.17 198.50.221.13 198.50.221.26	255.255.255.0 255.255.255.252 255.255.255.252 255.255.255.252	N/A	N/A

VP	fa0/0 se2/0 se3/0	198.50.160.1 198.50.221.9 198.50.221.6	255.255.224.0 255.255.255.252 255.255.255.252	N/A	N/A
ML	fa0/0 se2/0 se3/0	198.50.216.1 198.50.221.10 198.50.221.14	255.255.252.0 255.255.255.252 255.255.255.252	N/A	N/A
MPW	fa0/0 se2/0 se3/0	198.50.128.1 198.50.221.18 198.50.221.22	255.255.224.0 255.255.255.252 255.255.255.252	N/A	N/A
PC1	fa0	DHCP assigned	DHCP assigned	N/A	N/A
PC2	fa0	DHCP assigned	DHCP assigned	N/A	N/A
DHCP Server - LR	fa0	198.50.208.2	255.255.248.0	N/A	N/A
PC3	fa0	DHCP assigned	DHCP assigned	N/A	N/A
Laptop1	fa0	DHCP assigned	DHCP assigned	N/A	N/A
DHCP Server - RA	fa0	198.50.192.2	255.255.240.0	N/A	N/A
PC6	fa0	198.50.160.2	255.255.224.0	198.50.160.1	N/A
PC7	fa0	198.50.160.3	255.255.224.0	198.50.160.1	N/A
Laptop2	fa0	DHCP assigned	DHCP assigned	198.50.160.1	N/A
PC8	fa0	DHCP assigned	DHCP assigned	198.50.216.1	198.50.216.2
Web Server	fa0	DHCP assigned	DHCP assigned	198.50.216.1	198.50.216.2
DHCP, DNS Server - ML	fa0	198.50.216.2	255.255.252.0	198.50.216.1	198.50.216.2
DNS Server- SH	fa0	198.50.220.6	255.255.255.0	198.50.220.1	198.50.220.6
Laptop2	fa0	198.50.160.4	255.255.224.0	198.50.160.1	198.50.220.6
Keya	fa0	198.50.220.3	255.255.255.0	198.50.220.1	198.50.220.6
Moin	fa0	198.50.220.5	255.255.255.0	198.50.220.1	198.50.220.6
SafeMail	fa0	198.50.220.2	255.255.255.0	198.50.220.1	198.50.220.6
Printer	fa0	198.50.220.4	255.255.255.0	198.50.220.1	198.50.220.6
DNS Server - SH	fa0	198.50.220.6	255.255.255.0	198.50.220.1	198.50.220.6
Mashait	fa0	DHCP assigned	DHCP assigned	198.50.128.1	198.50.128.2
Ashfia	fa0	DHCP assigned	DHCP assigned	198.50.128.1	198.50.128.2

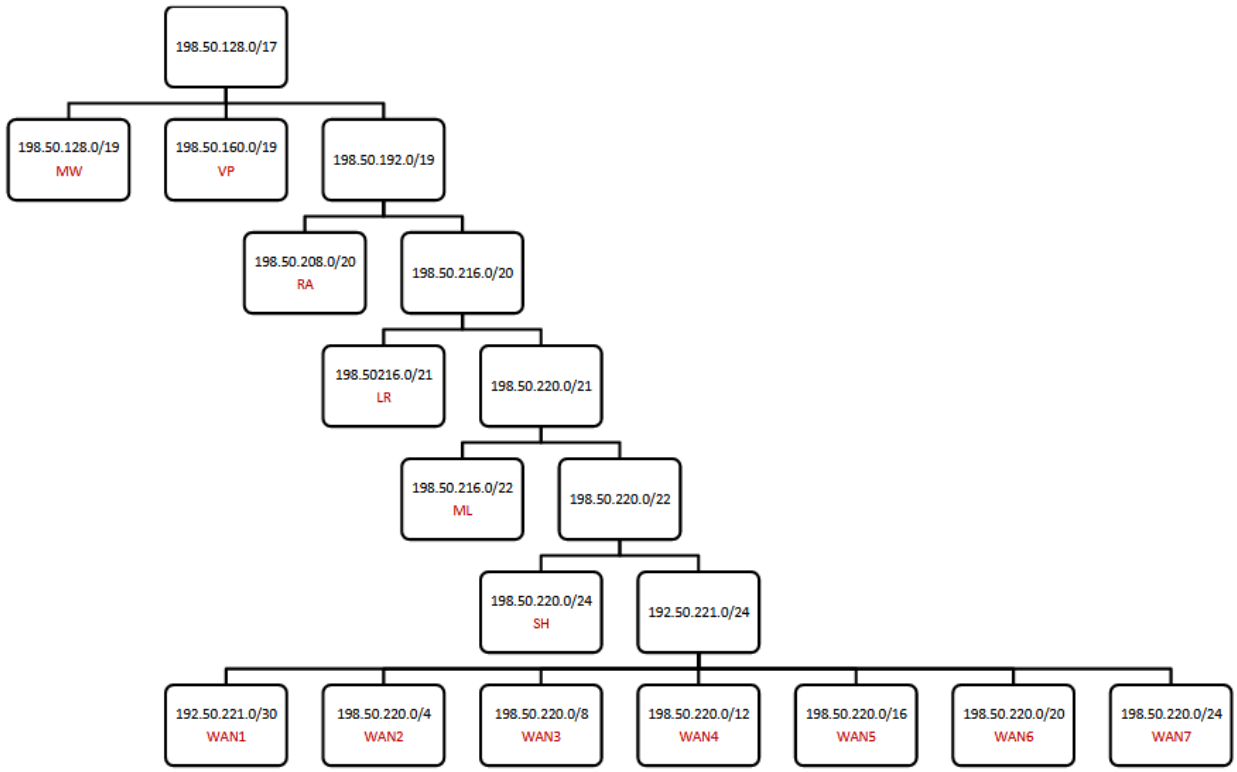
DHCP, DNS Server - MW	fa0	198.50.128.2	255.255.224.0	198.50.128.1	198.50.128.2
PerkinMail	fa0	DHCP assigned	DHCP assigned	198.50.128.1	198.50.128.2

VLSM Details:

Highest number of hosts is in Ms. Perkins Warehouse which is 6546.
Therefore, host bit = log_2(6546+2) = 13 and network bit = 32-13 = 19
The second highest number of hosts is in Virgo's Place. It also needs hosts bits = 13.
So, our prefix mask needs to be 17 because the two network addresses possible with prefix mask 18 is given to Ms Perkins Warehouse and virgo's Place and we still need more ip addresses to assign to the other networks.

Host Name	Host Requirement	Actual host Requirement	IP Block Size	Host Bit Required	Network bit Required
Ms. Perkins Warehouse	6546	6548	8192	13	19
Virgos' Place	4565	4567	8192	13	19
Russian Alley	3000	3002	4096	12	20
Little Russia	1236	1238	2048	11	21
Marcus Lounge	756	758	1024	10	22
Safe House	200	202	256	8	24
WAN1	2	4	4	2	30
WAN2	2	4	4	2	30
WAN3	2	4	4	2	30
WAN4	2	4	4	2	30
WAN5	2	4	4	2	30
WAN6	2	4	4	2	30
WAN7	2	4	4	2	30

VLSM Tree



Assumptions:

- There is a DNS server in every LAN having web server and email server.