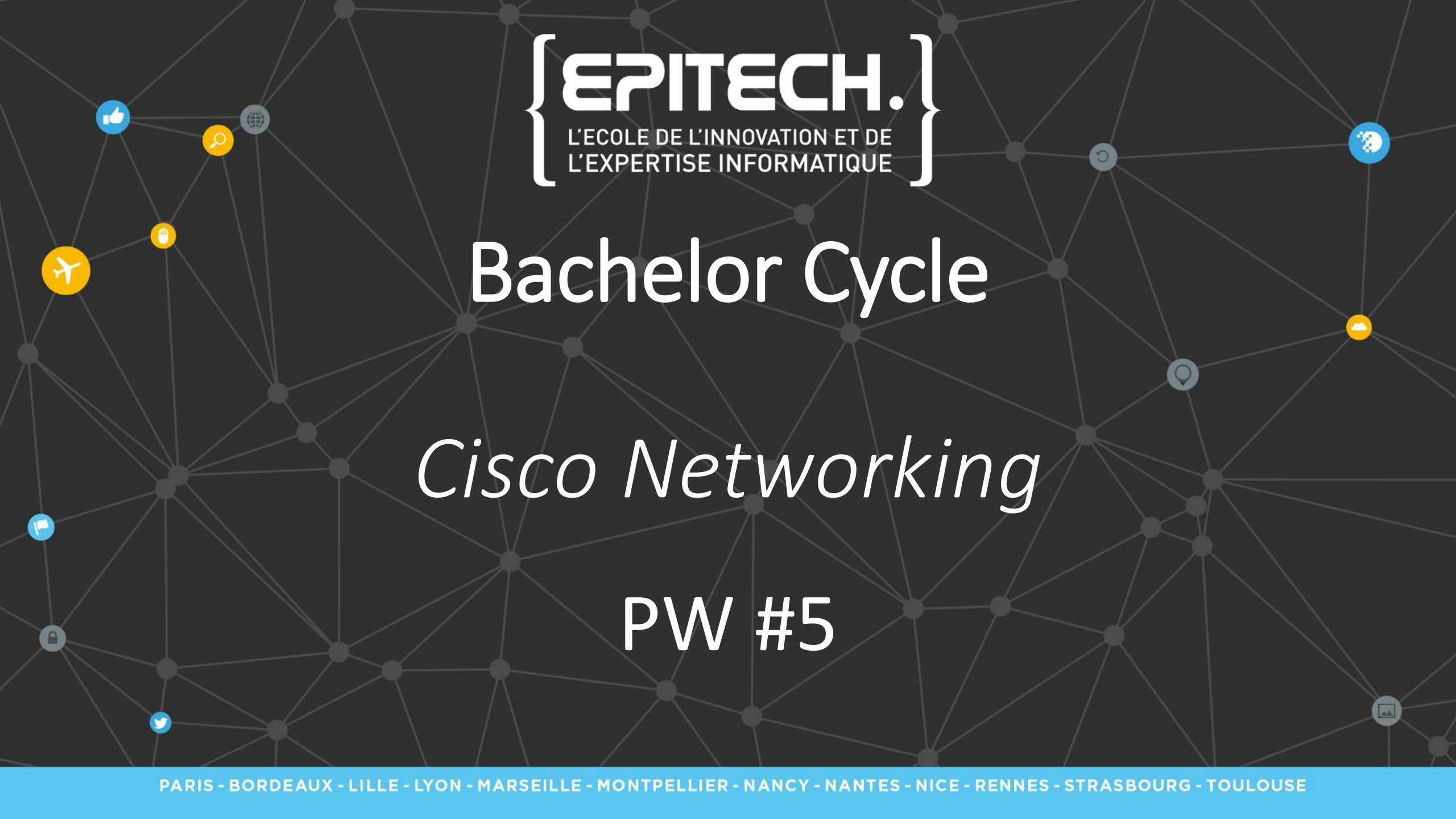

EPITECH.
L'ECOLE DE L'INNOVATION ET DE L'EXPERTISE INFORMATIQUE
Bachelor Cycle
Cisco Networking
PW #5
PARIS - BORDEAUX - LILLE - LYON - MARSEILLE - MONTPELLIER - NANCY - NANTES - NICE - RENNES - STRASBOURG - TOULOUSE

Summary

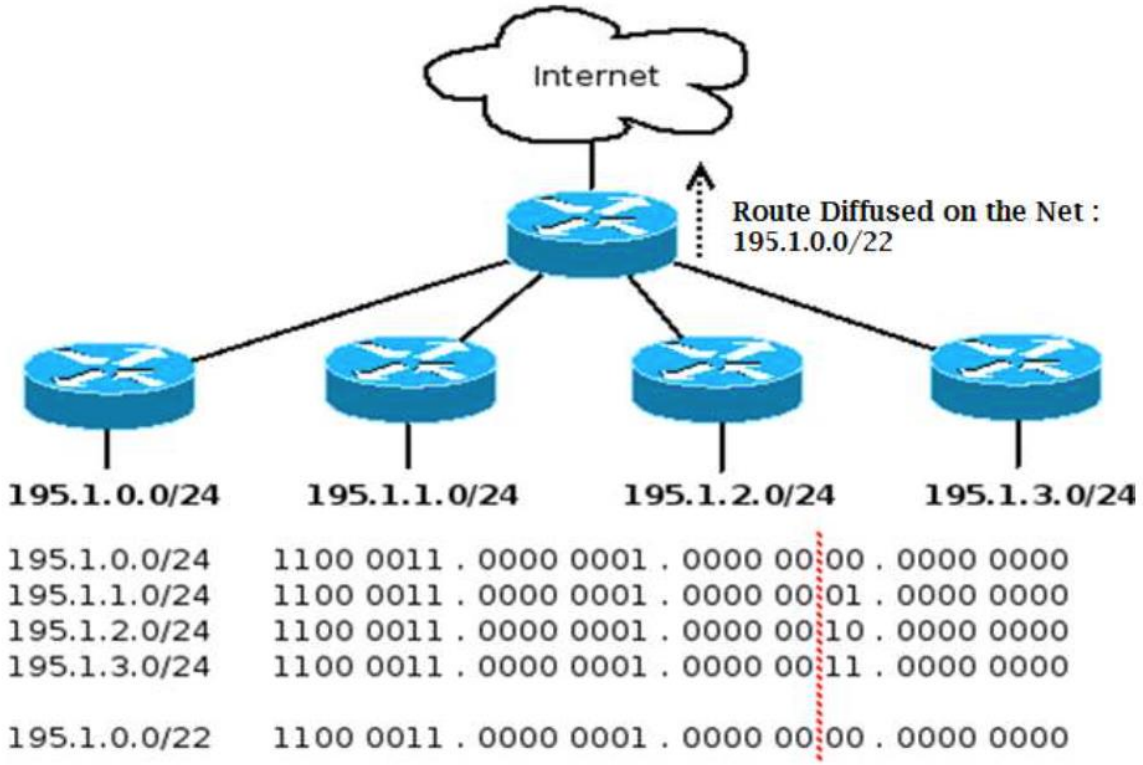
- CIDR
- VLSM
- IP Classification
- Loopbacks
- Practical Work

CIDR (1/2)

- CIDR (Classless Inter-Domain Routing) is a solution to the Internet expansion problem that causes a growth of routing tables.
- The method is to find the bits that are identical for all the addresses and shorten mask to common portion.
- The principal constraint is hosts, routers and routing protocols must support the classless method and the addressing plan must be hierarchical.

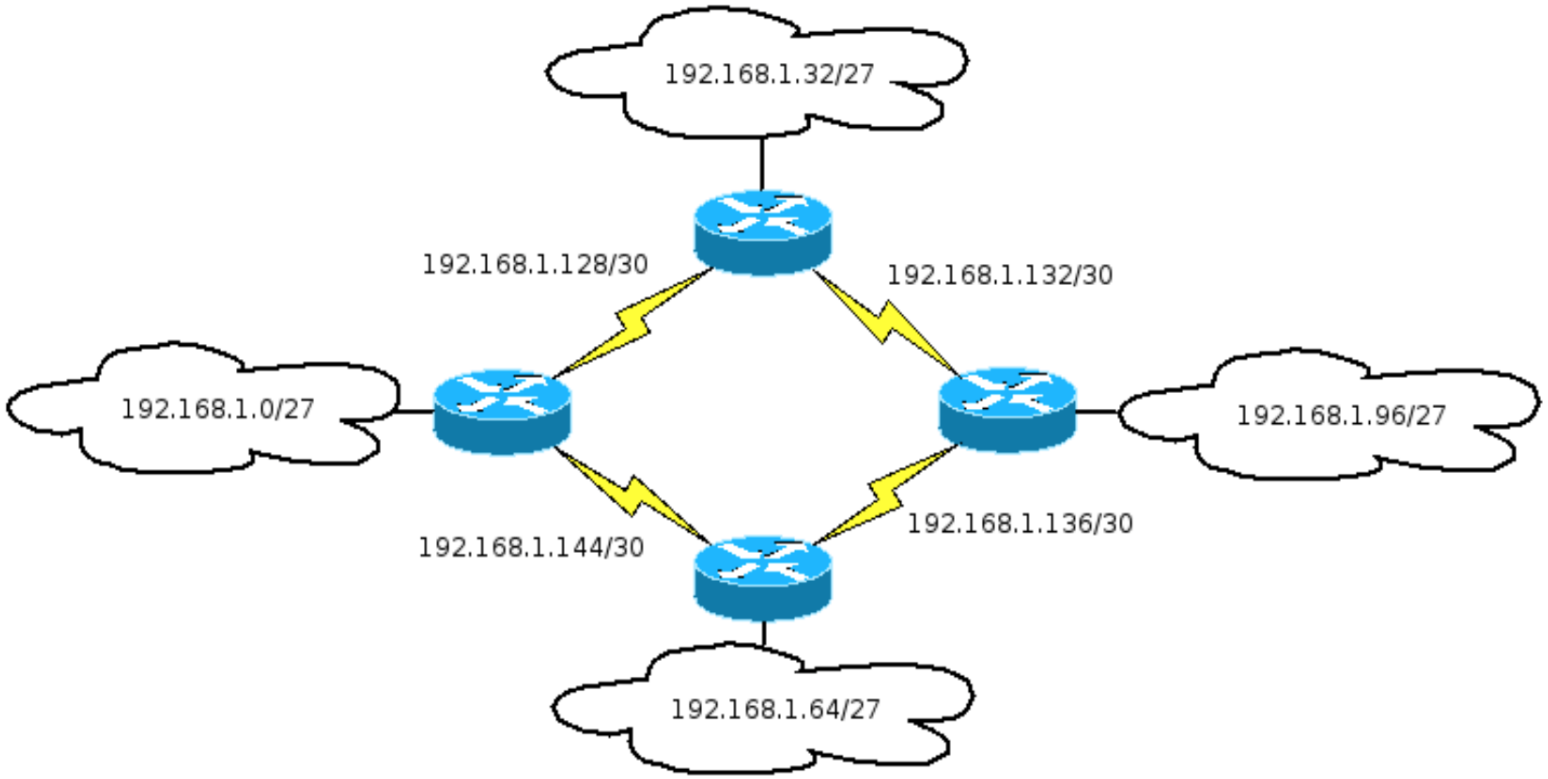
CIDR (2/2)

- Example : How to aggregate 4 network addresses in one.

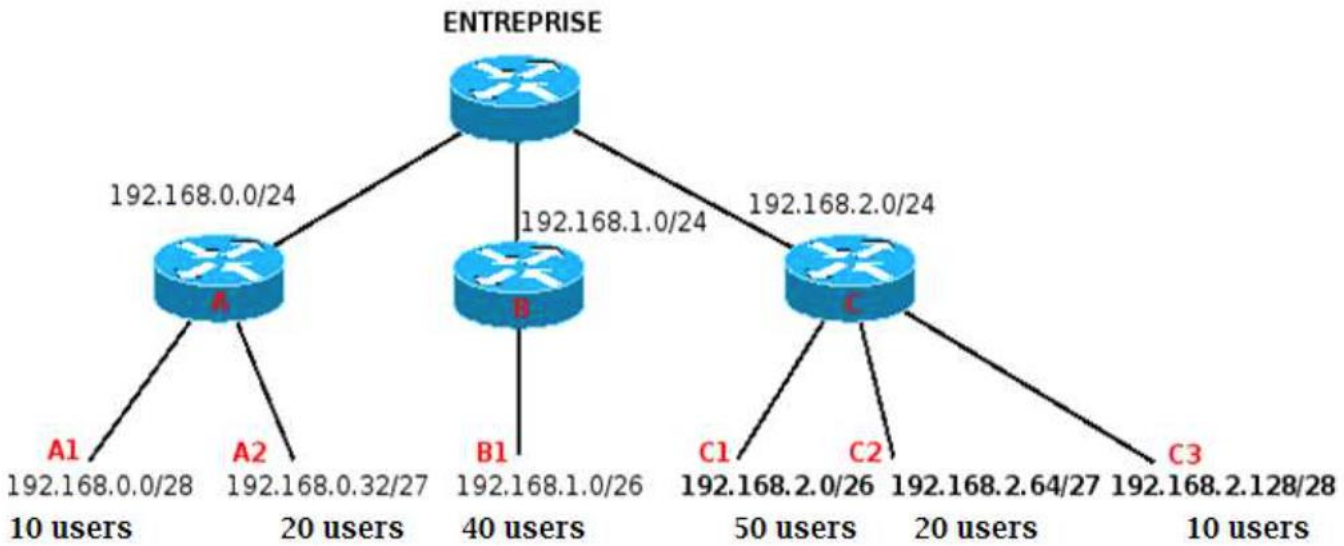


VLSM (1/2)

- VLSM (Variable Length Subnet Mask) is an application of the CIDR principles to an organization.
- Example for a single range network, 192.168.1.0

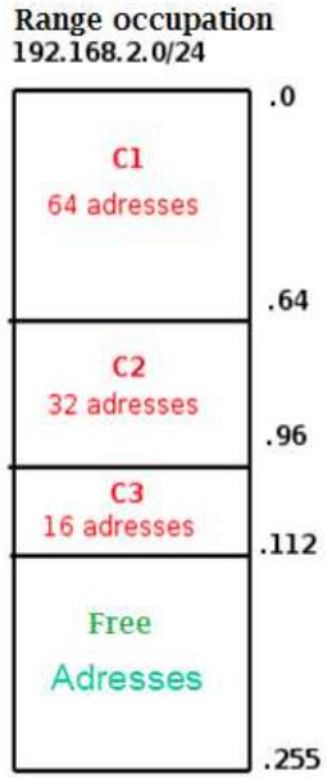


VLSM (2/2)



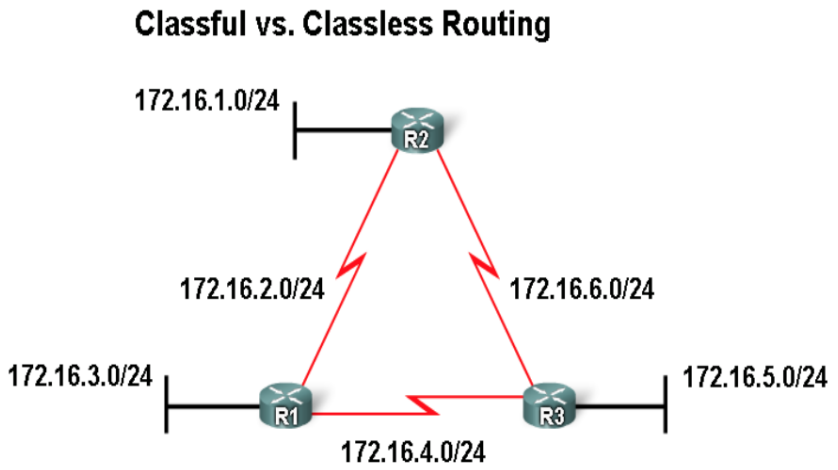
Explication for network C :

- C1 must have an address range for 50 users, his mask should be /26, this assure you to have 64 - 2 (Network + Broadcast) = 60 addresses.
- C2 needs 20 users and so must have a /27 mask, wihch give acces to 32 - 2 addresses.
- C3 needs 10 users and so must have a /28 mask, wihch give acces to 16 - 2 addresses.

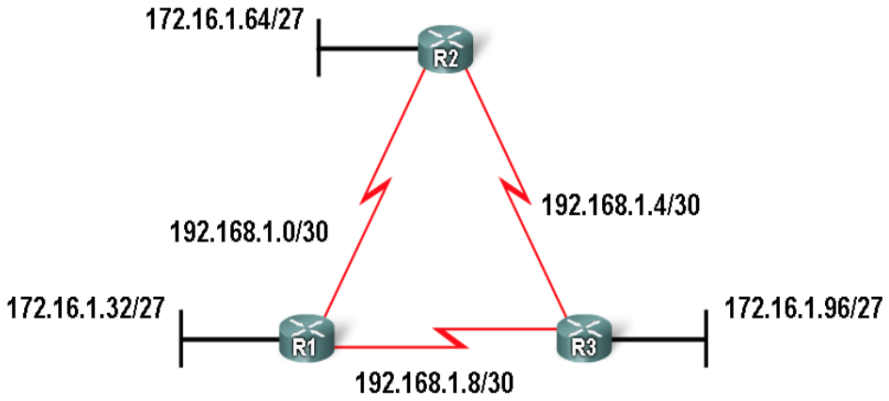


IP Classification

- Classful
  - ✧ Don't send the mask while updating
- Classless
  - ✧Send the mask while updating



Classful: Subnet mask is the same throughout the topology



Classless: Subnet mask can vary in the topology

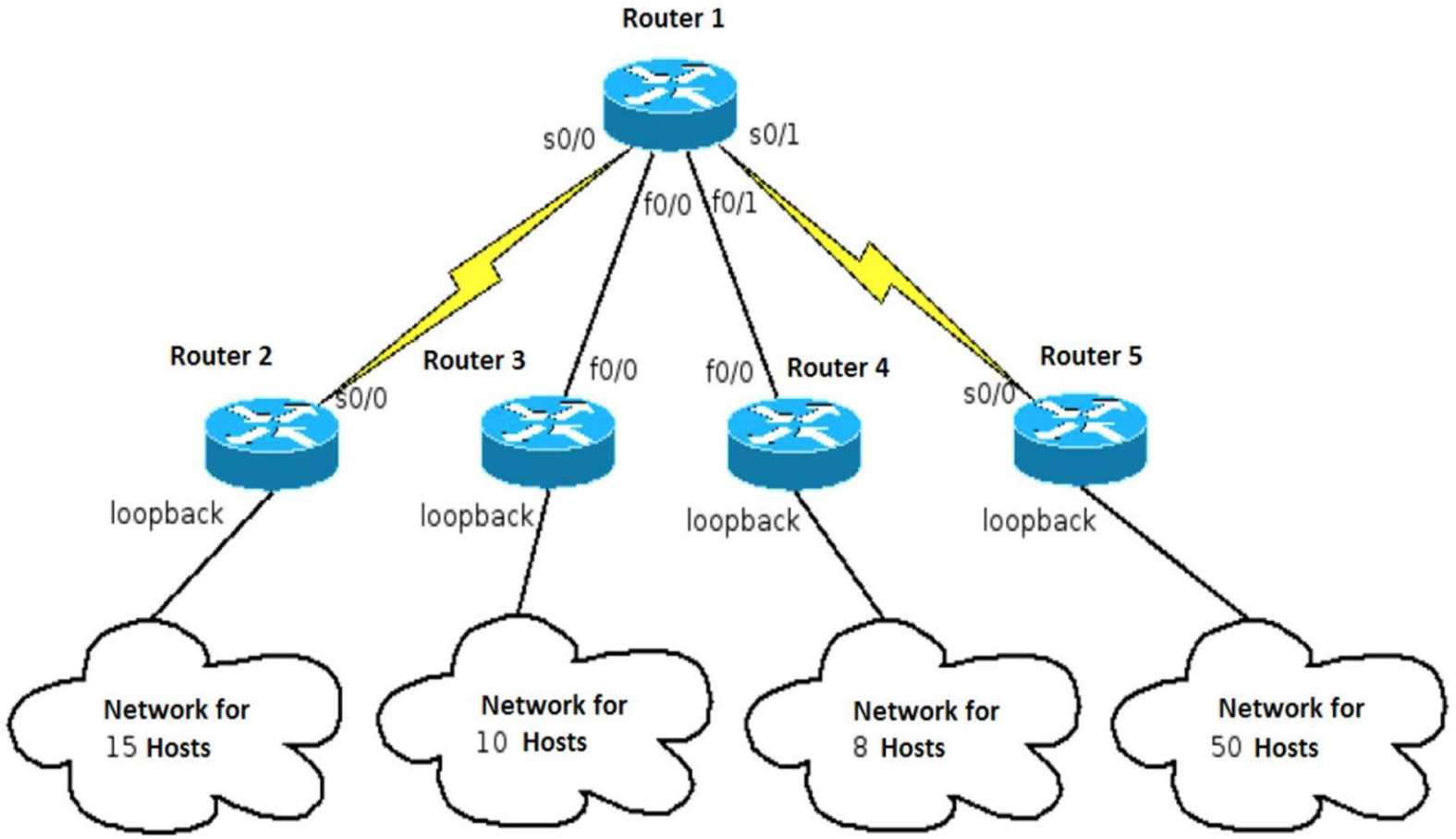
Loopback

- Loopback is a virtual interface of a network device

```
Lab1-ro1841-1(config)#>interface loopback 1
Lab1-ro1841-1(config-if)#>ip address 192.168.1.1 255.255.255.0
Lab1-ro1841-1(config-if)#>no shutdown
Lab1-ro1841-1(config-if)#>exit
```

- **Warning : just configure the first ip address available of the network**

Practical Work (1/2)



Practical Work (2/2)

- Router 2 to Router 5 should have a simulated network using a loopback interface. Use VLSM with 192.168.1.0/24
- Configure router 1 so it has access to loopback interfaces from each other router.
- Configure the other 4 routers so they can access to every distant network (not directly connected) passing through router 1.