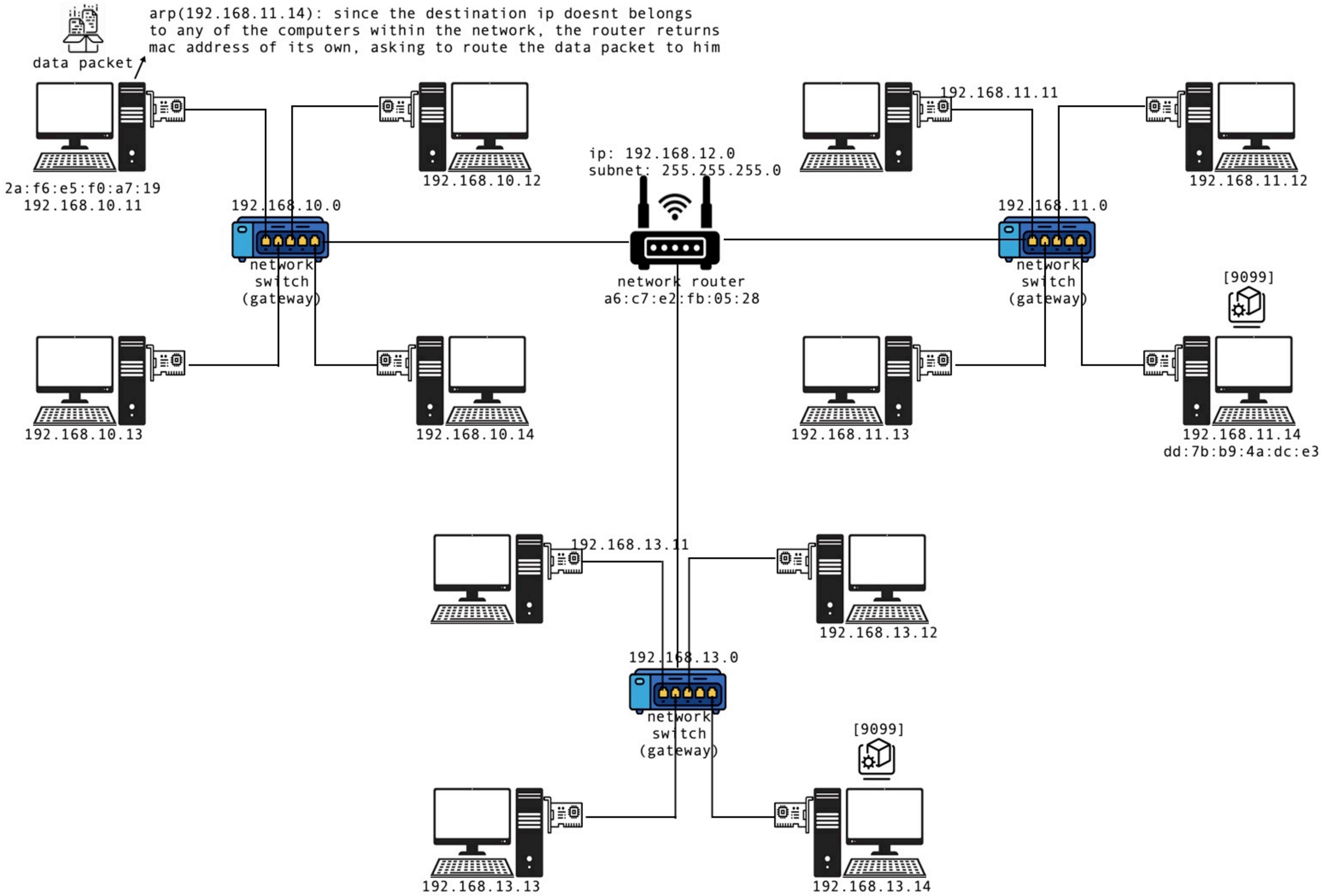
payload|9099|1|192.168.10.11|192.168.11.14 2a:f6:e5:f0:a7:19|a6:c7:e2:fb:05:28



The router upon receiving the data packet, it has to route it to the right network, so that it can be received by the destination computer of the network. In order to identify the right network, the router has to take the destination computer ip address from ip/data packet and has to compute the network address

How does the router can compute the network address from an given ip address?
since the ip classes are pre-defined and the number of network and host bits are fixed based on these classes, to help the routers in quickly computing the network address from given ip address, the subnet mask has been introduced.

For each ip class, the subnet mask has been fixed as below:

1. Class A: 255.0.0.0
2. Class B: 255.255.0.0
3. Class C: 255.255.255.0

While configuring the routers/switches/computers/dhcp servers the network administrator will configure these devices with ip address configuration.He has to populate the subnet mask for each device based on IP CLASS being used within the network.

upon receiving the destination computers ip address, the router has to compute the network address from it based on subnet mask it has configured with. For this the router will perform logic bitwise AND operation as below.

destination: 192.168.11.14
router submask: 255.255.255.0

	128	64	32	16	8	4	2	1	.	128	64	32	16	8	4	2	1	.	128	64	32	16	8	4	2	1	.	128	64	32	16	8	4	2	1
ip:	1	1	0	0	0	0			.	1	0	1	0	1	0			.	0	0	0	0	1	0	1	1	.	0	0	0	0	1	1	1	0
subnet mask:	1	1	1	1	1	1			.	1	1	1	1	1	1			.	1	1	1	1	1	1	1	1	.	0	0	0	0	0	0	0	0
	1	1	0	0	0	0			.	1	0	1	0	1	0			.	0	0	0	0	1	0	1	1	.	0	0	0	0	0	0	0	0
	192								.	168								.	11								.	0							

From the above we can understand submask is used for computing the network address from the given ip address. The routers uses the subnet mask in routing the data packet to the right computer network.