

# New York Sales Department



- The next largest subnet is New York Sales which requires 14 hosts.
- Pause the video here and calculate the optimal subnet mask.
- Also determine the network and broadcast addresses that we will allocate, and the range of host addresses.

# New York Sales Department



- We've been allocated 200.15.10.0/24

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
1	1	0	0	1	0	0	0	0	0	0	0	1	1	1	1	0	0	0	0	1	0	1	0	0	0	0	0	0	0	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
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0	

- /28 (or 255.255.255.240) supports 14 hosts
- 200.15.10.0 to 200.15.10.63 are already in use by the Engineering departments, so this network address will start at 200.15.10.64
- The network address goes up in values of 16, so the next one is 200.15.10.80
- Our broadcast address is 200.15.10.79
- Valid host addresses are 200.15.10.65 to 200.15.10.78

# Boston Sales Department



- The next largest subnet is Boston Sales which requires 7 hosts.
- Pause the video here and calculate the optimal subnet mask.
- Also determine the network and broadcast addresses that we will allocate, and the range of host addresses.

# Boston Sales Department



- We've been allocated 200.15.10.0/24

128	64	32	16	8	4	2	1	128	64	32	16	8	4	2	1	128	64	32	16	8	4	2	1
1	1	0	0	1	0	0	0	0	0	0	0	1	1	1	1	0	0	0	0	1	0	1	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
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0	0

- /28 (or 255.255.255.240) supports 14 hosts
- /29 does not support 8 hosts! Remember to subtract 2 for the network and broadcast address
- 200.15.10.0 to 200.15.10.79 are already in use, so this network address will start at 200.15.10.80
- The network address goes up in values of 16, so the next one is 200.15.10.96
- Our broadcast address is 200.15.10.95
- Valid host addresses are 200.15.10.81 to 200.15.10.94

# Subnetting



- We're done, right?
- Not so fast, don't forget the links between routers
- You also need to allocate address space for your router loopback interfaces, we'll talk about those later. (Not required in our example.)

# New York to Boston Link



- The last subnet is the link between the New York and Boston routers.
- Pause the video here and calculate the optimal subnet mask.
- Also determine the network and broadcast addresses that we will allocate, and the range of host addresses.

# New York to Boston Link



- We've been allocated 200.15.10.0/24

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
1	1	0	0	1	0	0	0	0	0	0	0	1	1	1	1	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	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
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	0	0	0

- /30 (or 255.255.255.252) supports 2 hosts
- 200.15.10.0 to 200.15.10.95 are already in use, so our network address will be 200.15.10.96
- The network address goes up in values of 4, so the next one is 200.15.10.100
- Our broadcast address is 200.15.10.99
- Valid host addresses are 200.15.10.97 to 200.15.10.98

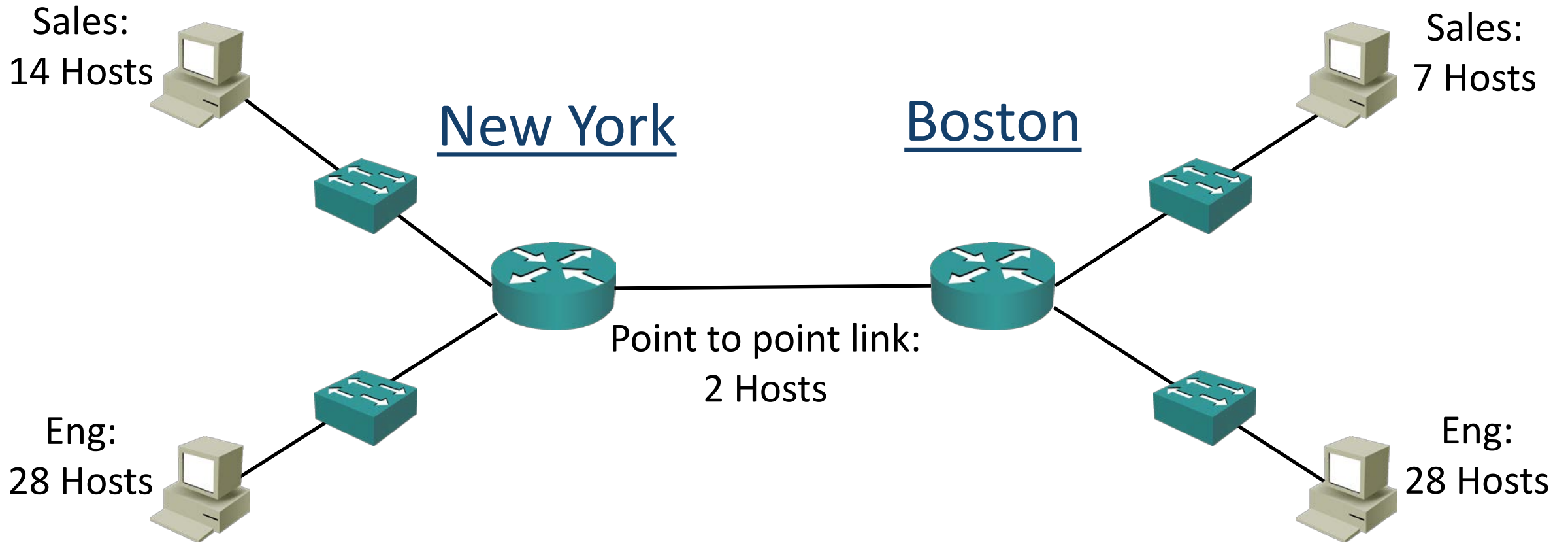
# Network Topology Diagram



- Revisit the network topology diagram again on the next slide
- Update the diagram with the IP addressing information for each subnet
- Also enter the IP addresses on the router
- The default gateway address should be the first available address in each subnet



# Network Topology Diagram



We've been allocated the Class C network 200.15.10.0/24

# Network Topology Diagram

