Networks

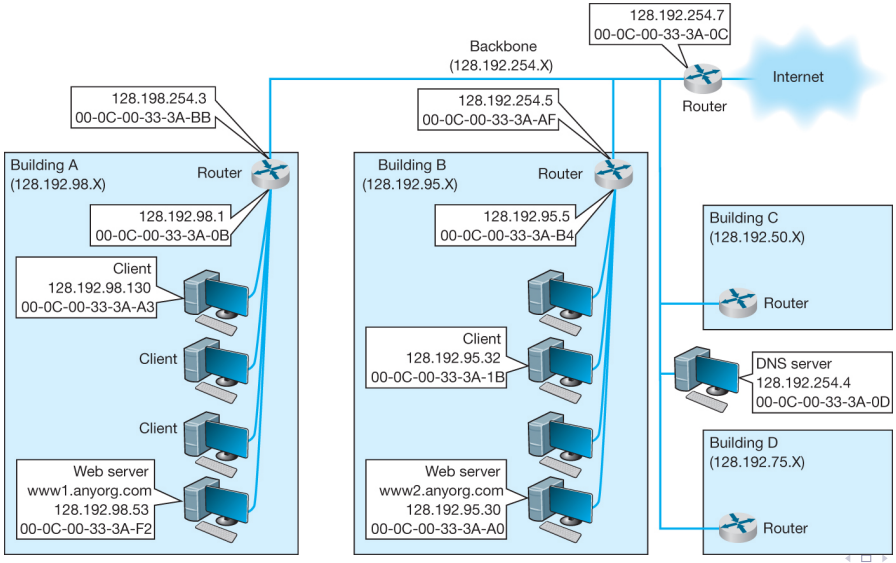
In Class Exercise

Irfan Kanat

Department of Digitization
Copenhagen Business School

February 21, 2022

Group Activity: Exercise



Exercise Case 1

CASE: Client (128.192.98.130) requests a web page from server (www1.anyorg.com)

Exercise Case 1

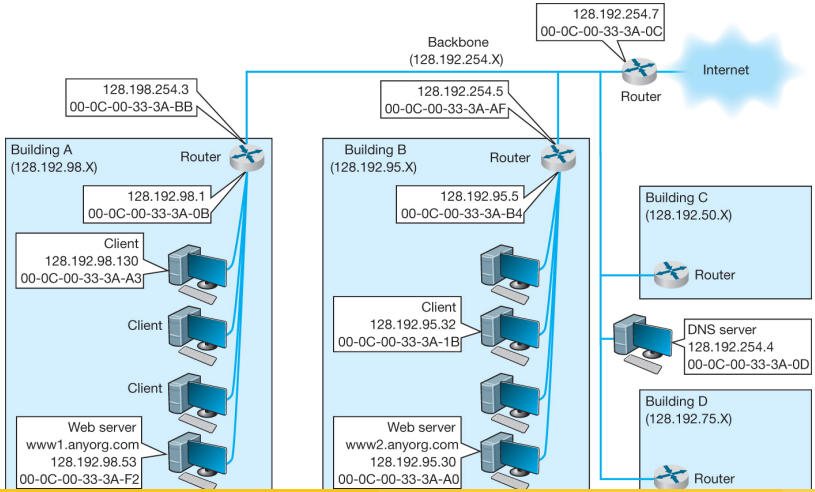
CASE: Client (128.192.98.130) requests a web page from server (www1.anyorg.com)

Client knows the server's IP and Ethernet Addresses

List out the steps in getting the request to the server starting from client.

Exercise Case 1

CASE: Client (128.192.98.130) requests a web page from server (www1.anyorg.com)



Exercise Case 1

CASE: Client (128.192.98.130) requests a web page from server (www1.anyorg.com)

Client knows the server's IP and Ethernet Addresses

List out the steps in getting the request to the server starting from client.

1. Create a package with all layers (HTTP, TCP, IP, MAC)
2. Destination IP address is set as 128.192.98.53
3. Client realizes it is on the same network
4. Adds the server's MAC address as the destination address (00-0C-00-33-3A-F2)
5. Switch (router) sees the MAC address and forwards it to server
6. Server receives the package

Exercise Case 2

CASE: Server (www1.anyorg.com) responds to client (128.192.98.130)

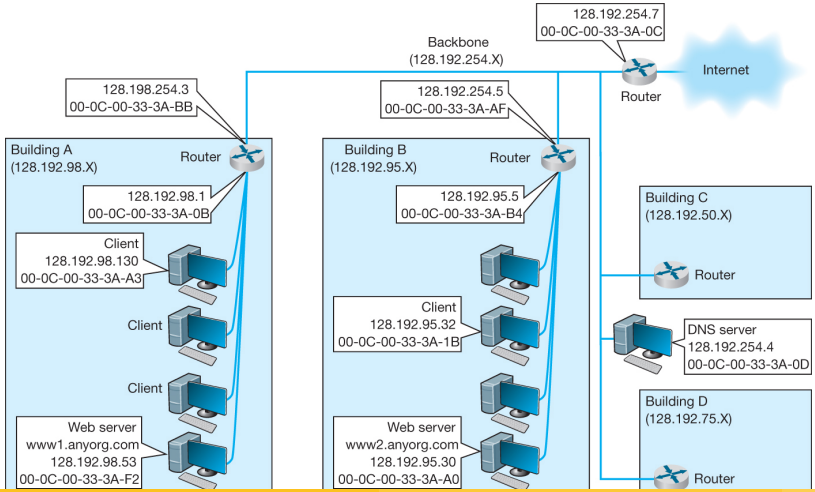
Exercise Case 2

CASE: Server (www1.anyorg.com) responds to client (128.192.98.130)

List out the steps in getting the response to the client starting from server.

Exercise Case 2

CASE: Server (www1.anyorg.com) responds to client (128.192.98.130)



Exercise Case 2

CASE: Server (www1.anyorg.com) responds to client (128.192.98.130)

List out the steps in getting the response to the client starting from server.

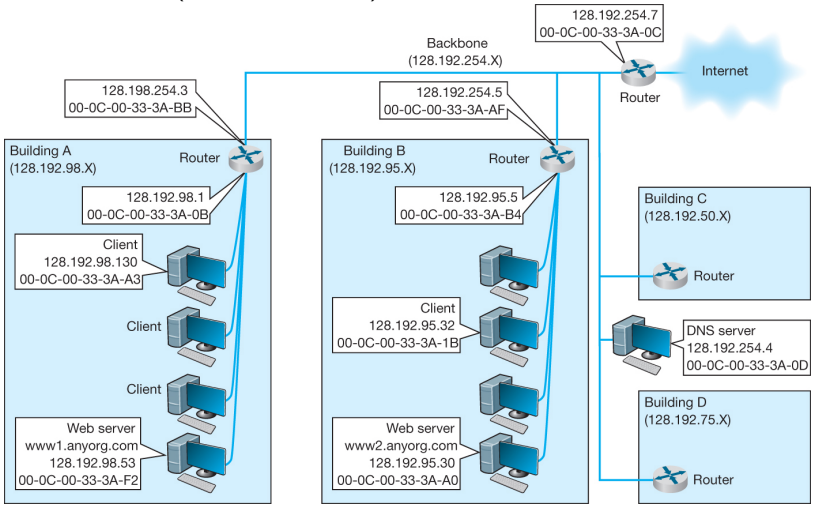
1. package received, goes up through the stack (MAC, IP, TCP, HTTP)
2. Prepare HTTP response with proper HTML web page (HTTP, TCP, IP, MAC)
3. Destination IP address is set as 128.192.98.130
4. Server realizes it is the same network.
5. Adds the client's MAC address as the destination (00-0C-00-33-3A-A3)
6. Switch (router) sees the MAC address and forwards it to client
7. Client receives the package

Exercise Case 3

CASE: Client (128.192.98.130) requests a web page from www2.anyorg.com.

Exercise Case 3

CASE: Client (128.192.98.130) requests a web page from www2.anyorg.com.



Exercise Case 3

CASE: Client (128.192.98.130) requests a web page from www2.anyorg.com.

1. Create a package with all layers (HTTP, TCP, IP, MAC)
2. Destination IP address is set as 128.192.95.30
3. Client realizes it is not on the same network
4. Destination MAC address is set for the Gateway router (00-0C-00-33-3A-0B)
5. Router receives the package (it is the L2 destination)
6. Router removes L2 header
7. Router determines next node (Router Table)
8. Creates a new L2 header with next router MAC address (00-0C-00-33-3A-B4)
9. Second router receives
10. Determines destination for local delivery (IP)
11. Replaces L2 header (MAC set to server's 00-0C-00-33-3A-A0)
12. Server receives the package.

Case 3: A picture is worth a thousand words