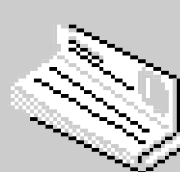
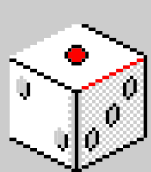
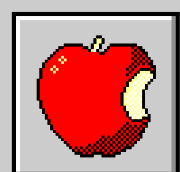
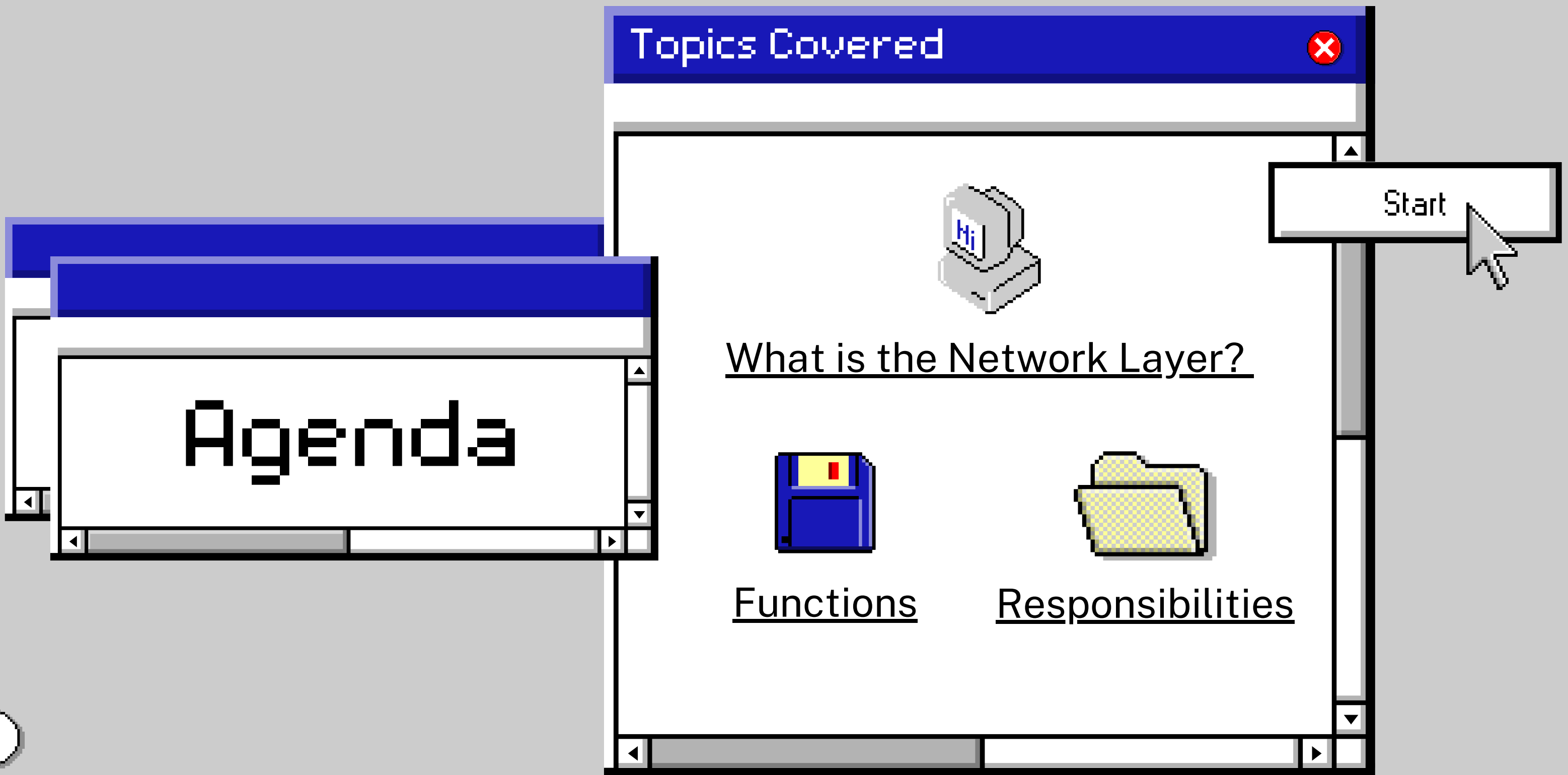
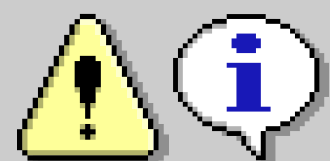


Network Layer



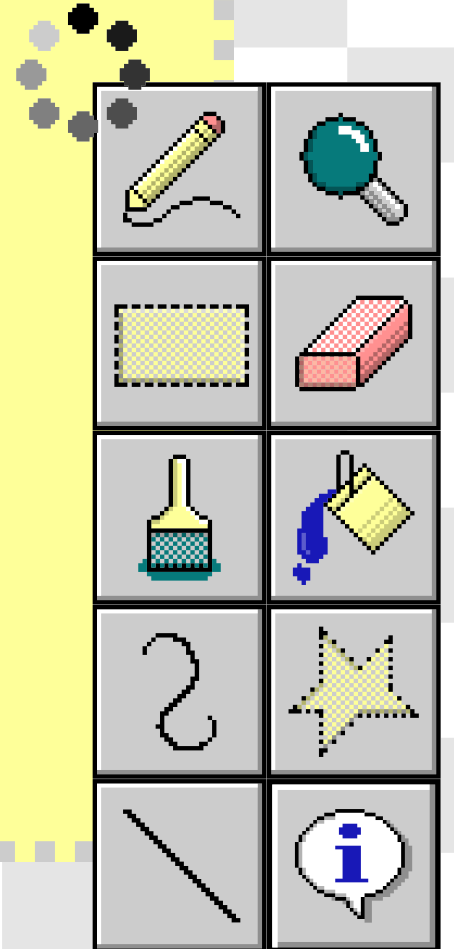
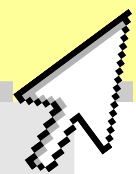
Prepared by:
BALORAN, Katrina Unice
ESTRELLA, Ace V.
GARCIA, Karl Lawrence

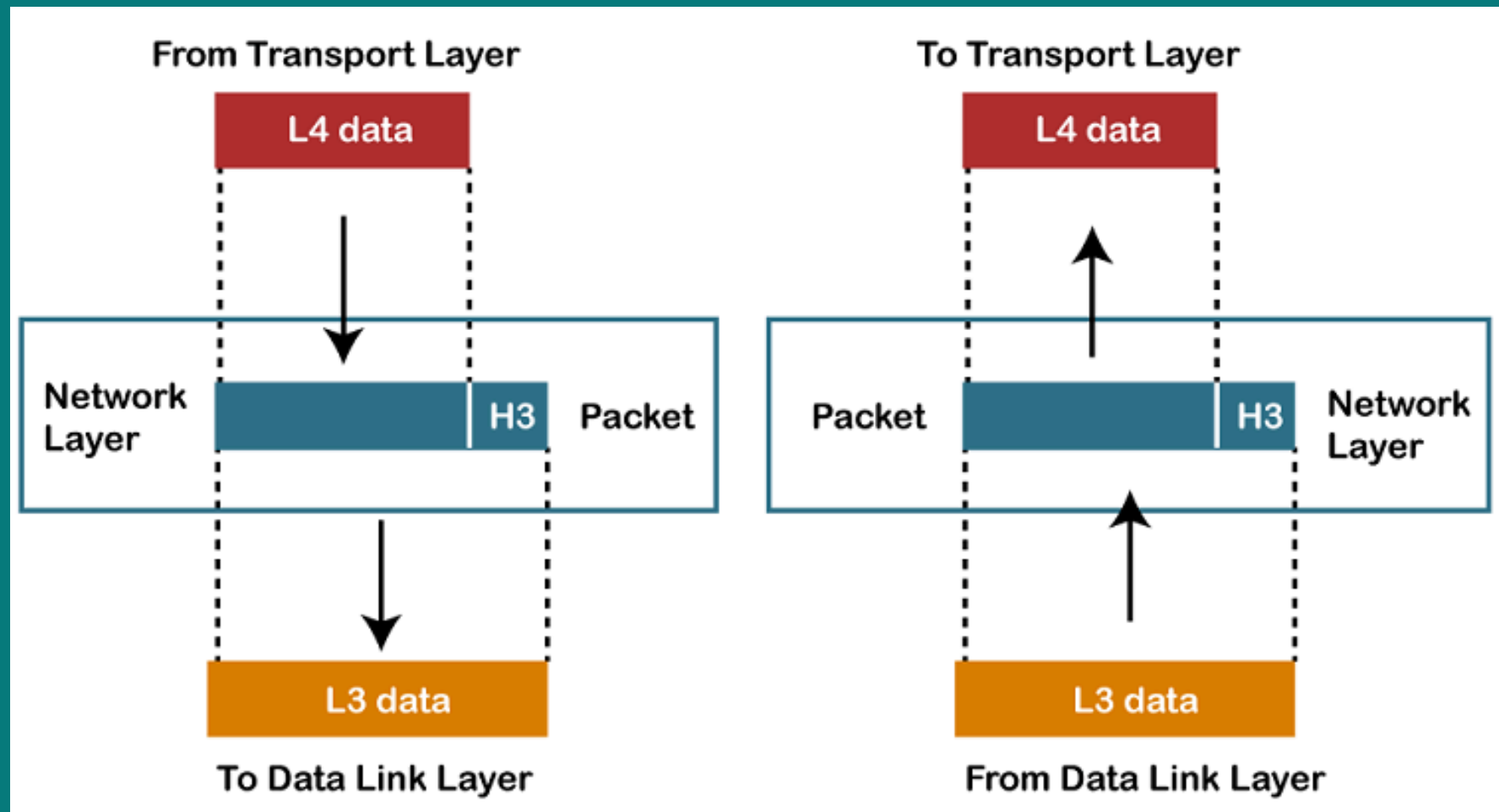






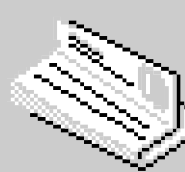
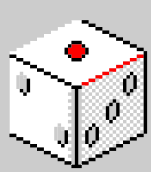
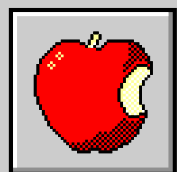
What is the
Network layer?





Network Layer

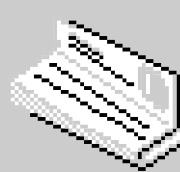
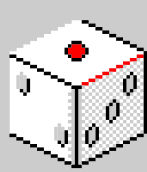
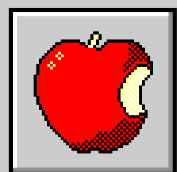
- This layer is responsible for sending the received segments and providing them with the **destination address**.
- This layer also ensures that the data packets are transmitted through the **best possible route**.
- This layer also uses the IP and IPv6 protocols.



Logical Addressing



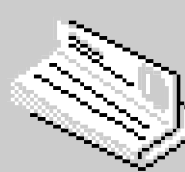
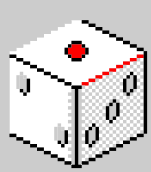
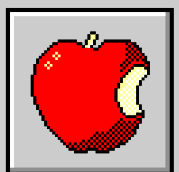
- Uses **IP addresses** to identify device on the network.
- IP addresses help identify devices outside the sender's network.
- Each intermediate node checks the IP address in the packet header and forwards it if it's not the final destination.



Routing



- Data is divided into packets, each with a sequence number.
- Packets may take different routes and arrive out of order.
- Intermediate nodes compute the **best possible path** based on factors like **congestion and number of hops**.
- Routing uses **algorithms** to find the optimal paths for packets.





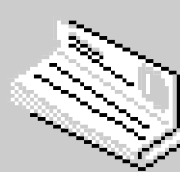
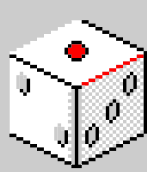
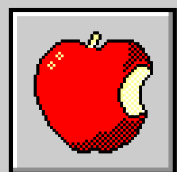
Functions of the Network Layer



Inter-Networking



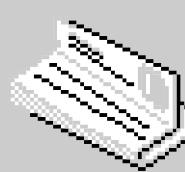
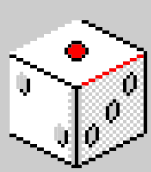
- It is one of the main tasks of the networking layer to **handle the network** between multiple devices in the channel.
- This task **applies multiple protocols** available in the network layer of the OSI model for stable network connection.



Network Addressing



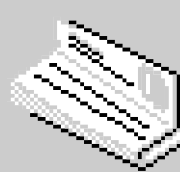
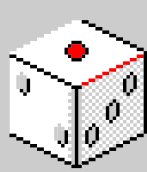
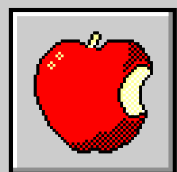
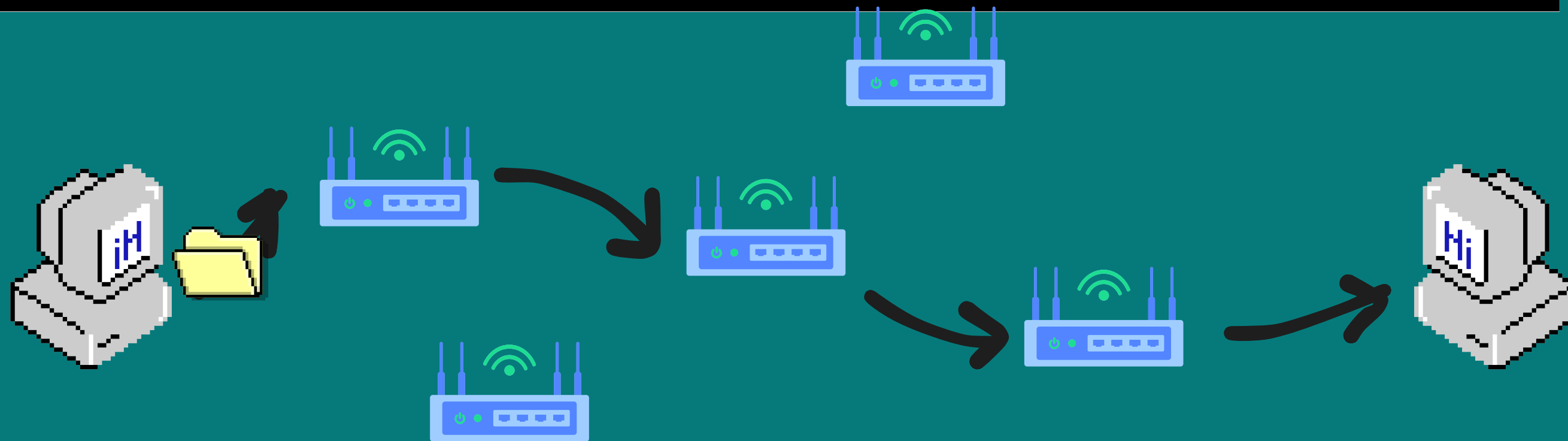
- The network layer does the task of **adding the source and destination address** in the header in the network channel.
- Network addressing is performed to **identify the device** where the data is being shared.



Packet Routing



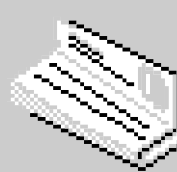
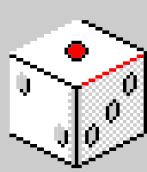
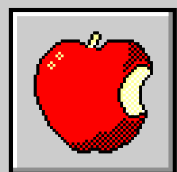
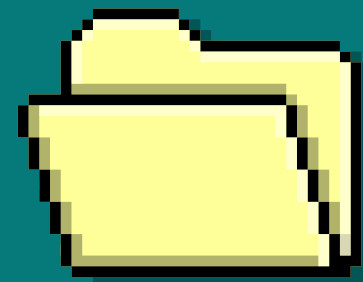
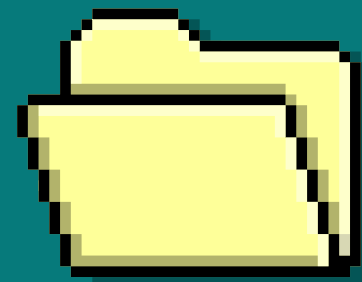
- Establishing a **routing path for the data packet** is one of the main functions of the network layer in a network model.
- The network layer chooses the most suitable path out of all the paths available in the channel.



Packet Handling

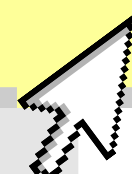




- In this network function, the layer is responsible for handling the **data received from the upper layers** of the OSI model.
- The received data is **converted into packets** by the network layer for sharing over the communication channel.





Responsibilities of the Network Layer



Responsible for handling the **shortest routing path** for the data packet in the network channel.



Handles the network layer protocols, responsible for **maintaining the network traffic** in the channel.

