Step 1: Generating ARP Traffic

Question: What is this called?
Answer: This is called **Address Resolution Protocol (ARP) table population**, which resolves IP addresses to MAC addresses to facilitate communication within the LAN.
Question: What is the meaning of the different colors in the Simulation Panel?
Answer: Different colors in the Simulation Panel represent various protocols. Each protocol (e.g., ARP, HTTP, FTP) is color-coded for easier identification during the simulation.

Step 2: HTTP Traffic

Question: Why did it take so long for the HTTP PDU to appear?
Answer: It took time because the **TCP three-way handshake** (SYN, SYN-ACK, ACK) must complete before HTTP traffic begins.
Question: What is the section labeled in the PDU details?
Answer: The section is labeled **"TCP"** in the Outbound PDU Details.
Question: Are these communications considered to be reliable?
Answer: Yes, TCP is a **reliable protocol** because it ensures delivery through acknowledgments and retransmissions.
Question: Which TCP flags are set in this PDU?
Answer: The flags set depend on the stage:

- Initial SYN PDU: **SYN flag** (Flag Place 2 = 1).

- Response to SYN-ACK: **ACK flag** (Flag Place 5 = 1).

Question: How are the port and sequence numbers different in the Inbound PDU?
Answer: The **source and destination ports are reversed**, and the **sequence and acknowledgment numbers increment** based on the transmitted data.
Question: What information is listed in the TCP section of the HTTP PDU?
Answer: Information includes:

- **SRC PORT**: A random high port from the client.

- **DEST PORT**: 80 (HTTP).

- **SEQUENCE NUM**: Incremented from previous PDUs.

- **ACK NUM**: Acknowledges received data.

Step 3: FTP Traffic

Question: Are these communications considered reliable?
Answer: Yes, FTP uses TCP, which is reliable.
Question: What is the value in the flag field?
Answer: Initially, the **SYN flag** is set, indicating the start of the connection.
Question: How are the port and sequence numbers different?
Answer: Similar to HTTP, the **ports are reversed,** and the sequence and acknowledgment numbers increment with data transmission.
Question: What is the server's message?
Answer: The server usually sends a welcome message, such as **"220 FTP Server Ready".**

Step 4: DNS Traffic

Question: What is the Layer 4 protocol?
Answer: UDP is used for DNS.
Question: Are these communications considered reliable?
Answer: No, UDP is not reliable; it does not guarantee delivery or acknowledgment.
Question: Why are there no sequence and acknowledgment numbers?
Answer: UDP does not use sequence or acknowledgment numbers because it is connectionless.
Question: What is the last section of the PDU called?
Answer: The last section is called **"DNS".**
What is the IP address for multiserver.pt.ptu?
Answer: This is the resolved IP address from the DNS query.

Step 5: Email Traffic
Question: What transport layer protocol does email traffic use?
Answer: TCP.
Question: Are these communications considered reliable?
Answer: Yes, because TCP ensures reliable delivery.
Question: What email protocol is associated with TCP port 25?
Answer: SMTP (Simple Mail Transfer Protocol).
What protocol is associated with TCP port 110?
Answer: POP3 (Post Office Protocol 3).