Intro to LAN

Learn about some of the technologies and designs that power private networks

Task 1: Introducing LAN Topologies

- Click the "View Site" button.
- In a Ring Topology, a flaw lies in the event of a device failure or a broken cable. Simulate this scenario by cutting the cable using the virtual scissors.
- A weakness in the bus topology is its inability to handle multiple packets simultaneously. Test its limits by sending a high volume of packets from computer 1 to other computers rapidly, which will disrupt the topology.
- The star topology's vulnerability arises when the central switch fails, causing a network-wide outage. Simulate this issue by using a virtual hammer to break the switch.
- Congratulations! You've successfully located the flag for this task.

Question	Answer
What does LAN stand for?	Local Area Network
What is the verb given to the job that Routers perform?	Routing
What device is used to centrally connect multiple devices on the local network and transmit data to the correct location?	Switch
What topology is cost-efficient to set up?	Bus Topology
Complete the interactive lab attached to this task. What is the flag given at the end?	THM{TOPOLOGY_FLAWS}

Task 2: A Primer on Subnetting

Subnetting is the process of dividing a network into smaller sub-networks. This is by adjusting the number of hosts that can be accommodated within each sub-network, as determined by a parameter known as the subnet mask.

Subnets use IP addresses to identify network addresses, host addresses and default gateway

Question	Answer
What is the technical term for dividing a network up into smaller pieces?	Subnetting
How many bits are in a subnet mask?	32
What is the range of a section (octet) of a subnet mask?	0-255
What address is used to identify the start of a network?	Network Address

What address is used to identify devices within a network?	Host Address
What is the name used to identify the device responsible for sending data to another network?	Default Gateway

Task 3: The ARP Protocol

Address Resolution Protocol (ARP) is a networking protocol that maps an IP address (Internet Protocol address) to a physical MAC (Media Access Control) address.

Question	Answer
What does ARP stand for?	Address Resolution Protocol
What category of ARP Packet asks a device whether or not it has a specific IP address?	Request
What address is used as a physical identifier for a device on a network?	MAC Address
What address is used as a logical identifier for a device on a network?	IP Address

Task 4: The DHCP Protocol

Dynamic Host Configuration Protocol (DHCP) is a network protocol used to automatically assign and manage IP addresses and related configuration information to devices on a network.

Question	Answer
What type of DHCP packet is used by a device to retrieve an IP address?	DHCP Discover
What type of DHCP packet does a device send once it has been offered an IP address by the DHCP server?	DHCP Request
Finally, what is the last DHCP packet that is sent to a device from a DHCP server?	DHCP ACK