Network mapping clear with more examples

Network mapping is the process of creating a visual representation of a network's structure, including devices, connections, and protocols. Network mapping can be performed using a variety of tools and techniques, including:

1. Ping Scanning: Ping scanning is a simple network mapping technique that involves sending ICMP echo requests to a range of IP addresses. If a device responds to the request, it is considered live, and its IP address is added to the map.

Example command: **`nmap -sn <IP range>`**

2. ARP Scanning: ARP scanning is a technique that involves sending ARP requests to a range of IP addresses. If a device responds to the request, it is considered live, and its MAC address is added to the map.

Example command: **`arp-scan <IP range>`**

3. SNMP Scanning: SNMP scanning is a technique that involves querying devices for network information using the Simple Network Management Protocol (SNMP). This technique can provide detailed information about devices, including their network interfaces, operating systems, and running services.

Example command: **`snmpwalk -v2c -c public <IP address>`**

4. Port Scanning: Port scanning can also be used for network mapping, as described in the previous question. By scanning for open ports on devices, a map of the network can be created, including the services that are running on each device.

Example command: **`nmap -sT <IP range>`**

5. Network Discovery Tools: There are several tools available that can automatically discover and map a network's structure, including devices and connections. These tools can use a variety of techniques, including ping and port scanning, to build a map of the network.

Example tool: SolarWinds Network Topology Mapper

6. Manual Mapping: Manual mapping involves physically inspecting a network and recording its devices and connections. This technique can be time-consuming and may not be feasible for large networks, but it can provide a high level of accuracy.

Example method: Visually inspecting network diagrams and documentation

Network mapping can be used for a variety of purposes, including network troubleshooting, security assessments, and network planning. It is important to use network mapping tools and techniques responsibly and ethically, as mapping a network without permission can be illegal and can result in severe consequences.
