Networking

# How the Internet Connected Us

Do you remember a time before the internet? What are you earliest recollections of using the internet? (~25 words)

How do you see the internet changing in the present day? (~25 words)

# Packet Tracer

Include a screenshot of Packet Tracer running with a couple of devices in the network.



Mentally translating work between Packet Tracer and physical networks can be challenging. How would you rate the realism of Packet Tracer's network simulation? (~25 words)

# Addressing: MAC, IPv4 And IPv6

Include a screenshot of a successful IPv4 ping.



Include a screenshot of a successful IPv6 ping.



IPv6 adoption has been slow despite the fact that the standard was created decades ago. Has IPv6 been a failure? (~25 words)

# Switches

Include a screenshot of a successful ping between devices connected to a switch.



In your own words, what does a network switch do? (~25 words)

# Routers

Include a screenshot of a successful ping from the workstations to the data center.



Describe what routers do on a network. How are routers different than switches? (~25 words)

# Wi-Fi

Include a screenshot showing the security settings on the Wi-Fi router.



How would you secure your home Wi-Fi network? Would you tell people a pre-shared key? Would you set up a guest network? Would you change the pre-shared key regularly? There is a tradeoff between security and usability, so be honest and weigh the costs and benefits of your security practices. (~50 words)

# Domain Name System

Include a screenshot showing that IP addresses were resolved in your network.



How might hackers cause damage by abusing DNS? (~25 words)

# Nslookup

Include a screenshot using **nslookup** to resolve DNS information for **cnn.com**.



# Ping

Include a screenshot of using **ping** with an option other than **-c**.



How might a network administrator use **ping** to monitor a company network? (~25 words)

# Tracing Routes

Include a screenshot showing the route a packet takes to a website of your choice.



Evaluate your screenshot. Briefly describe what the results say about the path. (~25 words)

# Secure Shell: SSH

Include a screenshot of your **ssh** connection.



In what ways is the encryption used in SSH similar to HTTPS? (~25 words)

# Wireshark

Include a screenshot showing packets captured in Wireshark.



What are the most confusing parts of using Wireshark for the first time? (~25 words)

# Packet Analysis

Answer the following questions about these files from the cyfunfiles repository..

arp.pcapng

* After looking at the ARP packets, describe the ARP protocol. (~50 words)

cleartext\_website.pcapng

* What does Wireshark do when following a TCP stream? (~25 words)

encrypted\_website.pcapng

* Why is analyzing encrypted data in network packets more challenging than cleartext data? (~25 words)

nmap.pcapng

* How do these packets indicate that a port scan is taking place? Should this traffic worry a network administrator? (~25 words)

ping.pcapng

* The ping command causes other protocols to be used (other than ICMP). Which protocols do you see in the packet capture? What do those protocols do? (~25 words)