Task 1 Introduction

The aim of this room is to provide a beginner's introduction to the basic principles of networking. Networking is a *massive* topic, so this really will just be a brief overview; however, it will hopefully give you some foundational knowledge of the topic, which you can build upon for yourself.

The topics that we're going to cover in this room are:

- The OSI Model
- The TCP/IP Model
- How these models look in practice
- An introduction to basic networking tools

Answer the questions below

Let's get started!

No answer needed

✓ Correct Answer

Layer 1 -- Physical:

The physical layer is right down to the hardware of the computer. This is where the electrical pulses that make up data transfer over a network are sent and received. It's the job of the physical layer to convert the binary data of the transmission into signals and transmit them across the network, as well as receiving incoming signals and converting them back into binary data.

For the "Which Layer" Questions below, answer using the layer number (1-7)

Answer the questions below

Which layer would choose to send data over TCP or UDP?

4 ✓ Correct Answer

Which layer checks received information to make sure that it hasn't been corrupted?

2 ✓ Correct Answer

In which layer would data be formatted in preparation for transmission?

2 ✓ Correct Answer

Which layer transmits and receives data?

1 ✓ Correct Answer

Which layer encrypts, compresses, or otherwise transforms the initial data to give it a standardised format?

6 ✓ Correct Answer

Which layer tracks communications between the host and receiving computers?

5 ✓ Correct Answer

Which layer accepts communication requests from applications?

7 ✓ Correct Answer

Which layer handles logical addressing?

3 ✓ Correct Answer

When sending data over TCP, what would you call the "bite-sized" pieces of data?

Segments ✓ Correct Answer

[Research] Which layer would the FTP protocol communicate with?

7 ✓ Correct Answer 💡 Hint

Which transport layer protocol would be best suited to transmit a live video?

UDP ✓ Correct Answer

Answer the questions below

Which model was introduced first, OSI or TCP/IP?

TCP/IP ✔ Correct Answer

Which layer of the TCP/IP model covers the functionality of the Transport layer of the OSI model **(Full Name)**?

Transport ✔ Correct Answer

Which layer of the TCP/IP model covers the functionality of the Session layer of the OSI model **(Full Name)**?

Application ✔ Correct Answer

The Network Interface layer of the TCP/IP model covers the functionality of two layers in the OSI model. These layers are Data Link, and?.. **(Full Name)**?

Physical ✔ Correct Answer

Which layer of the TCP/IP model handles the functionality of the OSI network layer?

Internet ✔ Correct Answer

What kind of protocol is TCP?

Connection-based ✔ Correct Answer Hint

What is SYN short for?

Synchronise ✔ Correct Answer Hint

What is the second step of the three way handshake?

SYN/ACK ✔ Correct Answer

What is the short name for the "Acknowledgement" segment in the three-way handshake?

ACK ✔ Correct Answer

connected to, rather than the URL that was requested. This is a handy secondary application for ping, as it can be used to determine the IP address of the server hosting a website. One of the big advantages of ping is that it's pretty much ubiquitous to any network enabled device. All operating systems support it out of the box, and even most embedded devices can use ping!

Have a go at the following questions. Any questions about syntax can be answered using the man page for ping (`man ping` on Linux).

Answer the questions below

What command would you use to ping the bbc.co.uk website?

ping bbc.co.uk ✔ Correct Answer

Ping *muirlandoracle.co.uk*
What is the IPv4 address?

217.160.0.152 ✔ Correct Answer Hint

What switch lets you change the interval of sent ping requests?

-i ✔ Correct Answer Hint

What switch would allow you to restrict requests to IPv4?

-4 ✔ Correct Answer

What switch would give you a more verbose output?

-v ✔ Correct Answer

216.58.205.46

Now it's your turn. As with before, all questions about switches can be answered with the man page for traceroute (`man traceroute`).

Answer the questions below

Use traceroute on tryhackme.com

Can you see the path your request has taken?

No answer needed ✔ Correct Answer

What switch would you use to specify an interface when using Traceroute?

-i ✔ Correct Answer Hint

What switch would you use if you wanted to use TCP SYN requests when tracing the route?

-T ✔ Correct Answer

[Lateral Thinking] Which layer of the *TCP/IP* model will traceroute run on by default (Windows)?

Internet ✔ Correct Answer

Answer the questions below

Perform a whois search on `facebook.com`

No answer needed — ✓ Correct Answer

What is the registrant postal code for facebook.com?

94025 — ✓ Correct Answer

When was the facebook.com domain first registered (Format: DD/MM/YYYY)?

29/03/1997 — ✓ Correct Answer

Perform a whois search on `microsoft.com`

(Note: Please ensure you have read the task above before attempting the next questions.)

No answer needed — ✓ Correct Answer

Which city is the registrant based in?

Redmond — ✓ Correct Answer

[OSINT] What is the name of the golf course that is near the registrant address for microsoft.com?

Bellevue Golf Course — ✓ Correct Answer

What is the registered Tech Email for microsoft.com?

msnhst@microsoft.com — ✓ Correct Answer