**Day 1 – Domain Names & IP Addresses**

**Warm-Up Activity**

1. Go to the web page: <https://centralops.net/co/>
2. Select the “NsLookup” tool and search for the following domains:
   1. [www.peelschools.org](http://www.peelschools.org)
   2. some of your favorite / popular domains
3. Try the “Traceroute” tool for the same domains
   1. What is the purpose of this tool?

Traces the network path from this server to another server.

1. Try the “Ping” tool for the same domains
   1. What is the purpose of this tool?

See if the host is reachable, and the speed of the host server connection (usually in ms).

1. Try the “Whois” tool for [www.peelschools.org](http://www.peelschools.org)
   1. Who is the owner of this domain?

Frontier Networks (AS7311)

* 1. Who is the registrar of this domain?

MXtoolbox, WhoIs, CentralOps

* 1. When does the registration expire?

N/A

**Presentation Notes: Client-Server Model**

1. What is a client?
   1. Where does it run?

An app that runs on your phone or PC

* 1. What does it do?

The app that provides the interface

* 1. List some examples of a client.

Laptop, Computer, Phone, Tablet

1. What is a server?
   1. Where does it run?

Software that runs on hardware owned by the app company

* 1. What does it do?

It sends and receives data between multiple clients

* 1. List some examples of a server.

Online games, Spotify, an internet databse

1. Explain why you need both a client and a server to complete an internet application?

The client needs to send a request to the server, in which the server then sends a packet of information back to the client.

**Presentation Notes: Domain Names & IP Addresses**

1. What is a Domain Name?
   1. What is it used for?

An ID for a service on the internet

* 1. Is it for human or computer use?

It is a human readable format, must be converted into an IP address to be used by a computer

* 1. Provide an example of a Domain Name.

www.youtube.com

1. What is a IP Address?
   1. What does IP stand for?

The ID number of a client or server device on the internet

* 1. What is it used for?

Used to route messages and data between computers (clients and servers)

* 1. Is it for human or computer use?

It is for computer use

* 1. Provide an example of an IP Address.

67.21.152.99

1. Who can register a domain name?

Domain names can be registered by companies and individuals.

1. Who controls domain names for countries (i.e. .CA, .UK, etc.)?

Government agencies control the registration of domain names

1. Who controls domain names like .COM, .ORG, etc.?

Network Solutions; United States of America.

1. Who owns and controls IP Addresses?

IP addresses are owned by large internet companies.

1. If you own a Domain Name does that mean you also own an IP Address?

Not necessarily. IP addresses are “rented out” to domain names for a fee. There are a limited amount of IPv4 IP addresses.

1. What services do *middleman* companies like GoDaddy.com provide?

They arrange domain registrations and provide you with an IP address. Network Solutions is the company that controls and authorizes registrations for .com domains.

1. What are some issues and features related to IPv4?

Features: 4 numbers, 64 bits (2^64 combinations)

Issues: limited speed & limited number of connections

1. What are some issues and features related to IPv6?

Features: 8 alpha-numerics, 128 bits (2^1280 combinations)

Advantages: higher speed & unlimited number of connections

1. What are some issues and features related to 5G Networks?

Features: leverages IPv6 technology to provide extreme speeds.

Every device (ex. Doorbell) will have its own IP address.

**Day 2 – Internet Services (Software)**

Questions t.b.d.