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

**Warm-Up Activity**

1. Go to the web page: <https://centralops.net/co/>

- Done

1. 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

- Done

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

- Tracing the root of the Host

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

- Send ICMP ECHO\_REQUEST to network hosts

1. Try the “Whois” tool for [www.peelschools.org](http://www.peelschools.org)
   1. Who is the owner of this domain?
   2. Who is the registrar of this domain?
   3. When does the registration expire?

- Domain Name: PEELSCHOOLS.ORG

Registry Domain ID: D11549207-LROR

Registrar WHOIS Server: whois.networksolutions.com

Registrar URL: http://www.networksolutions.com

Updated Date: 2018-08-22T07:11:44Z

Creation Date: 1999-10-21T13:43:56Z

Registry Expiry Date: 2023-10-21T13:43:56Z

Registrar Registration Expiration Date:

Registrar: Network Solutions, LLC

Registrar IANA ID: 2

Registrar Abuse Contact Email: abuse@web.com

Registrar Abuse Contact Phone: +1.8003337680

Reseller:

Domain Status: clientTransferProhibited https://icann.org/epp#clientTransferProhibited

Registrant Organization: Peel District School Board

Registrant State/Province: ON

Registrant Country: CA

Name Server: NS3.PEELSCHOOLS.ORG

Name Server: NS4.PEELSCHOOLS.ORG

DNSSEC: unsigned

**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 provides the Interface

* 1. List some examples of a client.

- Google Chrome

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 using internet connections

* 1. List some examples of a server.

- Cloud Server

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

- They work together to give you the complete application.

- One is useless without the other part

- Examples: On-Line Games, Spotify, MLB At Bat, etc.

**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

- It must be converted to an IP address  
to be used by a computer

* 1. Provide an example of a Domain Name.

- Clients do not have Domain Names

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

- Internet Protocol

* 1. What is it used for?

- It is used to route messages and data   
between computers (clients and servers)

* 1. Is it for human or computer use?

- Computer Use and its composed of 4 numbers

* 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 Names

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

- myname.ca – CIRA (Canada)

- myname.uk – NOMINET (United Kingdom)

- com, org, etc. – Network Solutions (United States)

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?

- IP Addresses are "rented out" to Domain Names for a fee

- With IPv4 there are a limited number of IP Addresses

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

- Companies like GoDaddy.com are *middlemen* that arrange domain registrations and that   
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?

- 4 numbers, 64 bits (2^64 combinations)

- Issues: Limited Speed & Limited Number of Connections

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

- 8 alpha –numerics, 128 bits (2^128 combinations)

- Advantages: Higher Speed & Unlimited Number of Connections

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

- Leverages IPv6 technology to provide extreme speeds

- Every device (e.g. doorbell) will have its own IP address