

# Networks

What is a client?

- people who use the internet, log on to a social media account, make a phone call....
- their device requests info from servers and displays it.

What is a server?

- a computer (normally big) on the internet that provides services.
- it might host a webpage, or hold your social media, or hold Alexa answers, or host Fortnite games

What connects clients + servers?

- cables, normally fiberoptic, connect computers + routers together
- cables + routers that make up the network are owned by ISPs (eg Bell, Rogers)
- you pay an ISP to maintain cables + routers.

What is a packet?

- a piece of a message that travels between a client + server
- it needs to and from addresses.
- it also has a sequence number for reassembly

What is a router?

- a computer on a network that directs messages to the right destination.

What is an IP address?

- a unique number that identifies a computer on a network.
- all devices (IoT too) need one.

What is a URL?

- a website address  
like `www.gorski.compsci.ca`
- it also is connected to  
an IP address
- the words are for humans  
who are terrible at  
remembering numbers (ie IP)

## Network Sizes

What is  
PAN?

- Personal Area Network
- very small range (1-2m)
- Bluetooth, wireless mouse, fitbit,  
wireless headset

What is  
WLAN?

- Wireless Local Area Network
- small range (few meters)
- Wi fi
- Official Protocol: IEEE 802.11

What is  
LAN?

- Local Area Network
- aka Intranet,  
Ethernet
- building sized  
(schools, business)
- Official Protocol:  
IEEE 802.3

What is  
WAN?

- Wide Area Network
- Internet, Cell Phones,  
Satellite
- Official Protocols: IP address/URLs
- planet sized networks