

CMPT 165

INTRODUCTION TO THE INTERNET AND THE WORLD WIDE WEB

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UNIT 1: THE INTERNET AND THE WORLD WIDE WEB

IN THIS UNIT YOU WILL LEARN THE FOLLOWING

- **Explain** how information is transmitted on the Internet
- **Describe** how computers are connected on the Internet
- **Describe** the way a web page gets to your computer
- **List** some services available on the Internet and their protocols

TOPICS

1. Define the Internet
2. History of the Internet
3. Internet Basics

4. Protocols
5. Surfing the Web
6. MIME Types
7. Fetching a Web Page

THE INTERNET

Question: what is **the Internet?**

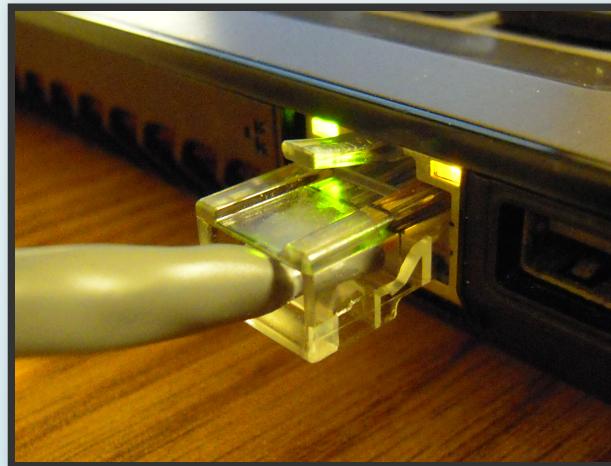
A number of computers connected to each other

HOW COMPUTERS ARE CONNECTED

NETWORK CONNECTIONS AT HOME

Ethernet

- short distances (up to 100 metres)
- high speeds (up to 100 or 1000 Mbits/s)



* image from https://en.wikipedia.org/wiki/File:Ethernet_Connection.jpg

HOW COMPUTERS ARE CONNECTED

NETWORK CONNECTIONS AT HOME

WiFi (802.11 LAN Standard)

- uses radio waves to transmit information
- relatively short distances (up to 100 metres, depending on the number of walls on the way)
- relatively high speeds (up to 54 Mbits/s or even 150 Mbits/s, but usually less)

HOW COMPUTERS ARE CONNECTED

CONNECTIONS FROM HOME TO THE INTERNET

Router

- a computer with a specific responsibility to connect home computers to the computers outside home usually over a wired Ethernet connection



* image from https://commons.wikimedia.org/wiki/File:Router_1.jpg

HOW COMPUTERS ARE CONNECTED

CONNECTIONS FROM HOME TO THE INTERNET

Internet Service Provider (ISP)

- a home router (or a home computer without a router) is connected to the outside Internet using ISP
- this is the part that costs money

HOW COMPUTERS ARE CONNECTED

CONNECTIONS FROM HOME TO THE INTERNET

Modem

- **Cable Modem**
- **DSL (Digital Subscriber Line) Modem**

HOW COMPUTERS ARE CONNECTED

MOBILE INTERNET

Modern mobile phones can send Internet data to and from the tower they are connected to wirelessly

- slowest to fastest technologies:
 - GSM, EDGE, 3G, HSPA, LTE
- possible communication approaches:
 - Wi-Fi (when it's available)
 - the mobile network

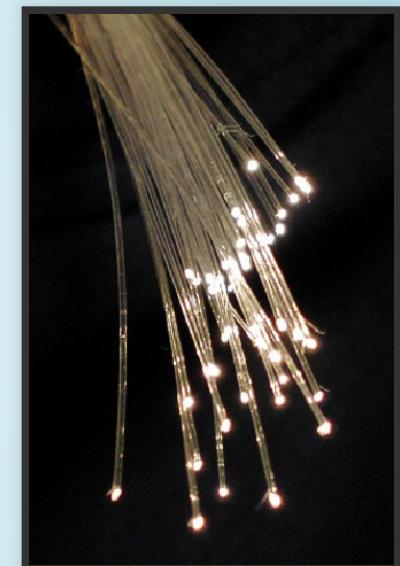
HOW COMPUTERS ARE CONNECTED

INTERNET INFRASTRUCTURE

The Goal: send lots of data quickly over long distances (across the planet)

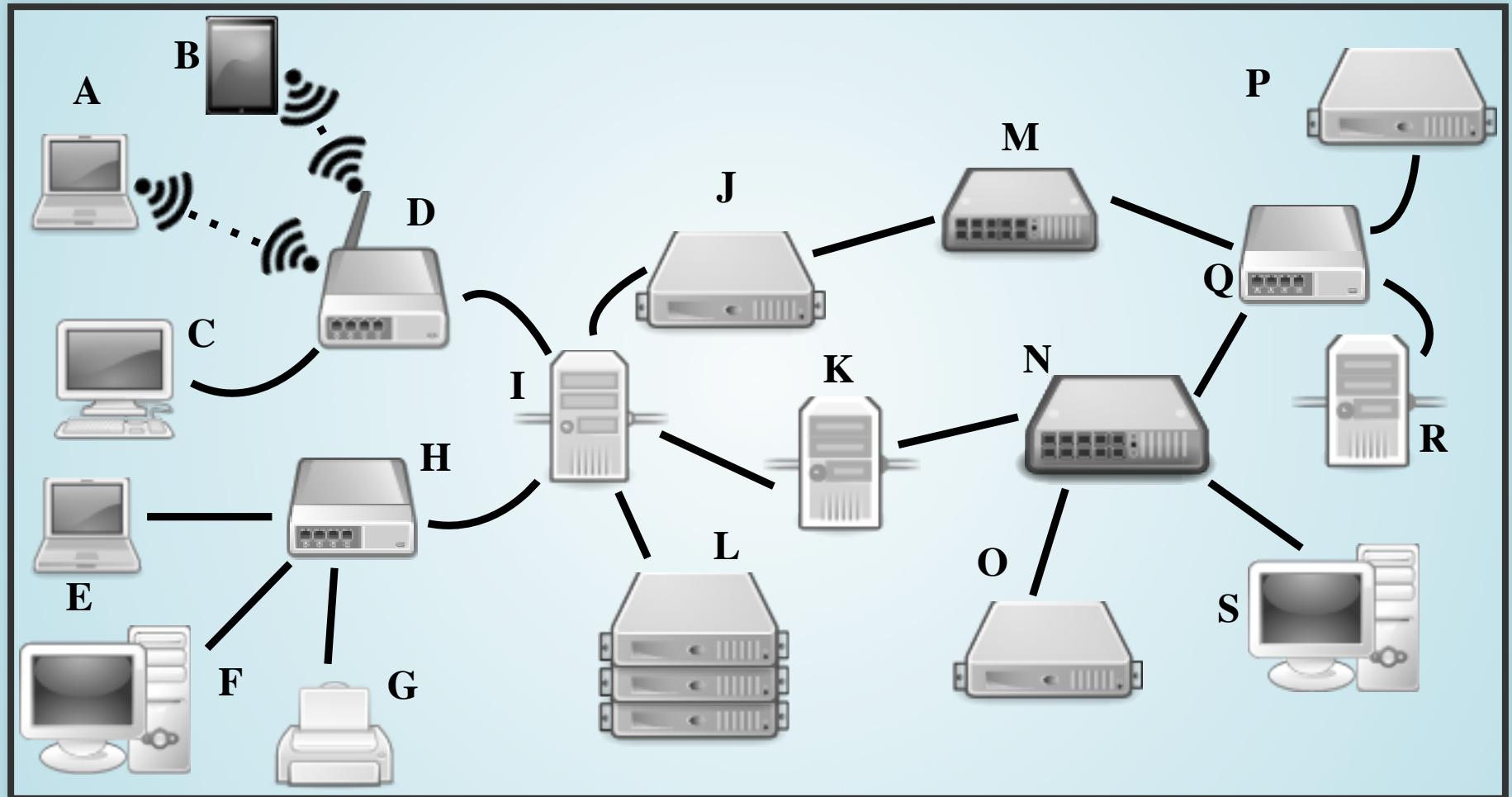
Medium: Fibre Optic

- cables using long strands of glass or plastic to transmit light pulses that are used to encode data
- they can transmit incredible amounts of data and over very long distances (up to 100 km without any amplifiers)



* image from
[https://commons.wikimedia.org/wiki
/File:Fibreoptic.jpg](https://commons.wikimedia.org/wiki/File:Fibreoptic.jpg)

HOW INFORMATION TRAVELS



* image from <http://www.cs.sfu.ca/CourseCentral/165/common/study-guide/figures/internet.svg>

Any Questions?