

**1/16/2018**

## **Part 1: Background**

CS 2620 Networking & Security for Informatics

My background:

- smartphone era, apple vs. blackberry

Your background

- Programming background? (Python 3)
- Overview and why are we studying it?
  - Why is computer networks important?
    - practical, everywhere around us
    - rapidly evolving

## **Part 2: Syllabus**

- How am I gonna teach it?
- Come on time, quiz on Tuesdays
- laptop/smartphone use, notes on paper
- 1 hour 15 minutes (take a break after 30 minutes or so)
  - discuss about some latest news/tech

<https://www.facebook.com/groups/2018cs2620>

## **QUIZ**

Break:

What is Internet?

- DARPA
- ARPA Net

<http://www.vox.com/a/internet-maps>

## **Part 3: What is the Internet**

- What is Internet? (network of networks)
- Topological overview

### **EDGE**

- End-points (client)
  - smartphones
  - desktops
  - smart watch?
  - Toaster? Internet-of-Things
- End-points (server)
  - data centers (workstations, cooling)
  - Iowa Facebook data centers
- links
  - coax cable
  - DSL
  - wireless (cellular, wifi)
  - backhaul fiber
  - satellite
  - drones

### **CORE**

- routers/switch
  - packet switching (break information into packets and packets are routed)
- links
  - High speed fiber

### **ORGANIZATION**

ASes (<http://bgp.he.net>)

- > 50K ASes
- <http://bgp.he.net/AS3676>

### **Types of ASes**

- ISP, Content Provider
- Types of ISP (access ISP “eyeball”, tier-2 ISP, tier-1 ISP)
- Content providers (Netflix, Hulu, Google, Facebook)

1/18/2018

## Part 1: Nuts-and-bolts description

- Topological overview
- End-points (client)
  - smartphones
  - desktops
  - Internet-of-Things
- servers
  - data centers
- communication links (have different transmission rates;  
unit of information: packet)
  - coax cable
  - DSL
  - wireless
  - backhaul fiber
  - satellite
  - drones
- routers (or packet switches)
  - incoming and outgoing links

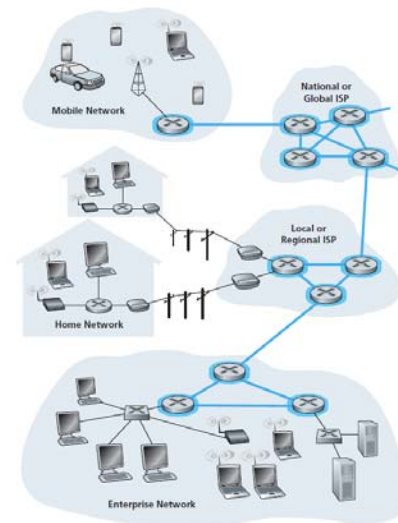


Figure 1.10 • The network core

Sequence of links/routers traversed by a packet between client and server is called **path**

## Internet: network of networks (Autonomous Systems)

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