Information Technology Law in the Global Society

Class 2

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Part I: Internet History & Evolution

- You already know at least some of this (sorry).
- Important to understand some basics about the Internet so you can fully comprehend the legal doctrines.

Adapted from Chapter 2, Andrew Murray, INFORMATION TECHNOLOGY LAW: THE LAW & SOCIETY

Sputnik and the Birth of ARPA

- 4 October 1957 – Using an intercontinental ballistic missile, USSR launched Sputnik 1 (Простейший Спутник-1) the first artificial Earth satellite.
- The world was surprised, impressed, and (in the USA) alarmed at the Soviet technological breakthrough.
- Author David Halberstam wrote, ""The success of Sputnik seemed to herald a kind of technological Pearl Harbor…."
- In response, U.S. PresidentDwight Eisenhower established the Advanced Projects Research Agency (ARPA)—a special research agency to push civilian and military technological research.
- An early challenge for ARPA: to make more efficient use of scientific equipment, including computers.


The New York Times.

LATE CITY EDITION

SOVIET FIRES EARTH SATELLITE INTO SPACE; IT IS CIRCLING THE GLOBE AT 18,000 M. P. H.; SPHERE TRACKED IN 4 CROSSINGS OVER U. S.

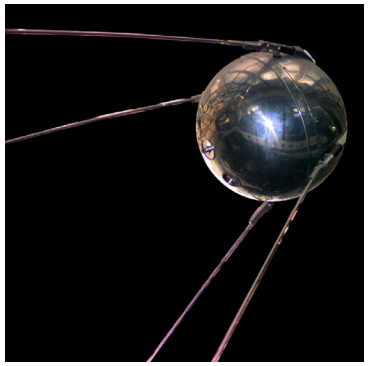
HOFFA IS ELECTED TEAMSTERS HEAD; WARNS OF BATTLE

FABIOLA COMPARES HIS STAND TO LEE'S

ARGENTINA TAKES EMERGENCY STEPS

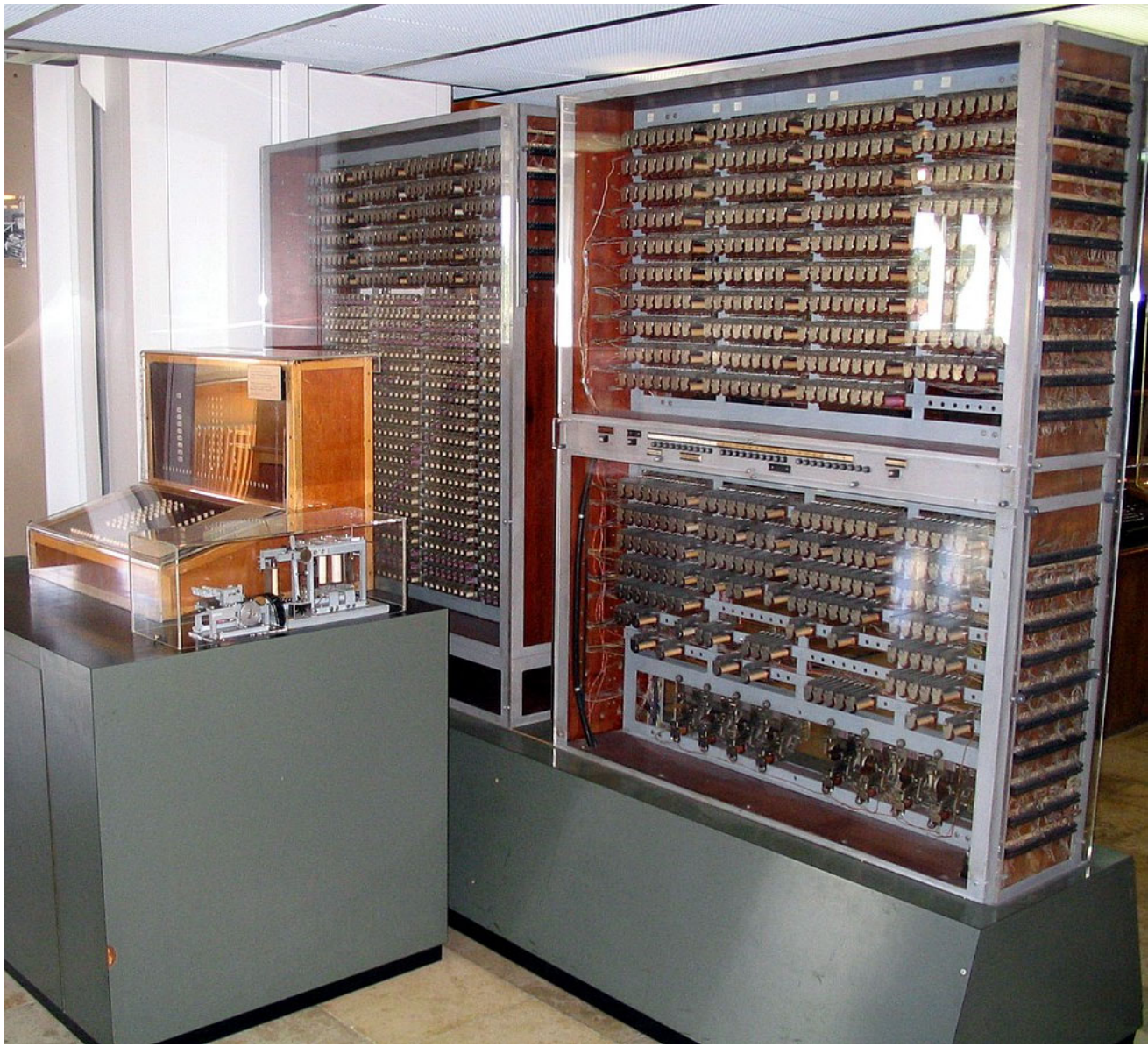
SATELLITE SIGNAL BROADCAST HERE

Device Is 8 Times Heavier Than One Planned by U.S.



Early Digital Computers:

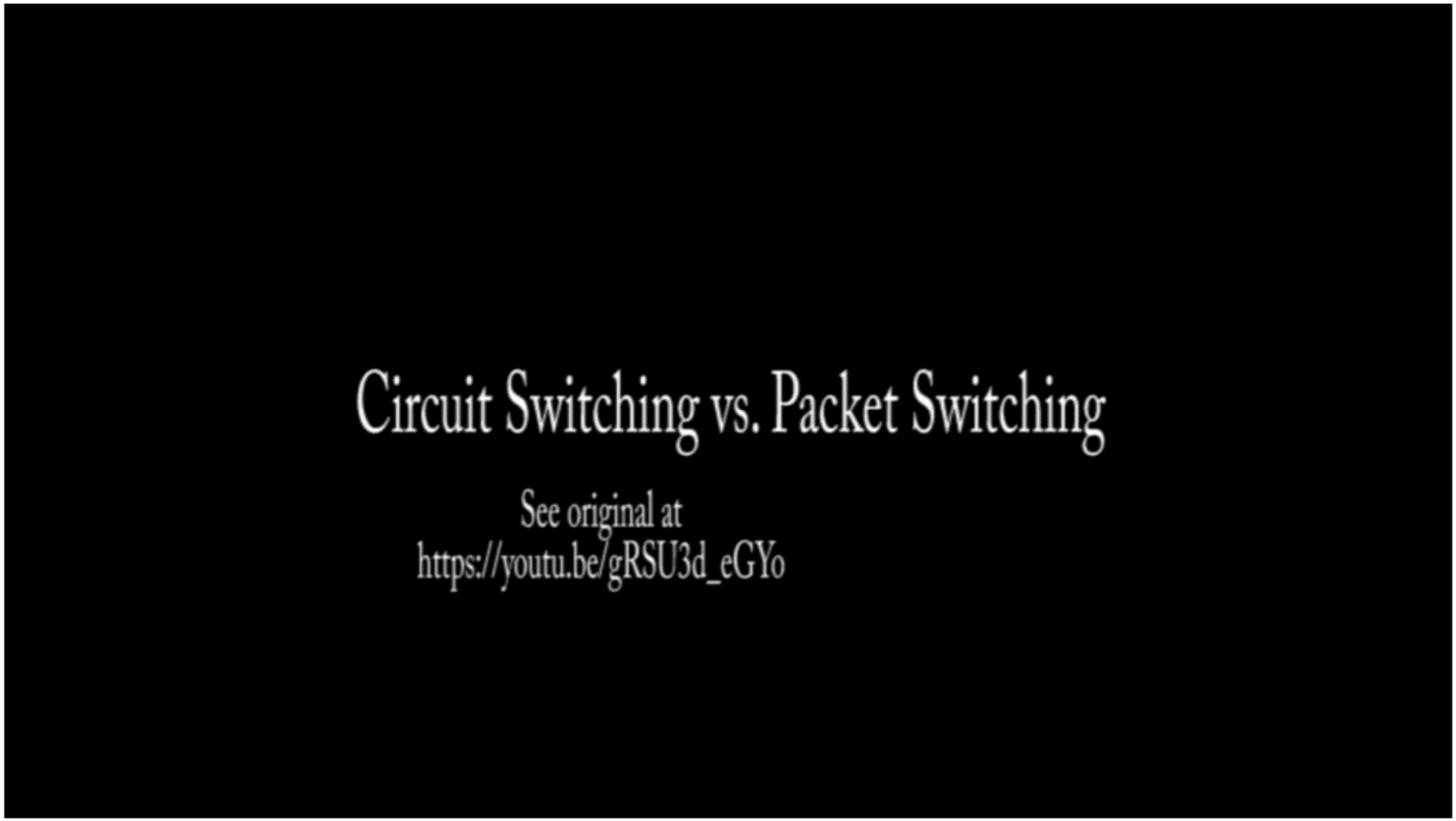
- Were really big.
- Were really expensive.
- Were fed data in the form of punch cards.
- Produced invalid results if there were any data input errors (GIGO “garbage in, garbage out’).
- Consumed hours to perform processing functions.
- Often sat idle for long periods between jobs.
- Ran on custom-made operating systems.
- Couldn’t communicate with each other.



Replica of Zuse's Z3, the first fully automatic, digital (electromechanical) computer.

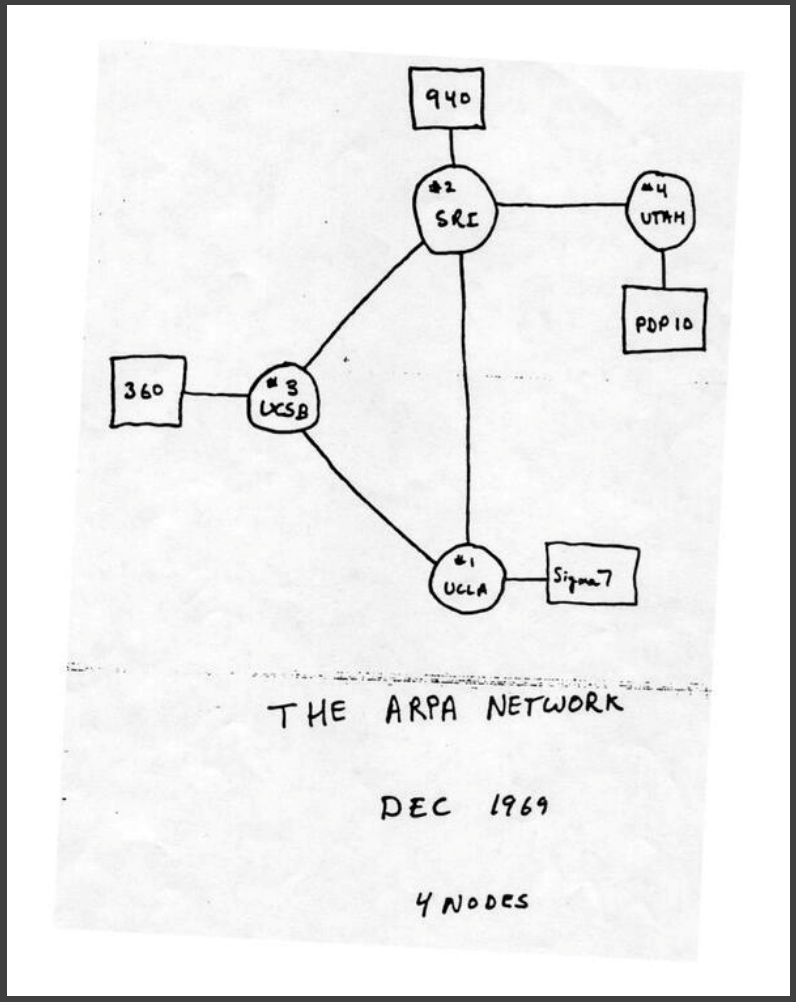
Packet Switching

- ARPA began work on a shared computer network—i.e., in which computers could “talk” with one another.
- Implemented “packet switching” for transfers of files from one computer to another.
- The protocol used by the Internet is called TCP/IP, which uses packet switching to allow computers to communicate with each other.



Development of Gateways (Routers)

- A gateway or router is a junction point or “node” contains data switches and equipment for controlling, formatting, transmitting, routing, and receiving data packets when they are transmitted between computers.
- The first generation of computer network gateways were known as Interface Message Processors (IMPs), and were used to create ARPA’s network, called ARPANET.
- The IMPs sent, received, and reassembled message packets sent between computers and eventually served to connect multiple networks.



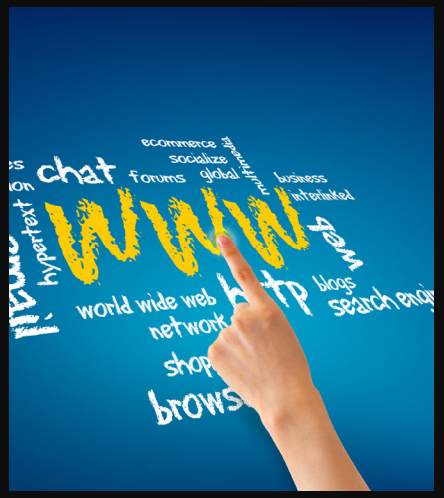
IP Addresses

- Every device connected to a network—computer, tablet, smartphone, etc.—must have a unique identifier to let other devices know how to reach it. In TCP/IP networks, the identifier is called the Internet Protocol (IP) address.

Development of the World Wide Web

- HTML: HyperText Markup Language. The markup (formatting) language for the web.
- URI: Uniform Resource Identifier. A kind of “address” that is unique and used to identify to each resource on the web. It is also commonly called a URL.
- HTTP: Hypertext Transfer Protocol. Allows for the retrieval of linked resources from across the web.

Sir Tim Berners-Lee Invented the World Wide Web in 1989.



Some Questions

- Does the Internet have economic value?
- Does the World Wide Web have economic value?
- If they do have economic value, why didn't the developers claim intellectual property rights—e.g., patents, copyright, etc.—and make a fortune charging to use them?

Some Partial Answers

- Of course, the Internet and the World Wide Web have economic value.
  - In 2017 they enabled global e-commerce to reach US$29 trillion. UNCTAD Press Release, https://unctad.org/en/pages/PressRelease.aspx?OriginalVersionID=505
- And the value of data & other digital goods on the Internet?
  - Incalculable.
- So why didn't the inventors cash in?

More Partial Answers

- The Internet was created with public funding.
  - Yes, but at least in some countries (USA), this doesn't necessarily prevent claims of IP ownership.
- At the time, the IP regimes (patent & copyright) weren't well suited to covering these kinds of innovations.
  - Some truth in this, but this isn't the main reason.
- Then why weren't the Internet and WWW initially exploited through IP laws?

How Intellectual Property Laws Work

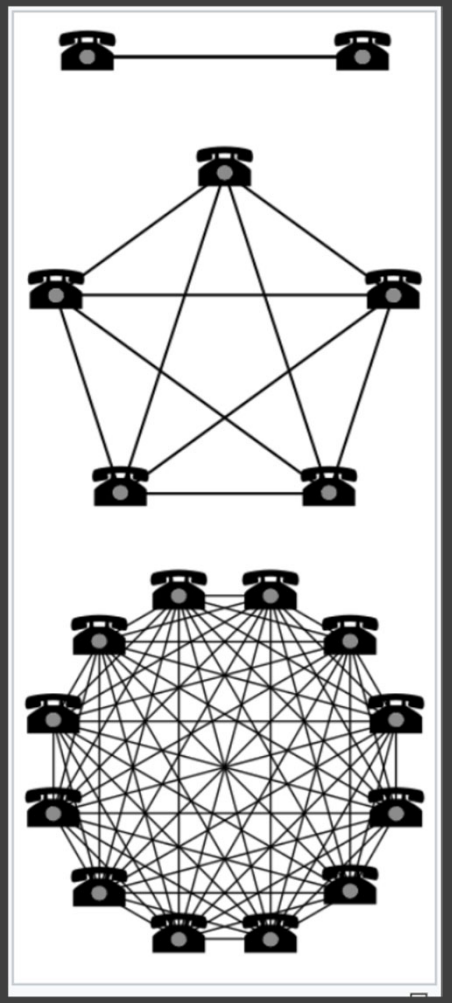
- IP laws take a non-rivalrous good (ideas) and create an artificial scarcity of them.
- They do this by allowing the owner of the IP right to exclude others from using the idea/innovation.
- But does the Internet have greater value when used by only a few people, or when it is used by billions of people?

Network Effects

… a phenomenon whereby increased numbers of people or participants improve the value of a good or service.

- *Initially, there were few users on the Internet since it was of little value to anyone outside of the military and some research scientists.*
- *However, as more users gained access to the Internet, they produced more content, information, and services. The development and improvement of websites attracted more users to connect and do business with each other. As the Internet experienced increases in traffic, it offered more value, leading to a network effect.*

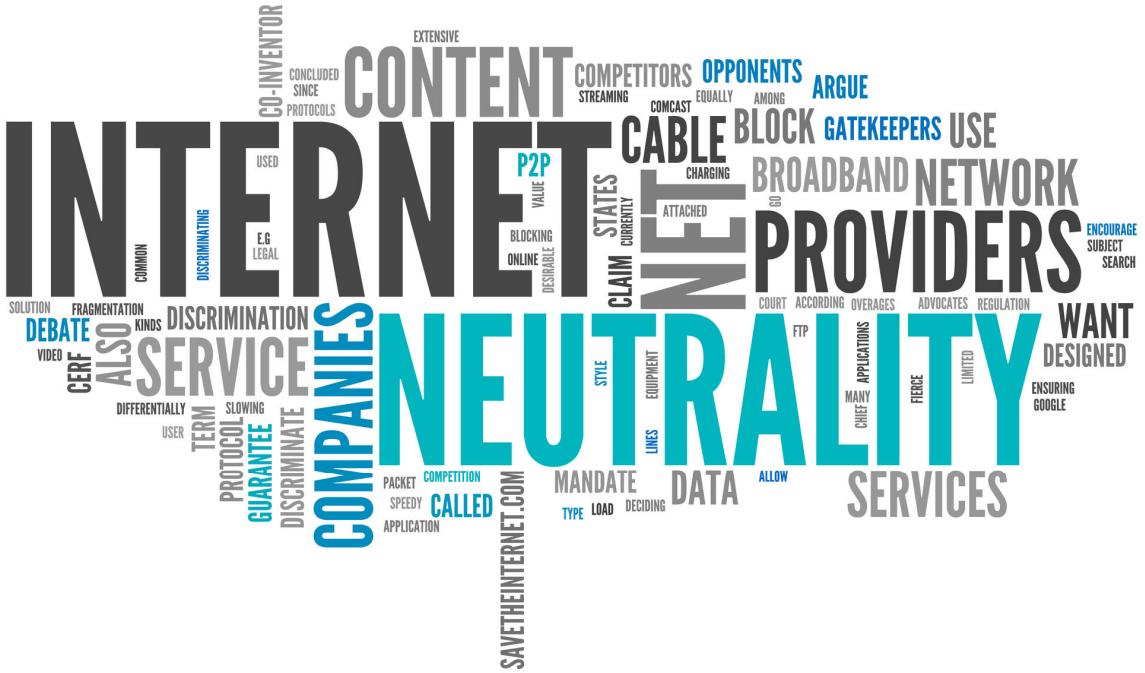
Caroline Blanton, Network Effect, Investopedia.com.



Increasing Utility of a Phone Network as the Number of Users Increases.

End Part I

Part II: Net Neutrality



See Chapter 3, Andrew Murray, INFORMATION TECHNOLOGY LAW: THE LAW & SOCIETY.

Regulating Internet Traffic

- Some people mistakenly believe that everything delivered over the internet has the same opportunity to get to you as fast as your connection allows.
- That isn't true.
- Bandwidth (the amount of data that can be sent from one point to another in a certain period of time) capacity is limited.
  - Download speed & upload speed, measured in megabits per second (MBPs).
- Latency – the amount of time it takes for data to travel from one point to another.
- Some kinds of traffic (e.g., email) can function with a longer latency period than others (e.g., streaming video).
- Internet routers allow internet service providers (ISPs) to prioritize some kinds of Internet traffic over others.

Bandwidth Throttling

- The intentional slowing or speeding of an internet service by an Internet service provider (ISP).
- Used in communication networks to regulate network traffic and minimize bandwidth congestion.

Blocking & Censorship

What is Net Neutrality?

From the textbook:

- Net neutrality is the principle that data packets on the Internet should be moved impartially, without regard to content, destination, or source.

2015 Open Internet Rules and Order of the Federal Communications Commission

- No blocking: A person engaged in the provision of broadband Internet access service … shall not block lawful content, applications, services, or non-harmful devices, subject to reasonable network management.
- No throttling: A person engaged in the provision of broadband Internet access service … shall not impair or degrade lawful Internet traffic on the basis of content, application, or service, or use of a non-harmful device, subject to reasonable network management.
- No paid prioritization: A person engaged in the provision of broadband Internet access service … shall not engage in paid prioritization.
- No unreasonable interference or unreasonable disadvantage standard for Internet conduct: A person engaged in the provision of broadband Internet access service … shall not unreasonably interfere with or unreasonably disadvantage (i) end users' ability to select, access, and use broadband internet access service or the lawful content, applications, services, or devices of their choice, or (ii) edge providers' ability to make lawful content, applications, services, or devices available to end users. Reasonable network management shall not be considered a violation of this rule.

Ajit Pai, current Chairman of the FCC

FCC Restoring Internet Freedom Order 2018

- Consumer Protection: The Federal Trade Commission will police & take action against internet service providers for anticompetitive acts or unfair & deceptive practices.
- Transparency: Enhanced transparency requirements about network management practices, performance, and commercial terms of service.
- Removes “

Net Neutrality in the European Union

- Open Internet Access Regulation (25 Nov. 2015).
  - End users have the right to access & distribute information & content, use 7 provide applications & services, & use terminal equipment of their choice, irrespective of end user's or provider's location, or the location, origin, or destination of the information, content, application, or service, via their internet access service.
  - Agreements between providers of internet access services and end-users on commercial & technical conditions & characteristics of internet access services such as price, data volumes, or speed, and any commercial practices conducted by providers of internet access services, shall not limit the exercise of the rights of end users laid down in paragraph 1.
  - Providers of internet access services shall treat all traffic equally…

Some Questions

1. What do you think? Is “net neutrality” necessary to guarantee overall development of society? Or does it constrain innovation in the provision of Internet services?
2. Can it be said that there is, or should be, a fundamental right to a free and open Internet?*

*From Chapter 3, Andrew Murray, INFORMATION TECHNOLOGY LAW: THE LAW & SOCIETY

Arguments for Net Neutrality

- **Equal playing field**. No one receives special treatment because they have more money. Without it, ISPs can slow down the websites or services of small businesses that can't afford to pay for faster connections.
- **Freedom of expression**. ISPs can't block content or slow down webpages just because they don't like it.
- **No exclusion**. Net neutrality guarantees that everything on the internet is available to everyone. If accessing high-quality content online becomes a luxury only wealthy people can enjoy, this will increase social exclusion.
- **No additional costs for content**. Without net neutrality, ISPs can charge companies more to improve their services, like faster video streaming, online gaming, etc. If this happens, these companies will just transfer their new financial burden on to the users.

Net neutrality pros and cons: what you need to know, Nord VPN, https://nordvpn.com/blog/net-neutrality-pros-and-cons/

Arguments against Net Neutrality

- **No one is paying for the data**. With net neutrality, users only pay for the service, not the data they consume.
- **Illicit content is widely available**. Offensive, dangerous, and illegal content is accessible to everyone and difficult to remove. Removing net neutrality makes it easier for ISPs to filter dangerous content, although this is a small step from censorship.
- **No new infrastructure**. If ISPs can't charge more for their services, they can't invest in their infrastructure. With net neutrality, large amounts of data are consumed without paying for it – this money could be used to expand the high-speed network to rural areas.
- **Tiresome regulations**. Under net neutrality, the FCC must monitor the ISPs' compliance with these rules. This includes reports two times a year, which can become costly for ISPs of any size.

Net neutrality pros and cons: what you need to know, Nord VPN, https://nordvpn.com/blog/net-neutrality-pros-and-cons/

Internet Access as a Fundamental Human Right

- 2009 French Conseil Constitutionnel declared Internet access a fundamental right.
- 2010 Costa Rica Supreme Court recognized "the fundamental right of access to [information] technologies, in particular, the right of access to the Internet or World Wide Web."

- Art. 5A(2), Constitution of Greece

  All persons have the right to participate in the Information Society. Facilitation of access to electronically transmitted information, as well as of the production, exchange and diffusion thereof, constitutes an obligation of the State, always in observance of the guarantees of articles 9, 9A and 19

- 2020 Indian Supreme Court:

  We declare that the freedom of speech and expression and the freedom to practice any profession or carry on any trade, business or occupation over the medium of internet enjoys constitutional protection under Article 19(1)(a) and Article 19(1)(g). The restriction upon such fundamental rights should be in consonance with the mandate under Article 19 (2) and (6) of the Constitution, inclusive of the test of proportionality.

Reading for Next Week

- Chapters 4 and 5 of textbook.