

## From the Ocean to Your Computer



### Fiber Optic Cables

There are currently over 200 undersea cable systems, made up of fiber optic cables, which are fundamental to the transmission of data and internet traffic. Fiber optic cables are made up of plastic and glass, and are able to transmit terabytes of data per second. The speed of your internet connection may be shaped by the amount of cables connected to the country you are currently located in and government or corporate investment in internet infrastructure.



### Internet Service Provider (ISP)

ISPs are typically commercial companies that provide access to an internet network at a cost. ISPs include companies such as: Verizon, Comcast, & Time Warner Cable. ISPs have connected users to the internet in a variety of ways such as; fiber optic cables, wifi-networks and telephone lines. There are alternatives to paying Verizon or Comcast for internet access; a community can construct a mesh network.



### Data Center

Data centers are the physical place in which your data that is attached to various accounts (ex. Google, Facebook, Snapchat, etc.) is stored. Data produced by everyday use of the internet and social media sites requires machines, located in data centers, to fulfill constant requests. Data centers directly impact our environment as they constantly generate immense amounts of heat from using electricity to fulfill user requests.



### Servers

Servers commonly run on a "client-server model," where a client (your computer) queries or asks a server to perform a request. In this network relationship, a server is what enables a website to load content. The geographical location of a server can impact the levels of freedom you experience online; servers located within countries that have strong state censorship capabilities may result in user's experiencing less security from state scrutiny and suppression.

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### Firewall

Firewalls essentially monitor incoming and outgoing traffic generated on a specific wireless network. Firewalls create barriers between known wireless networks and external networks, as a measure to prevent the spread of malware, viruses and other threats to your computer and it's data. Firewalls can also be used by governments to censor and block their citizen's access to websites hosted outside of their country (ex. The Great Firewall of China).



### Wireless Modem

Wireless modems facilitate a device's connection to the internet through connecting to an internet service provider (ISP). Routers connect devices to the internet, and wireless modems combine the features and functions of modems and routers into one. Data that travels between your wireless modem and the internet when you're doing just about anything online becomes visible to ISPs and wifi network operators if you are using unencrypted communication tech.



### Your Computer

The construction of computers require large scale global extraction of rare earth minerals (RAE). Many components of your computer are made up of RAE; from your computer's screen to it's internal drives and central processing units (CPU). Common RAE are: silicon, aluminum, copper and cobalt. The construction of your computer and smartphone are tied into international politics and are made into being via major environmental extraction processes.



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