## Hub

A device with multiple ports, that accepts ethernet connection.

- *Purpose:* connect devices into a network.
- Knows only when the device is connected to one of its ports.
- It doesn't filter any data. When data packet arrives to one of the ports, it is copied to all other ports.
- No security, unnecessary traffic.

## Switch

A device with multiple ports, that accepts ethernet connection. Knows physical (MAC) addresses of devices connected to it.

- Data is directed only to intended port.

## Router

Routes data from one network to another based on their IP addresses.
Gateway - IP address of a router.

## LAN - Local Area Network

## Subnet

Defines your local area network range.
Laptop $\rightarrow$ 192.168.1.2
Tablet $\rightarrow$ 192.168.4.19
Subnet mask in this case will be 255.255.0.0: 255 means fixed numbers for this network.

## NAT - Network Address Translation

A method of remapping IP addresses while they are in transit across a traffic routing device.

## Firewall

Set of passive rules to protect network from unauthorized access.
There are 2 ways to communicate through a firewall:

- **DMZ - Demilitarized Zone**
  Subnetwork that separates devices in local network from untrusted network such as Internet.
- **Port Forwarding**
  Redirects a communication request from one address and port to another while the packets are traversing a router of firewall.
  It can be note directly in firewall rules: when device 1 in the internet wants to communicate to device 2 placed in local network, device 1 is allowed to connect to a specific port of device 2, for example, 80.