2024

Technical literacy and computer skills

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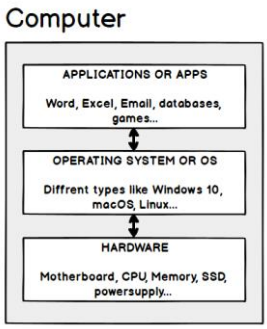
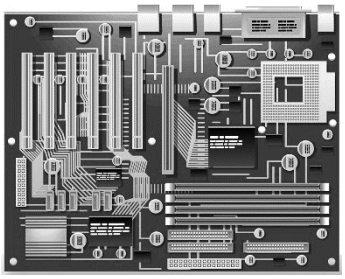
Computer literacy

A computer consists of a motherboard, processor, memory, hard disk, power supply, box and more.
But a computer is more than just hardware, but also an operating system and then software that comes on top of it like Word, Excel, browsers like Chrome, Firefox... games and much more.
General operating systems are e.g. Windows 7, 8, 10 and now most recently 11 from Microsoft and then macOS from Apple for their hardware.
It is also worth pointing out an operating system called Linux (Free), but it can be downloaded for free for various machines.



Motherboard



Motherboards come in a variety of shapes and sizes – its size depends somewhat on the box it's going into. You can take the example of a box called "Turn", but you can put a fairly large motherboard in it, while a machine intended for tabletop does not allow the same size. The size or scope of a motherboard says little about how powerful it is - more about what box it's going into. Motherboard just takes care of connecting everything together.
When choosing a motherboard, you have to take into account several other factors, such as which processor to use. If you want to use a processor from AMD, you have to buy a motherboard for that processor.

Processor

The two largest manufacturers of processors in the individual market are Intel and AMD. Apple must also be mentioned in this context, but they produce all the processors themselves and do not sell them to others - they are therefore only found in products from themselves.

Intel marks display processors (e. cpu) with the letter "i" followed by a number or i3, i5, i7 and then i9. This number is followed by a number no lower than the version number for the processor in question. This number has to match well because it tells how old or new the processor is.

Let's take an example: *Let's compare two i9 processors, one is labeled "i9 - 14900K" and the other "i9 - 7900x", but the second one, i9 – 7900x, is much older, from June 2017, than the first one that is from October 2023. Both processors are still i9, but there is a big difference in their age, as you can see. If you want to buy older hardware (used), it is important to check this because it is easy to say that the machine (desktop or laptop) has this or that processor, but without the latter number, the advertisement is "not" very markable.*

Although a powerful processor is used here for the sake of explanation, for most normal users either an i5 or an i7 from Intel (R5 or R7 from AMD) is sufficient – an i5 should be enough for most processing, but of course you must look at what the machine will be used for. Here you also need to look at the second number, as in the example above.

AMD uses the same numbers but the letter "R" before "Ryzen" - there you can find processors called R3, R5, R7 and R9. As it has been established above, it is not enough to just look at the previous number, but to simplify the matter a lot, you can say that a lower number such as e.g. AMD's R3 processor is not as powerful as the R7 or R9. However, the second number next to the processor number is also very important here.

Regardless of whether you choose to use an Intel or AMD processor, you need to look at both numbers. To find out which number is the latest, you can look at the websites of retailers in this country and search for the highest number.

Processing memory

RAM is used by the processor (cpu) to store data while it is busy with other processing. We are not talking about data storage as such, but everything that is only found in the machine's memory is lost if the machine is suddenly turned off or if the power goes out. RAM is therefore only temporary storage used by the processor.

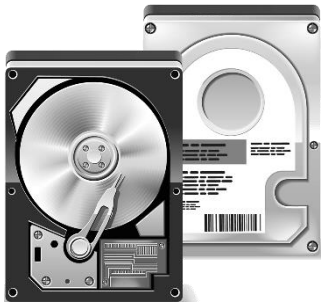
The size or amount of RAM required has been increasing over the last few years and decades. At the time of writing, 8GB is the limit. Not long ago you could find computers with 4GB of memory and before that even with 2GB. With the development of new operating systems, the need has increased and now it has come to the point that +/-12GB would be desirable because the operating systems themselves have started to take up to 6GB for themselves... if a machine has 8GB in total, only 2GB is left for the user.

But if you decide to buy a machine / laptop today with 8GB, you should look into whether it is possible to expand it later. Some machines today do not allow expansion, so the user would be stuck in said size. To be absolutely sure, it can be said that a machine with 16GB of memory is a machine capable of doing most of the tasks that the average user expects from it.

At the time of writing, the latest type of RAM is called "DDR5 / DDR-5" and is produced by the various manufacturers. Older generations are DDR4 and then DDR3, but you should never buy a machine, new or used, with the latter or DDR3. As with processors, the numbers are 5, 4 and 3 generations, and here DDR5 is the latest and greatest.

Hard drive

Hard drives are intended to store data for a long time and after the machine has been turned off. Older types include a turntable, not unlike the old LPs, an arm and a reader. However, the needle in the hard drive never touches the record like the LP record did, but hovers just above and reads the



change in magnetic field. In general, these disks spin from about 5000 up to 7200 revolutions per minute, so it could happen that you could hear them, and as they got older, the computer could vibrate a little.
You can still buy these disks, but they are on the decline as a new type of SSD (solid state drive) has replaced them. There are no moving parts - instead there is a technology comparable to memory cards in cameras.
Disk sizes are measured in GB or gigabytes and +/- 450GB is considered a common size. You can find both smaller and larger disks or 1000GB or one terabyte, 2TB and even larger. But take with you that someone might get away with smaller size while others need bigger.

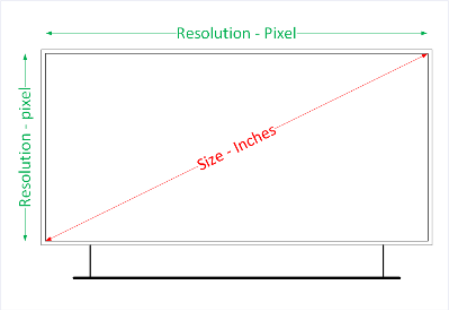
Power supply

A power supply supplies the computer with electricity - it takes in the normal 220V (AC) and divides it into smaller units such as +/-5V or +/-12V (DC). Their size is given in watts, but you can find them under 1000W, but more often than not closer to 500 or 600W
If it is decided to add a graphics card, it should be checked whether the power supply can withstand such a large addition. Otherwise, there is little need to worry about him.

Screens

When choosing a screen, including televisions, you need to keep the following in mind:

1. What should or may the size be (For TV / Desktop)?
    a. For the laptop: 12", 14" or 15"..?
    b. For the desktop: 24”, 28”, 32”... or bigger?
    c. For TV: 42", 48", 50", 55" 65" or 74"
2. What should be the resolution?
    a. HD – 1920 x 1080
    b. QHD – 2560 x 1440
    c. UHD – 3840 x 2160 (4K)
3. Which refresh rate is best?
    a. 60, 75, 90 or 120Hz
4. Which connectors should there be?
    a. HDMI, USB, DisplayPort, Mini DisplayPort



Screen size is measured in inches, corner to corner. If to choose e.g. TV needs to take into account the distance from the couch to the device. A shorter distance usually means a smaller TV set. Resolution is measured in dots across and down, so an "HD" device has 1920 pixels across the screen and 1080 pixels down. More dots better resolution. But you must keep in mind that little or no content is broadcast today in 4K resolution.

Refresh rate means how fast the monitor can refresh the image... a higher number is better.
To connect equipment e.g. as a game console or a set-top box, you need to have a port on the TV for that, and the HDMI port is the most common. More HDMI ports are better... not less than three to have some slack.

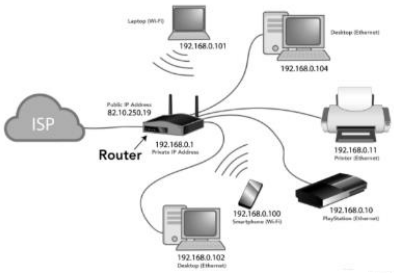
Other

Computers can be found everywhere such as tablets, laptops, desktops, phones, watches and televisions for example, but cars, ships and planes all contain computers of one type or another. Other equipment such as cables, boxes, connectors and more can be found in all computers, but they are used to keep track of the equipment and connect it together.
Then there are screens, but without them you can't see much of what is being done together with a keyboard and mouse so that information can be entered into the machine. Other equipment such as a printer, scanner or card reader are also found.

Networking

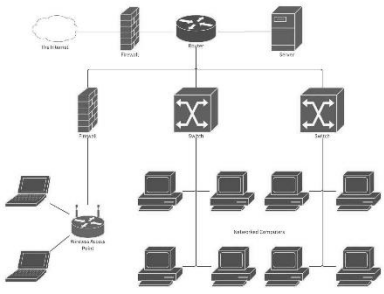
A network is two or more computers connected together together with printers, routers and other devices connected by cables or wirelessly. Larger networks have servers that manage users and devices centrally.

Home network



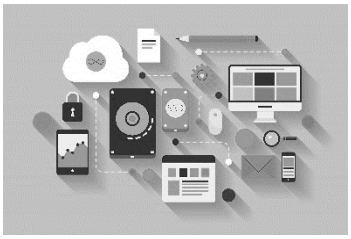
Are usually considered simple and work on a peer-to-peer basis where there is no central server.
The router comes from a service provider such as Síman, Vodafone, Nova or Hringdu. But it is used to separate the network that is connected to the user and that is connected to the external network or "the Internet". Other equipment is the equipment that the user brings to it, such as a mobile or desktop computer, telephone, printer or game console.
Since it is a peer-to-peer network, each device must be configured individually. This means that if the password is changed on one device, it will not be inherited on the next one, even if the same person is logging in.

Corporate network



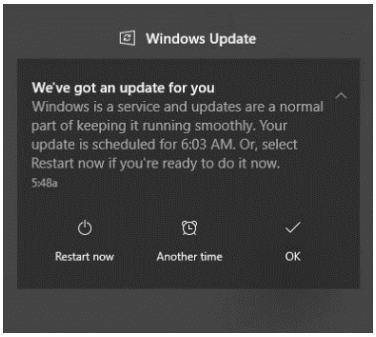
Can be and are usually much more complicated than home networks, but you can still find very small company networks - almost in the spirit of home networks. However, they usually have one or more server(s) to perform certain tasks such as user administration and their rights. Central management of users and equipment.
Here we use the word firewall, which is the equipment that separates the company's internal network and external network.
Then there are routers to divide the network into smaller units, such as between floors or buildings.

Backup



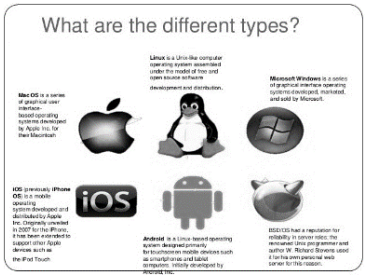
Copies are made to have data in the state it was in when the copy was taken. In this way, they can be prevented from being shared or deleted - whether it happens by accident or not. Without copies, companies and individuals are taking certain risks, but without data, computers are nothing more than a good letterpress.
This includes images, videos, contracts, purchasing products and services, to name a few. It applies to both companies and individuals. Today's phone comes with a powerful camera and we all take pictures at various opportunities, but it's easy to lose a phone, it gets damaged or it's simply stolen.
To make a copy, you can buy an external hard disk that can be easily connected to a computer and simply drag the data to the new disk and select a copy.
You can also buy access to a cloud solution such as Google, Dropbox, Microsoft 365 or use iCloud from Apple. Whichever solution you use, you need to decide what to back up and how long to keep it.

Bugs and updates



If an error occurs, try to read what is said and keep in mind whether changes have been made to the machine, either mentally or hardware. Was hardware added recently? Was installing new software? What happens if the added hardware is removed? Did the engine then go well and the error stops coming? Can I uninstall the software and then the machine will be fine?
You should always activate the latest updates whether for the operating system, anti-virus or the software installed on the machine. This is how bugs are fixed, software becomes better, a more pleasant experience and more security.

Operating system



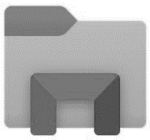
An operating system manages the hardware that the computer has at its disposal, the software that is installed and other services such as printing. It is also responsible for receiving input, mouse movement, speaking through a microphone and playing music or speech from a speaker and displaying information on a screen.
It can be compared or said that the operating system is an interpreter between what the hardware understands, such as the processor, and us as humans. The computer only understands machine language or two values that is zero and one or "0" and "1". We might find reading long strings of zeros and ones rather difficult.
Most operating systems come pre-installed on new machines and today's Windows 11 for "PC" machines and macOS on Apple machines.

Other operating systems are Linux and Android, but you can find a whole host of other operating systems.
All modern consumer-facing operating systems are graphical (e. praphical user interface) where we click on buttons, symbols or images with a mouse or finger.
Of these two operating systems (Windows and macOS) for computers, Microsoft has a great advantage and has a market share of around 75%.

You can see statistics about this here: https://gs.statcounter.com/os-market-share/desktop/worldwide

File Explorer & Finder

The file explorer allows the user to navigate around the machine. It applies to viewing, finding and selecting files as well as folders and subfolders.
On Windows operating system, the file explorer is simply called the same or "File Explorer"



A similar explorer can be found on Apple machines, but it is called a finder, but its purpose is the same.

Cloud solutions

What is a cloud? In this context, it is primarily a service. Services where we buy access to space for data and or use of software. Instead of storing the data on the user's hardware, it is stored by the entity that runs the service / cloud. Similarly, we can use software such as word processing and spreadsheets via the Internet instead of installing it on the respective machine.
The cloud can be compared to the need for water... we buy water from the water company “Vatnsveitan”. The same applies to electricity, but we buy it from an authorized dealer. We can also look at an internet connection that most people buy from Síminn, Vodafone, Nova or Hringdu. All of these are examples of services that the user can purchase. He only pays for what he needs but has the option to add to a certain extent if the person needs more.
Few people today would think of running their own water supply or running a wind turbine in their garden or burying their own fiberoptic cable. Arguments can be made that the same applies to data retention or access to software. It is better to buy that service from dedicated parties who have better equipment and knowledge than the rest of us.
The cloud is basically a service that we as consumers can buy into. These include Google, Dropbox, Microsoft and or Apple. All parties have offered some form of cloud service, some longer than others. These include Google, which has been a cloud service since the beginning, but you have to use a web browser to access the data. You have to go to a site like https://gmail.com and log in. The same can be said about Apple's iCloud service, but to access it you have to go to https://icloud.com and log in. Cloud services are therefore not new.
Another service worth mentioning is from the company Zoom, which operates a remote meeting system through its website or https://zoom.us
There can be a great advantage to using cloud services - whether for a company or as an individual.