What is the internet?
Its history and insights into its development

The first commercial mainframe computer was built in 1951

In 1967, Bob Taylor and Larry Roberts invented a way to connect two computers

A communications session was held between the first two nodes of the ARPANET network on October 29, 1969, covering a distance of 640 kilometer

64-8K CP/M ver 2.2M for the IRS-99
Model 11, 12 and 15
CP/M 2.2 copyright by Digital Research
Inc. 1979
Customizion to IRS-88 11, 12 and 16
copyright 4 Irout 1988, 81, 83
Serial numer 2-163-86169
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University of California Los Angeles

Stanford Research Institute

Computers have become personal tools and are connected to each other via the internet

Acronis

Search

Previously, the internet was only transmitted through cables, but wireless connectivity makes it more available

FREE Wi-Fi

Freelancers can work from anywhere in the world thanks to the internet
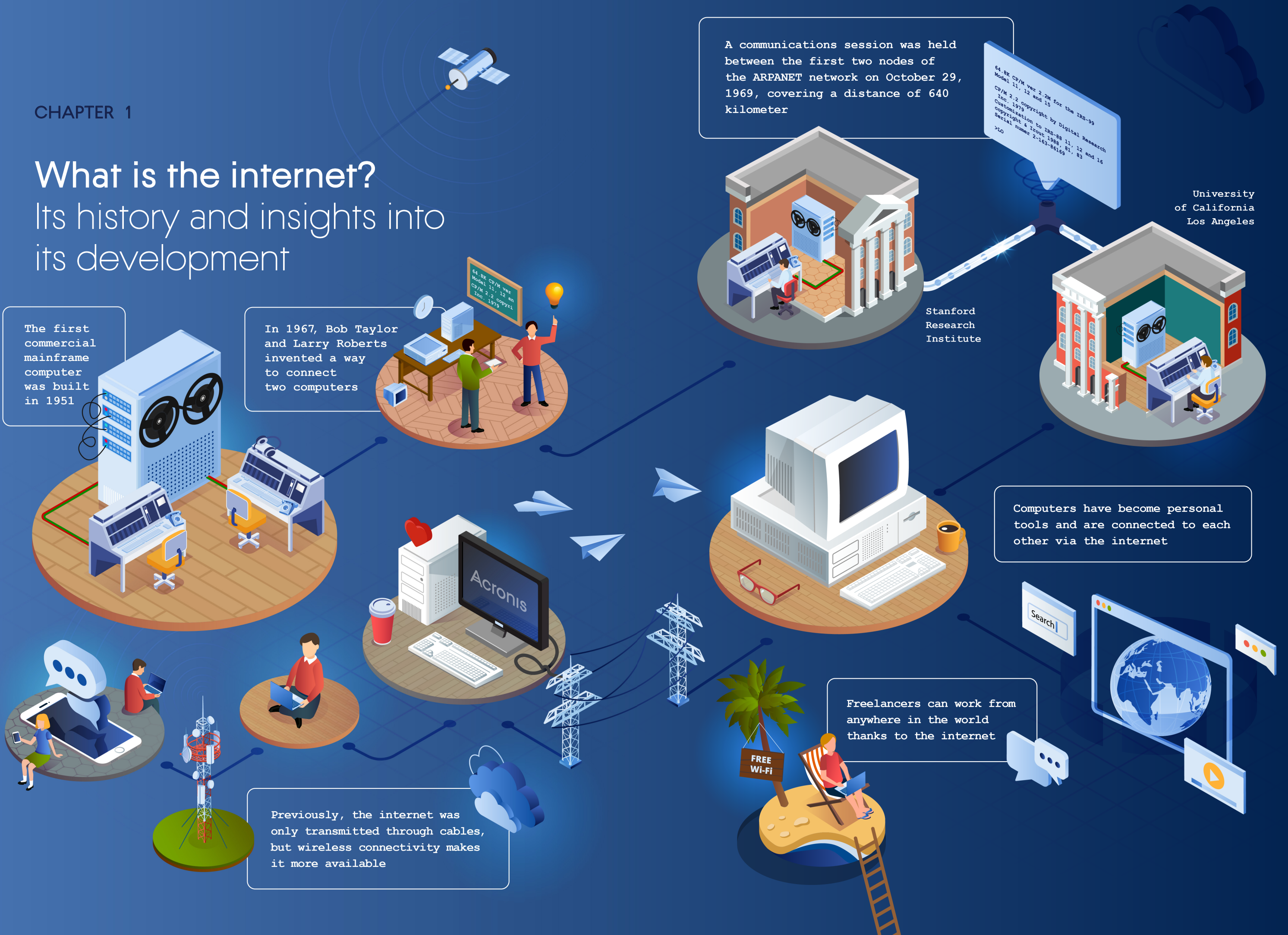
SECTION 01

What is the internet?

The internet is a global computer network providing a variety of information and communication facilities, consisting of interconnected networks using standardized communication protocols.

Why it is needed and how it is useful?

The internet enables you to find information, take educational courses, apply for a job, communicate with friends, make new friends, visit museums, let the world know about your products, conduct researches and surveys, and purchase products.

The easy access to the internet from any spot of the Earth allows **people to work as freelancers**, get information and even control processes remotely.

Effective usage of the internet allows you to **save time** and **makes your life better**. Today most people have an access to the internet and to information from around the globe.

The internet is the main source of information in the modern world

The internet uses huge amounts of information that is constantly increasing. That led to the appearance of the term "Big Data" in 2008. Big Data refers to the ability of modern technology to store and process data.

Today not only do human beings use the internet, but so do devices. Communicating with each other via the internet, without help of people, devices can transfer information to each other and execute different operations. Such cooperation got the name Internet of Things (IoT) in 1999.

Internet of Things

IoT can be applied in the household to create a "smart home" that uses sensors to collect information about temperature and other environmental data. In industrial applications, IoT can automate process updates and reduce energy consumption.

The internet is an excellent resource for self-education throughout one's lifetime.
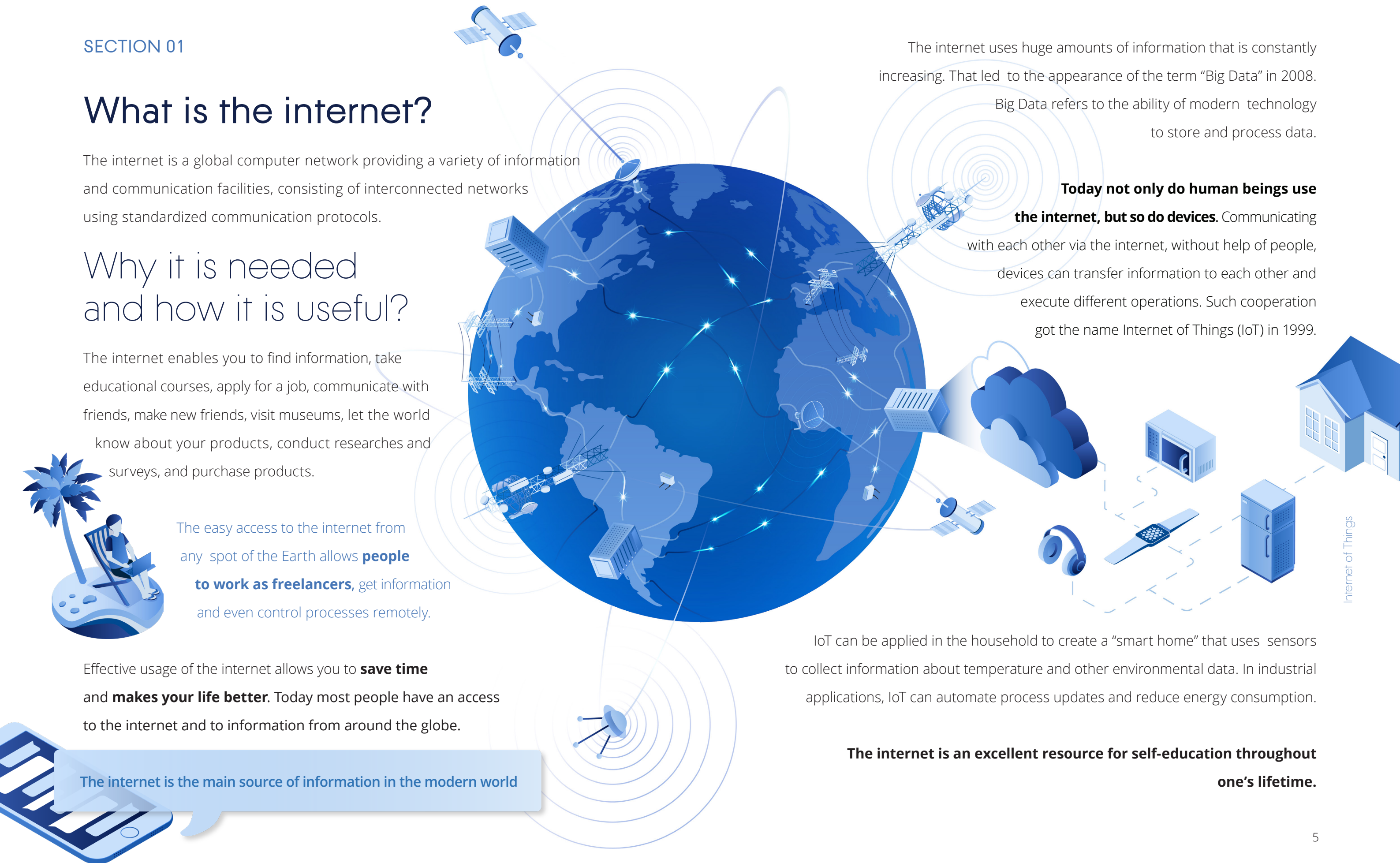
SECTION 02

A history of the internet's development

1967 — ARPANET

The internet is an innovation that many scientific groups have been developing for years. The first prototype of the internet appeared in 1967. American scientists **Bob Taylor** and **Larry Roberts** named it ARPANET (which stands for Advanced Research Projects Agency Network).

Bob Taylor

Larry Roberts

1969 — THE INTERNET'S BIRTHDAY

On October 29, 1969 at 21:00, a communication session was held between the first two nodes of the **ARPANET** network located at the University of California Los Angeles (UCLA) and the Stanford Research Institute (SRI) — that's a distance of 640 kilometers.

This date can be considered **the birthday of the internet**

The computer network ARPANET belonged to the U.S. Department of Defense. The government created the reliable, decentralized system that remains the foundation of the internet to today. Such a system relieves any person of centralized control while working on the internet. To start, they connected mini-computers at the university to industrial PC systems via telephone lines. Later they started calling these mini-computers "routers". The task of the mini-computers was to assign the data within the computer network. The main channel of data transmission was telephone lines.

Stanford Research Institute

640 km

University of California Los Angeles

The first two nodes of ARPANET

Lincoln
MIT
BBN
CASE
Harvard
Stanford
Carnegie
SRI
UTAH
USA
UCSB
RAND
UCLA
SDC
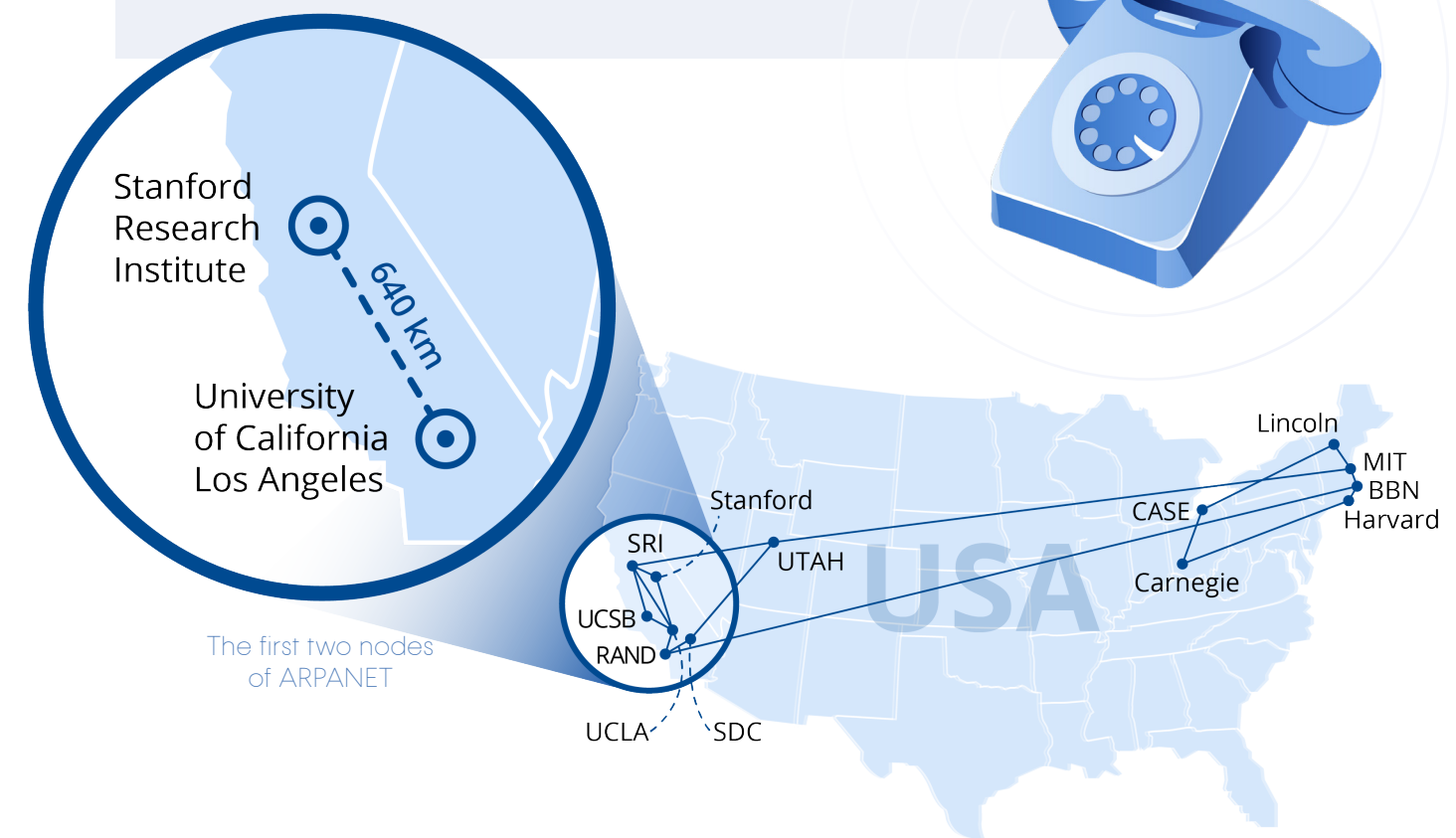
ARPANET in1970

Robert Kahn

Vinton Cerf

Tim Berners-Lee

1983 — INTERNET PROTOCOL

American scientists **Robert Kahn** and **Vinton Cerf** created internet-internet protocol (IP) and data transmission control protocol (TCP). IP-protocol is responsible for transmitting the data to the destination, and TCP-protocol checks the delivery and completeness of the transmitted data. Since 1983, TCP/IP-protocol has been the standard of data transmission on the internet. Several years passed before the internet became available to anyone, and it is mostly the achievement of **Timothy Berners-Lee.**

Hello!
My name 192.168.0.1.
IP adress

Hi!
My name 132.734.2.8.
IP adress
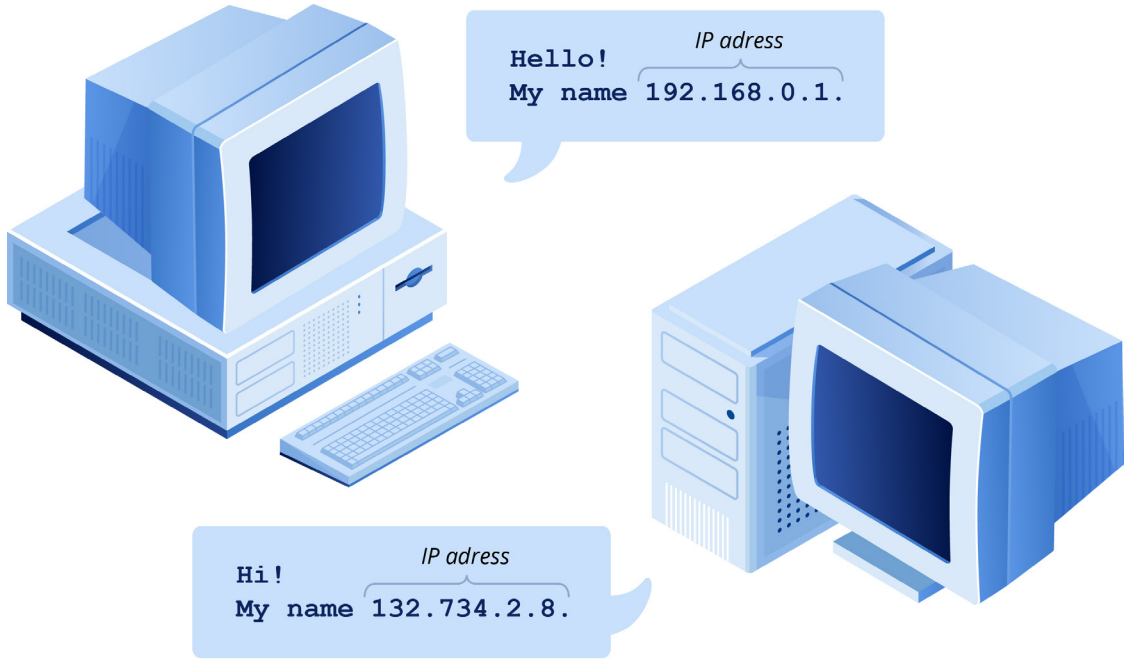
A "chat" of computer programs

1989 — WWW (World Wide Web)

Working at the European Organization for Nuclear Research CERN, Berners-Lee developed the search system Enquire for employees of CERN. **This system became the basis for the technology behind the World Wide Web (WWW)**, which is called HyperText markup language. With its help, it is possible to "connect" documents to each other using links. Such links are also known as hyperlinks.

https://www.google.com

hyperlink

This is Hyperlink - Wikipedia
https://en.wikipedia.org/wiki/Hyperlink
In computing, a hyperlink, or simply a reference to data that the reader can directly follow either by clicking or tapping points to a whole ...
Anchor text · Computing · Obje

1990 — URL, HTTP, HTML

Tim Berners-Lee, together with his associates, invented the Uniform Resource Locater (URL) identifier, HyperText Transfer Protocol (HTTP), and HTML language for WWW technology applications.

EVERY SERVICE OR DOCUMENT HAS A UNIQUE ADDRESS

UNIFORM RESOURCE LOCATOR (URL)

◆ For presenting information on the WWW, the computer language HyperText Markup Language/Cascading Style Sheets (HTML/CSS) is used, allowing the creation of hypertext documents.

Language HTML/CSS

```
1   <!DOCTYPE HTML>
2   <html>
3     <head>
4       <title>Website</title>
5       <link rel="stylesheet" href="style.css">
6     </head>
7
8     <body>
9       <h1>>The three greatest things you learn from traveling</h1>
10      <p>Like all the great things on earth traveling teaches
11          us by example. Here are some of the most precious
12          lessons I've learned over the years of traveling.
13          <figure class="media ck-widget" contenteditable="false">
14              <div class="ck-media__wrapper" data-oembed-
15              url="https://www.youtube.com/watch?v=BLJ4GKKaiXw">
16                  <iframe
17              src="https://www.youtube.com/embed/BLJ4GKKaiXw"
18              style="position: absolute; width: 100%; height: 100%;
19              top: 0; left: 0;" frameborder="0" allow="autoplay;
20              encrypted-media" allowfullscreen=""></iframe>
21              </div>
22          </figure>
23      </p>
24    </body>
```
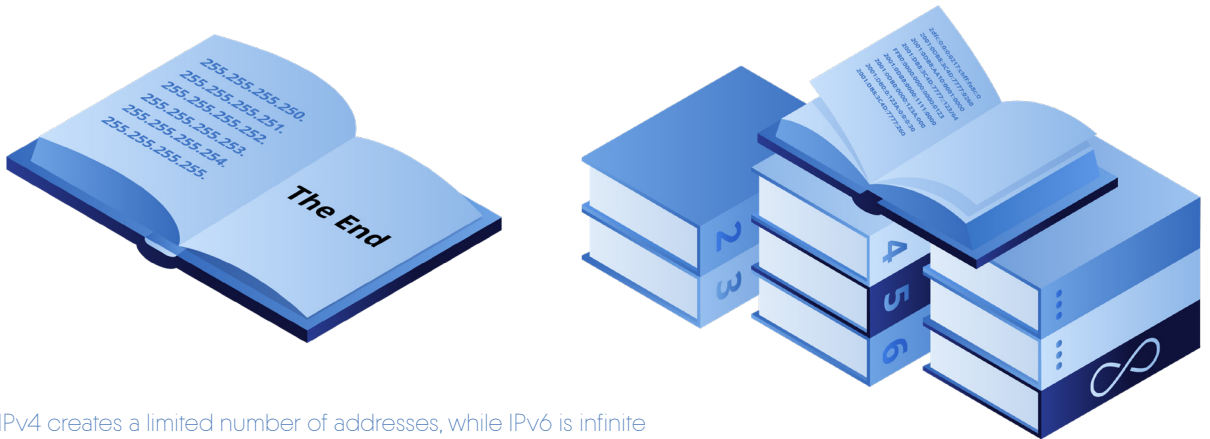
T
R
O
K
B

Say something...

⚙ ▭ ⛶

+ Follow

◆ For data transmission between devices within the network, HyperText Transfer Protocol (HTTP) is used. Many web sites are working on the protocol "https://". The "s" in this abbreviation stands for "secure".

HOW DO COMPUTERS ON THE INTERNET COMMUNICATE WITH EACH OTHER?

Every computer is a host of the network. To make it possible to find the host, it is given a global unique name or IP-address. There are two formats for writing these addresses.

IPv4 — Unique numbers are written as four groups of digits spanning from 0 to 255. The digits are written in a format divided by dots, for example, **192.168.0.1.** In this format, there is no number exceeding 255.

IPv6 — This type consists of eight 16-bit blocks, divided by a colon, such as **2dfc:0:0:0:0217:cbff:fe8c:0**. The obvious benefit of IPv6 is that it increases the number of possible addresses so more hosts can be connected to the global network.

255.255.255.250.
255.255.255.251.
255.255.255.252.
255.255.255.253.
255.255.255.254.
255.255.255.255.

The End

2 3 4 5 6

IPv4 creates a limited number of addresses, while IPv6 is infinite

The internet still works in accordance with these technologies today. The only difference is that the hosts are connected to each other not by telephone lines, but fiber-optic lines. This protects the transmitted data from noise and increases the speed of data transmission. **The internet is a global computer network, but it is not the only global network in the world.** There are some corporate networks, where only authorized users have access — such as bank or company staff, for example.

SECTION 03

How to use the internet

You need two things to get on the internet: **a physical connection** to the internet and **a browser**, which is a program that can recognize HyperText.

The physical connection to the internet is offered by internet service providers. The fee for access depends on the amount of the traffic consumed and the speed of the data transmission. The **traffic is the information** transmitted via a channel within a determined time span. The speed of data transmission is measured in kb/s or mb/s (b/s = bits per second).

THE CONNECTION MAY BE OF TWO TYPES: CABLE AND WIRELESS. THE CHOICE OF CONNECTION TYPE DEPENDS ON THE USER'S LOCATION AND PURPOSE FOR GETTING ON THE INTERNET.

◆ **Cable connections** protect and screen the transmitted information better, increasing the speed of data transmission. Such a connection is better suited to stationary computers. An internet service provider (ISP) installs a fiber-optic cable to the building through which the information is transmitted. A commutator is then installed to distribute the network to different spots in the building (i.e. offices and residences).

◆ **Wireless connecting** is primarily a mobile connection. Smartphones and tablets have a mobile internet connection by means of their SIM cards. A SIM card not only allows the device to make phone calls, but also surf the web. It also enables the use of Wi-Fi technology (Wireless Fidelity) to connect without any wires. Wi-fi modules are installed into practically all devices and can connect to these networks.

Even if a computer is physically connected to the internet, a user still will not be able to surf it. They must have a special program installed in their computer called a web browser. **A browser allows users to search, save and read the information, written in HTML and web-apps.** By installing an operating system on a PC, a browser is installed by default.

THE MOST POPULAR BROWSERS:

Internet Explorer

Mozilla Firefox

Opera

Google Chrome

Safari
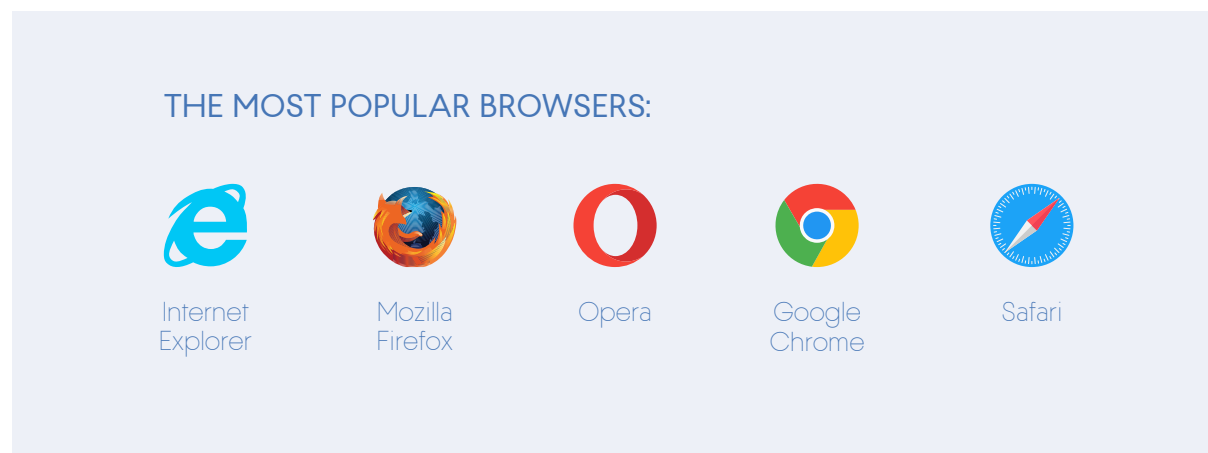
If a user knows the exact address of the site, its URL, then they can type it into the address bar and press Enter. The user will be led to the site right away. The URL contains the name of the resource it belongs to, as well as specific categories.

DOMAIN CATEGORIES:

1 **Common domains are by type of organization:**
.com (commercial), **.gov** (govermental), **.aero** (connected with aero transport) and others

2 **Domain by country and cities:**
.jp (Japan), **.uk** (Great Britain), **.mc** (Monaco), **.barcelona** or **.moscow** and others

3 **Domains by nationality, using national languages:**
(**.рф** (Russia), **.新加坡** (Singapore), **.한국** (Korea Republic)

Search engines such as Google.com allow you to look for information on the internet when you don't know the URL. Such websites collect the information about the internet so the search process can be really fast.

https://www.google.com

Google

Поиск в Google   Мне повезёт!
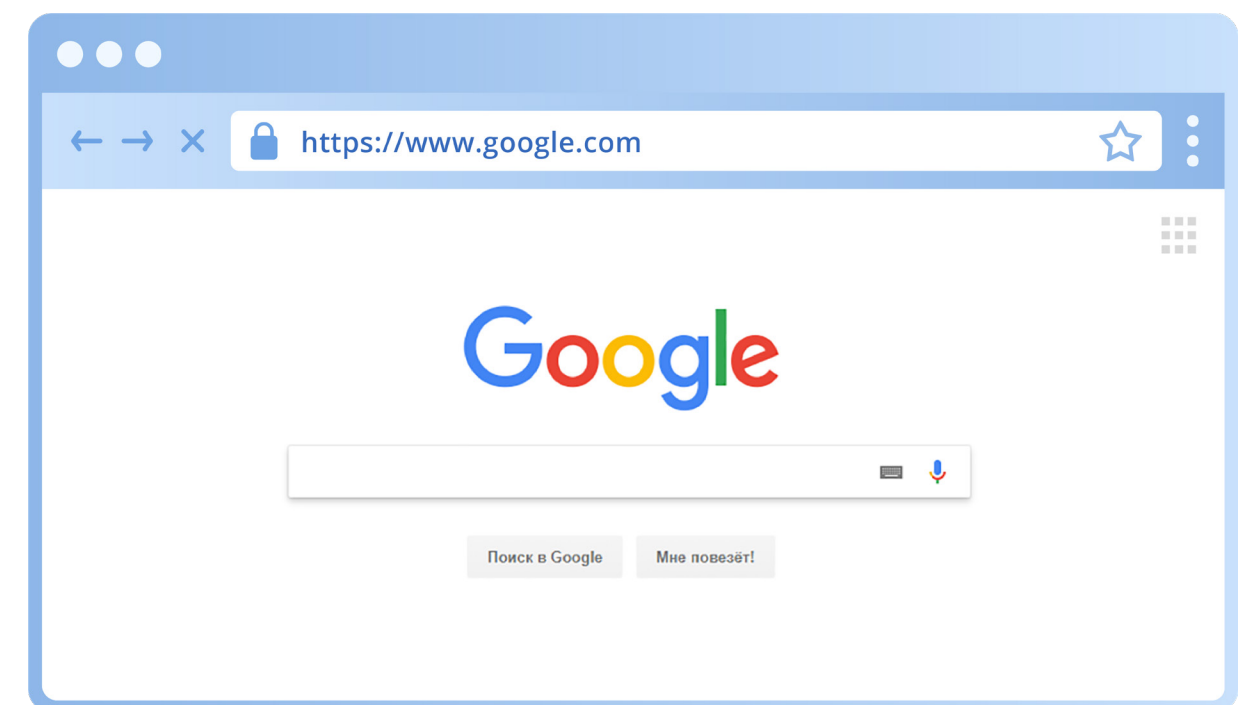
SECTION 04

Electronic mail

Electronic mail (e-mail) sends messages via the internet to any spot in the world. You can send almost any type of file by means of e-mail (photo, text, table, etc.). **Any user can create an e-mail account absolutely free of charge.** This service is provided by a number of internet portals (Google, Yahoo and others).

username_1@e-mail.com

login already exists

When creating an e-mail account, a user must make up a unique address for the mail. What is the best way to choose an address? Try to make it easy to remember but associated personally with you, and not with anyone else.

If you have made up an address, but it is already in being used, then you can add some numbers or symbols to it to make it unique so you can use it.

WE BELIEVE IT IS NECESSARY TO INFORM YOU THAT YOU WILL PROBABLY NEED TWO ADDRESSES:

A main address for communicating with people

An "advertising address" to use when registering on different websites

Pay attention when creating a password. It should include both upper and lower case letters and special symbols as well. Do not tell anyone your password and commit it to memory so you don't have it written down where someone else can find it.

https://

Login	your_email_name@email.com
Password	********
Confirm Password	*****

Register

SECTION 05

Services for communication

Increasingly, we are sending messages and making phone calls via the internet.

THE MOST POPULAR SERVICES FOR COMMUNICATION ARE:

Facebook	Twitter	Instagram	YouTube	Tumblr	Pinterest	Linkedin

◆ **Social networks** — A registered user can place information about themselves, communicate with other users, add people to their list of friends, share news about themselves or events, publish pictures, search music and video materials, and subscribe to different information channels. Social media platforms are used not only for entertainment but also as a tool for work. Social networks allow you to create public groups for people who share common interests. They are used to promote businesses, sell goods and services, advertise, and for education and learning. Registering on social networks is free of charge as well. Today every social network is backed up by a mobile application that you can download and install on your smartphone or a tablet. These applications are supported by almost all operation systems.

◆ **Messengers** are applications that allow you to send text messages as well as audio and video materials. Contacts from your phone book are added to your messenger apps automatically. You can communicate only with those users who have already installed the application on their devices.

THE MOST POPULAR MESSENGERS ARE:

WhatsApp	Viber	Telegram	Skype	Facebook Messenger	Hangouts Google
Veon	Periscope	ICQ	Tencent QQ	WeChat	Sina Weibo

The future
of internet development

The world offers a lot of digital technologies that allow many devices to use the internet. At home and in business, the IoT era has already begun, where smart devices and gadgets communicate with each other over the internet to make decision without a human being involved.

Passports will be replaced by internet-based digital IDs for each person. **In the future you will not need to install an application on your PC, but instead any program or document will be opened online using web-based applications.**

The majority of users will keep their information not on their PC, but in the cloud. The growing popularity of cloud technology will lead to increasing safety of cloud-based data so it becomes practically flawless.