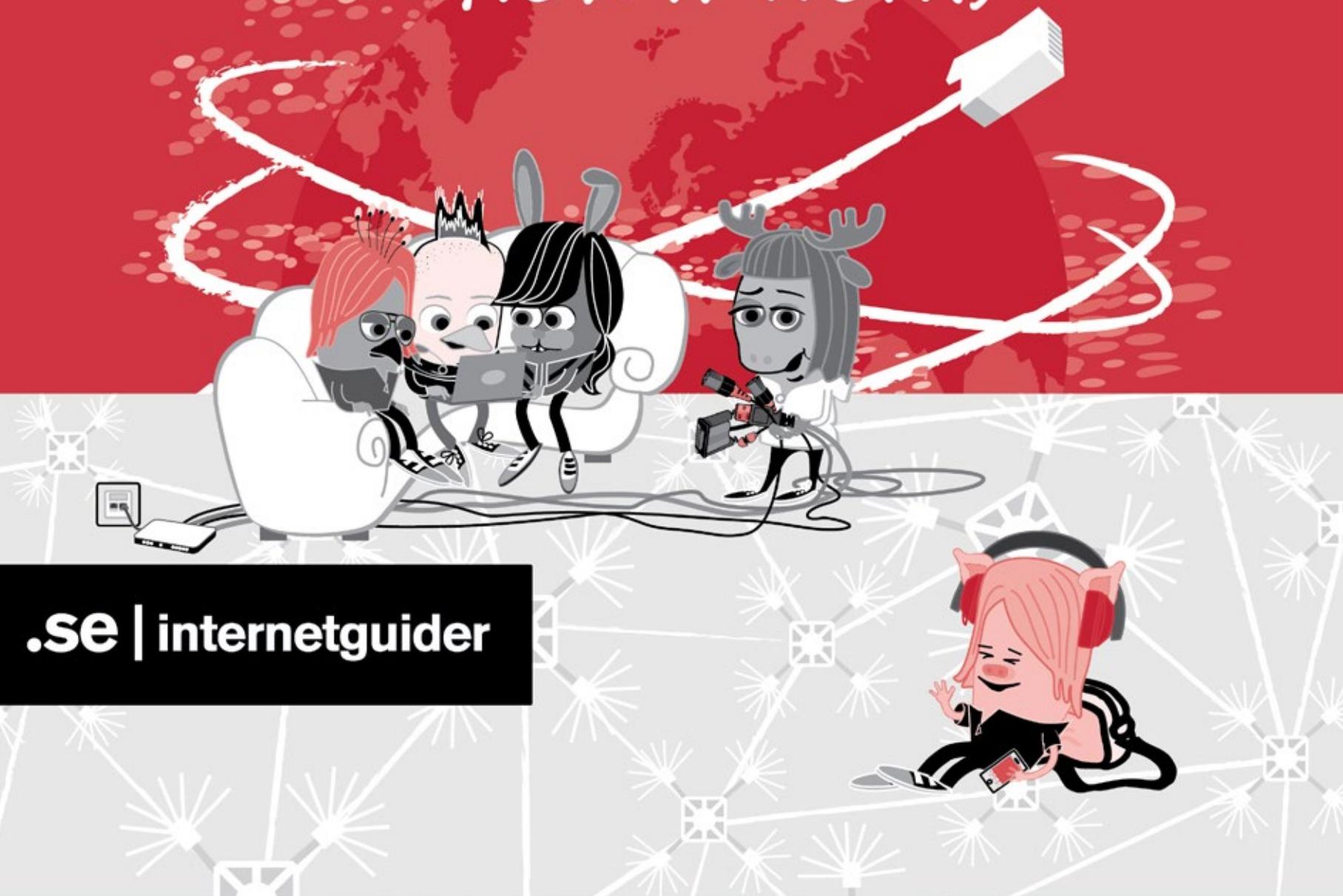


.se

The Internet — How it Works



The Internet – How it Works



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.SE's Internet guide, nr 32

Version 1.0 2014

Hasse Nilsson



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Author: Hasse Nilsson

Editor: Hasse Nilsson

Project leader: Jessica Bäck

Illustrator: Petra Segerberg

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Organisation number: 802405-0190

Visiting address: Ringvägen 100 A, 9 tr, Stockholm

Mailing address: .SE Box 7399, 103 91 Stockholm

Telephone: +46 8 452 35 00, Fax: +46 8 452 35 02

E-mail: info@iis.se www.iis.se

TEKNISKA
MUSEET **.SE**



How do you use the internet?



What do you do on the net?

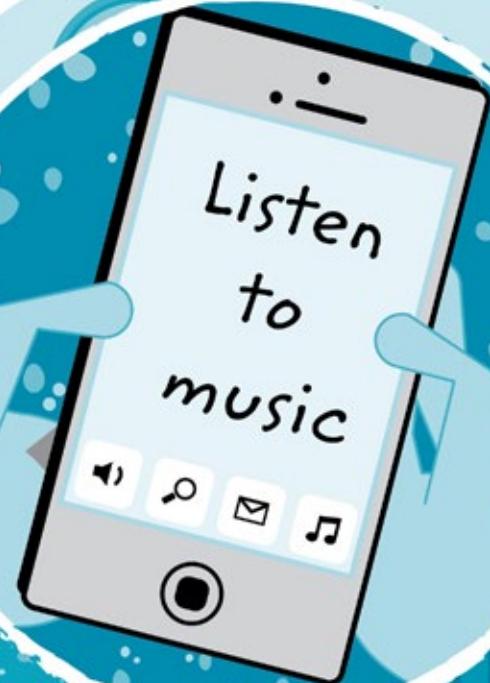


Where is the internet?

You have the internet, for example, in your computer, mobile and your tablet of course.



Play
games



Listen
to
music



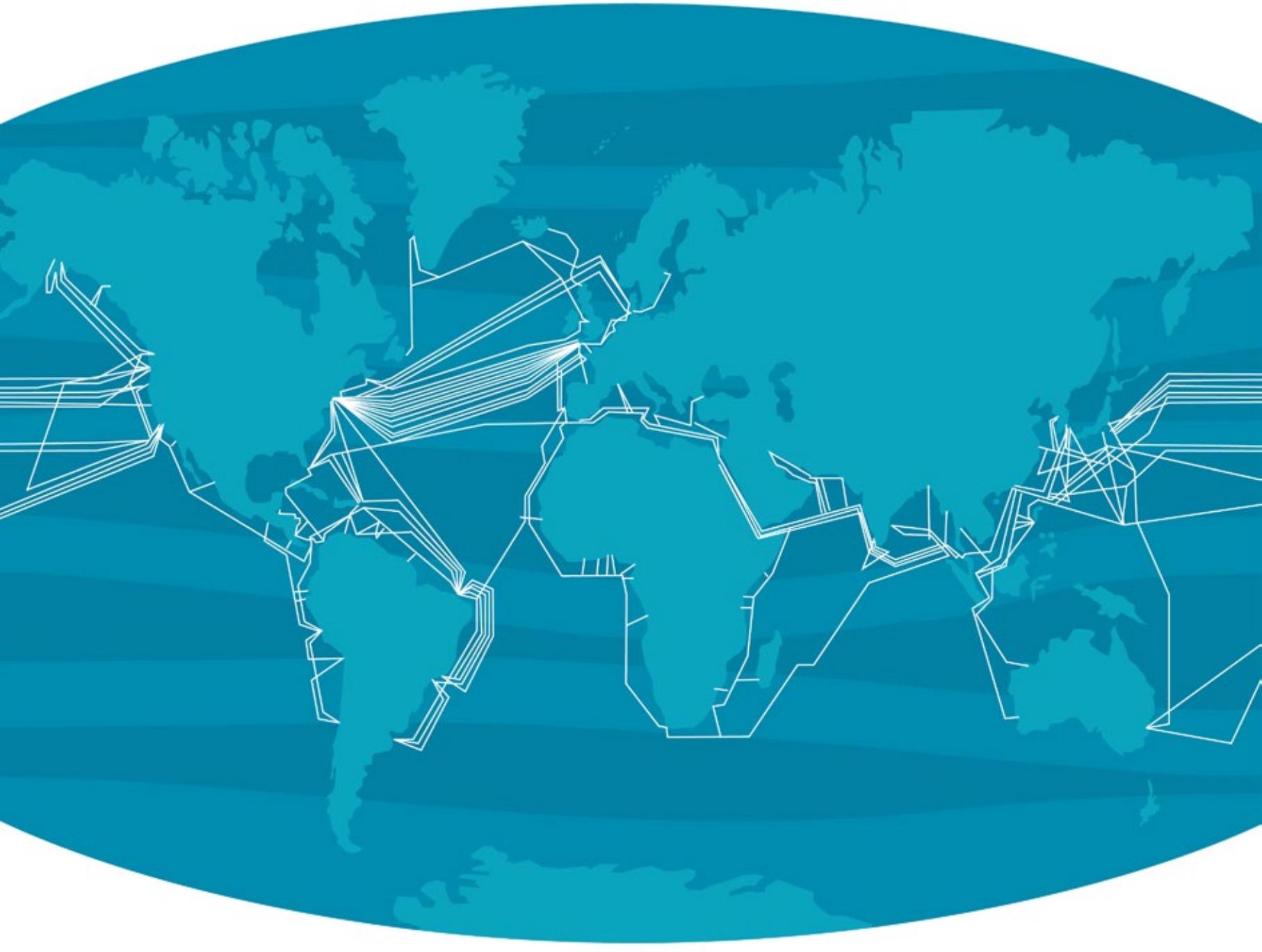
Search
for pages



Watch
films



But really, the internet is the world's largest network of computers and exists all over the planet.



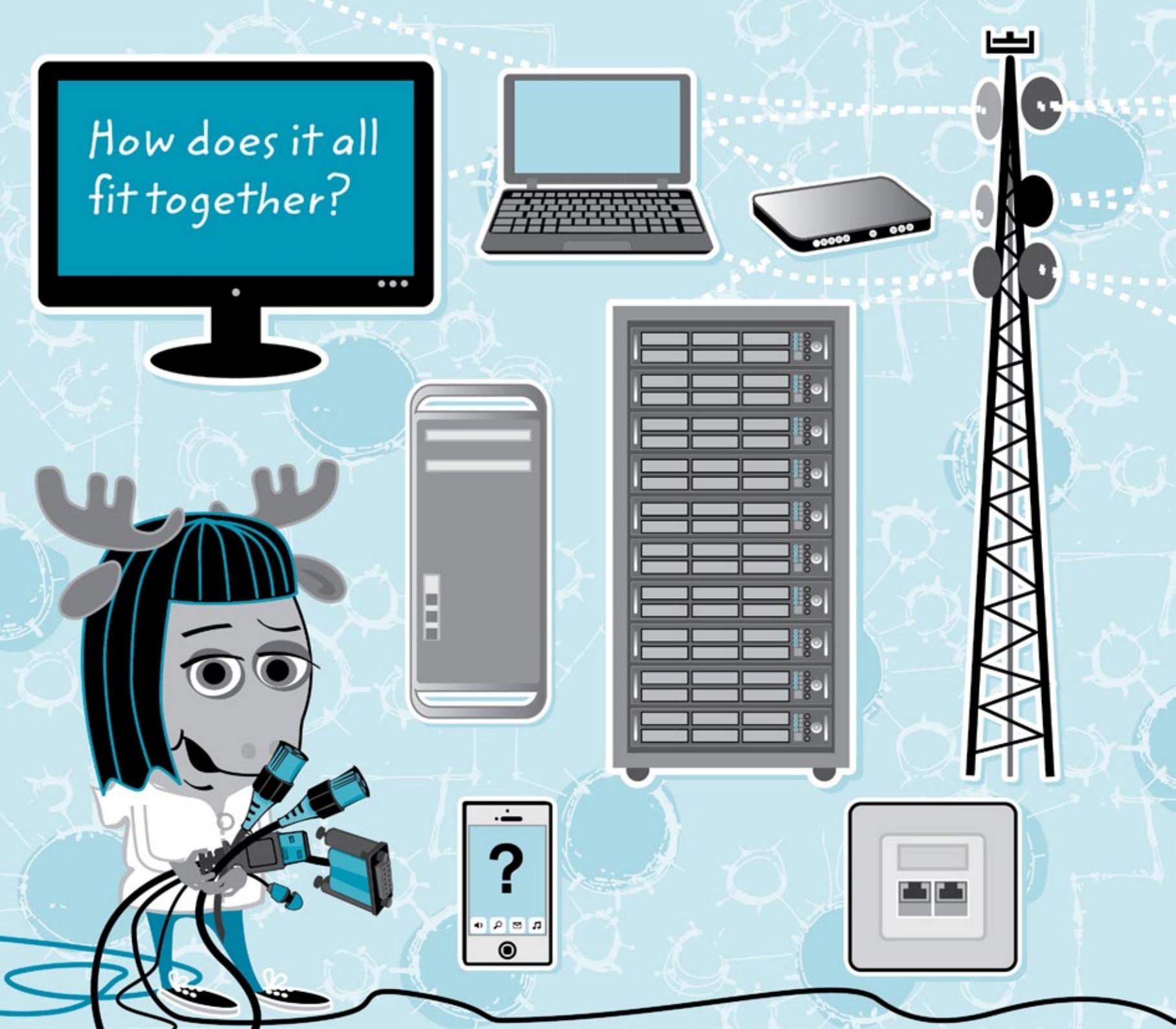


Except in some remote places.

The South Pole



*Okay, but how does it all
fit together?*



How does it all
fit together?





At home you might have a small network without wires but it is still connected to the internet by a cable.

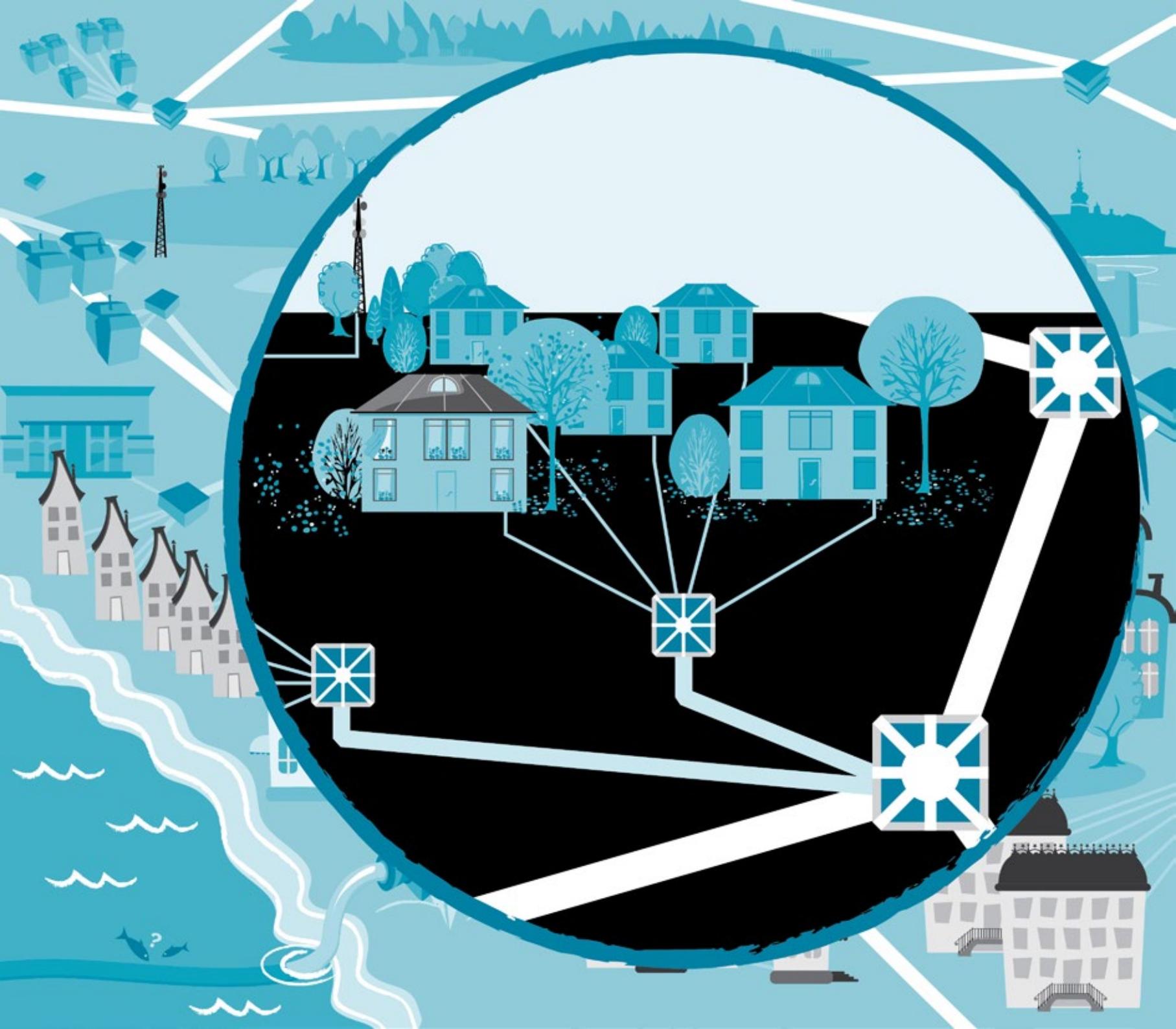


Internet cable





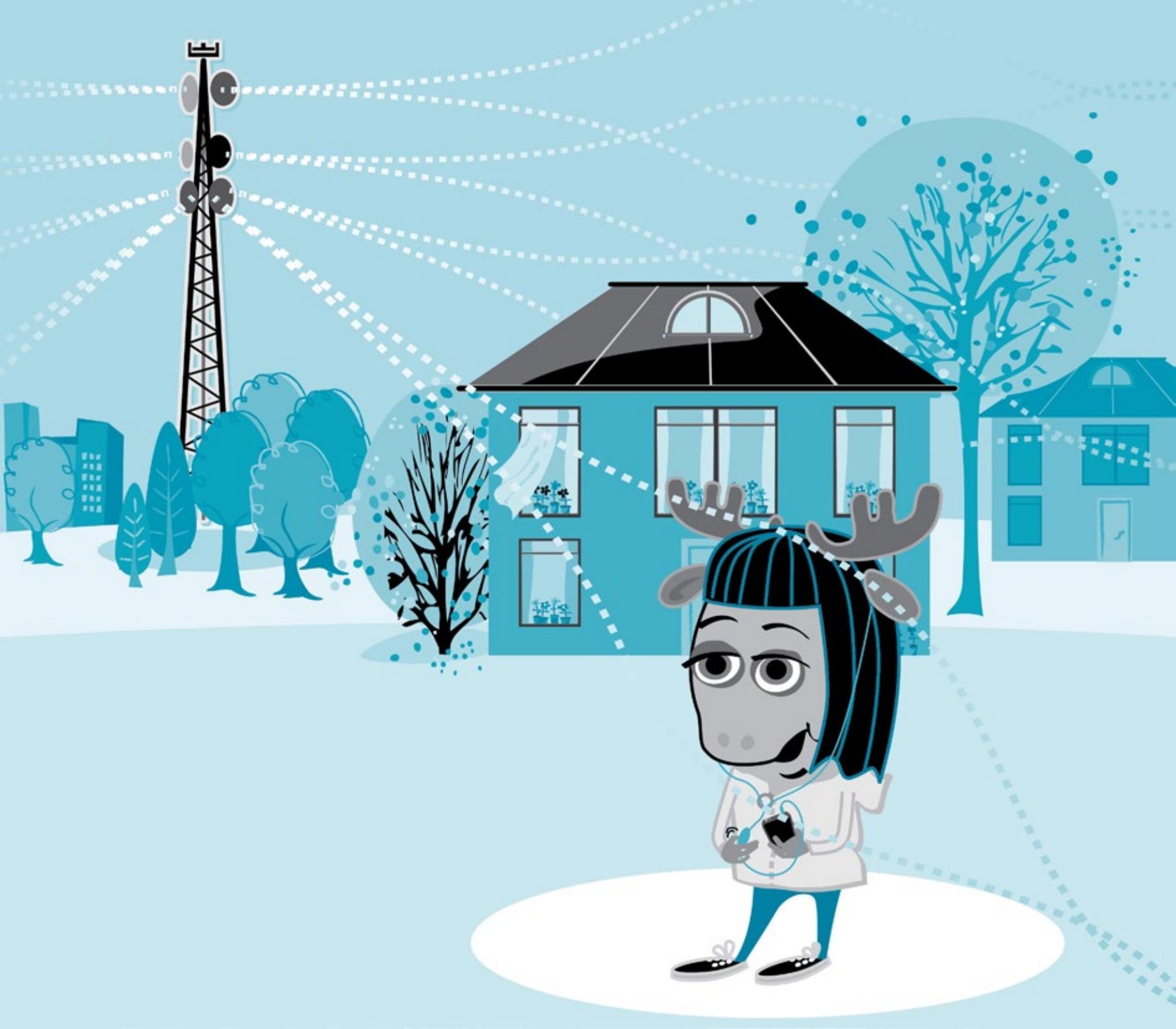
Usually your home is connected to the internet by a wire that is buried in the ground to a cabinet where many wires are connected to a large internet cable.

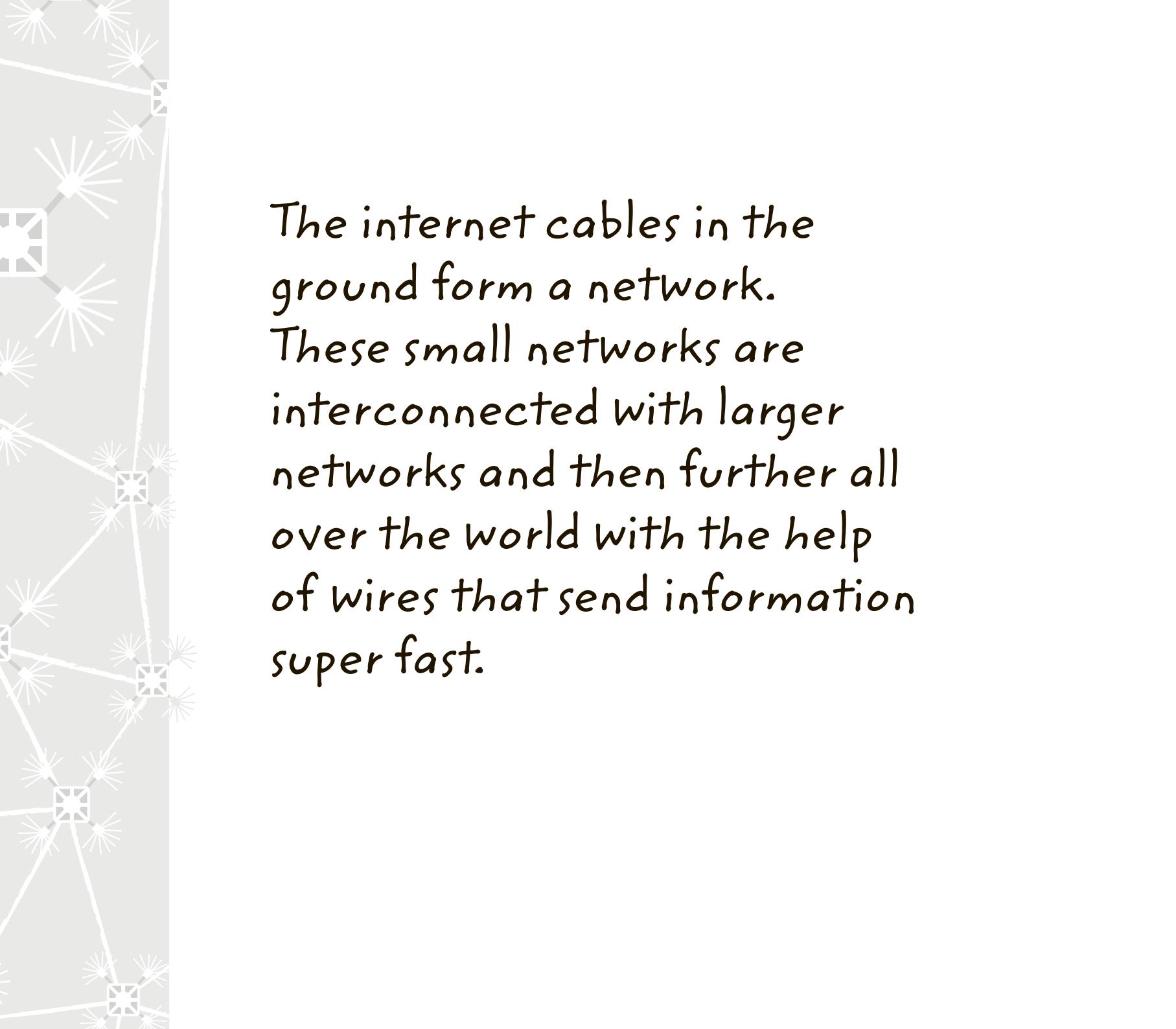




You can also connect with a mobile, without wires, and then signals are sent to and from your mobile through a mobile mast which is then connected to an internet cable.

When you use the internet, your device is part of the internet network.





The internet cables in the ground form a network. These small networks are interconnected with larger networks and then further all over the world with the help of wires that send information super fast.





Are you wondering how fast?

Nearly five times around the Earth per second!

Because it's light in these large internet cables that send the information, which we usually call internet traffic.



One second!



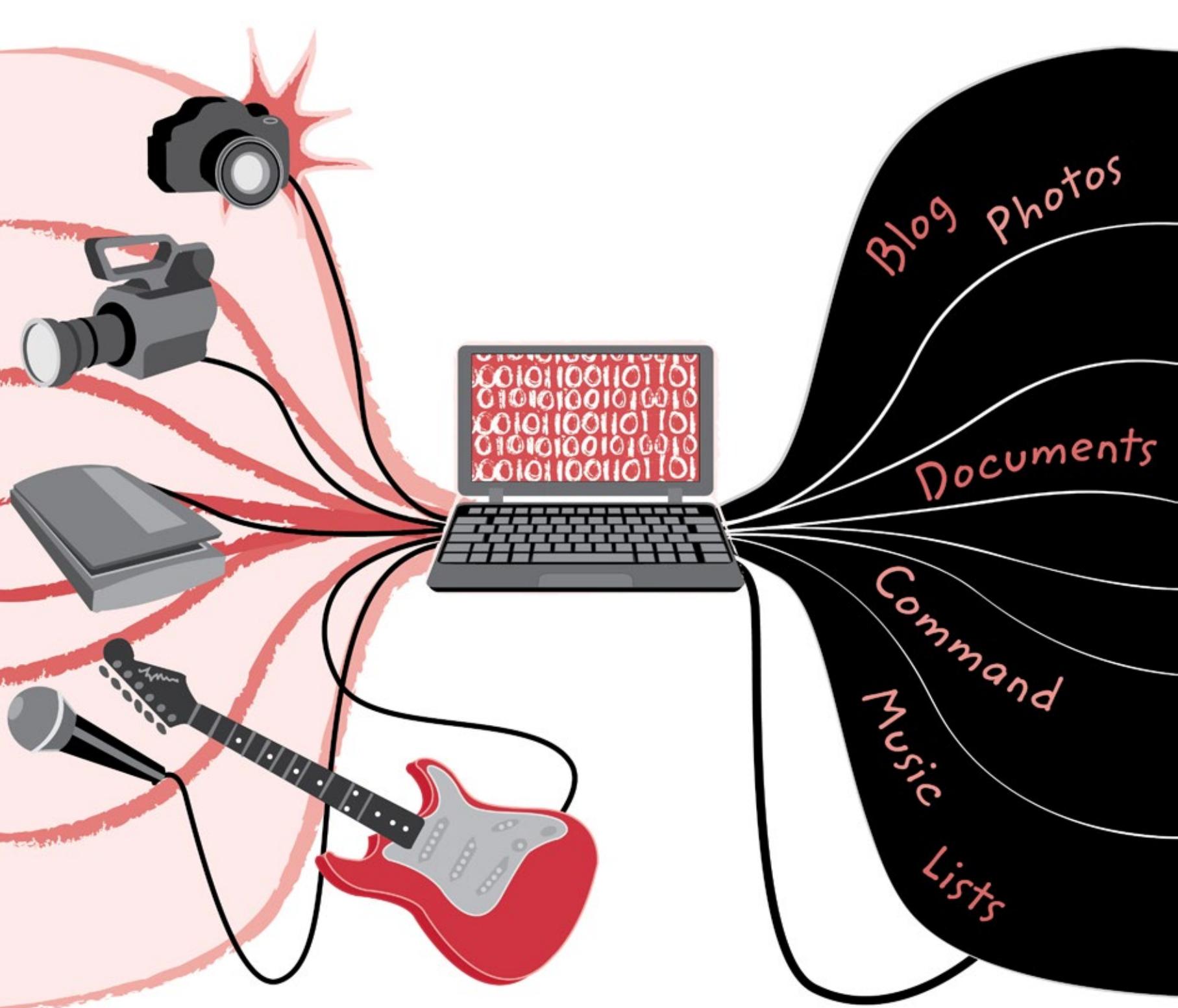
*Can I send a cheese sandwich
over the internet?*





No, because the things that are sent on the internet are called digital information and are made up of ones and zeros.

Computers and computer programs translate the ones and zeros so that you can see, hear and use the information.





If you want to:

- check out web pages,
- send and receive messages,
- create a site and write a blog,
- upload pictures,
- play games,
- watch movies,
- listen to music,

...and many other things





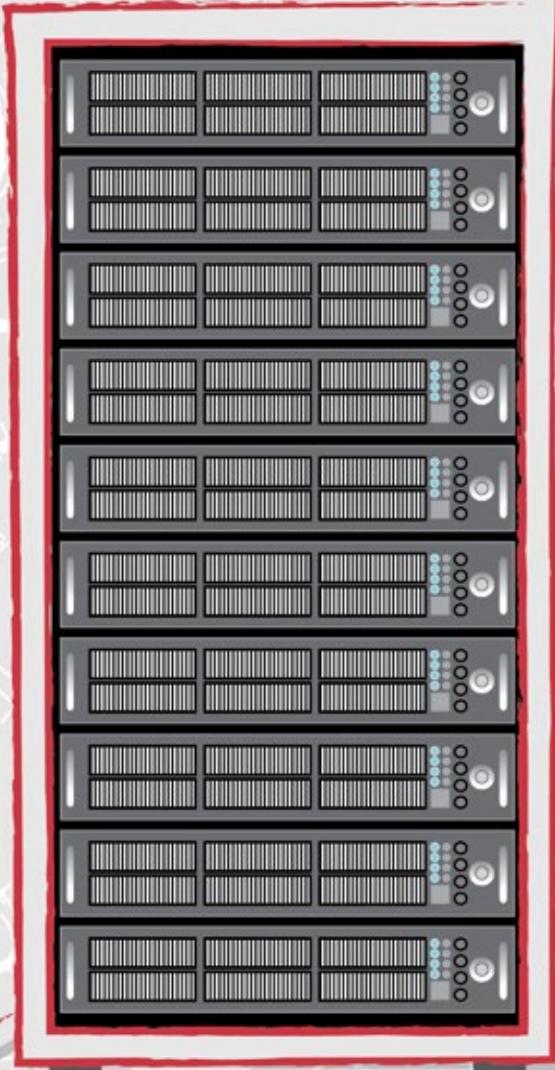
On the internet, there are millions of computers called servers. Contained in the servers are things like websites or huge game worlds.

It is common to have many servers connected in large data centers. But it's also possible to have a server at home or at work.



Data center

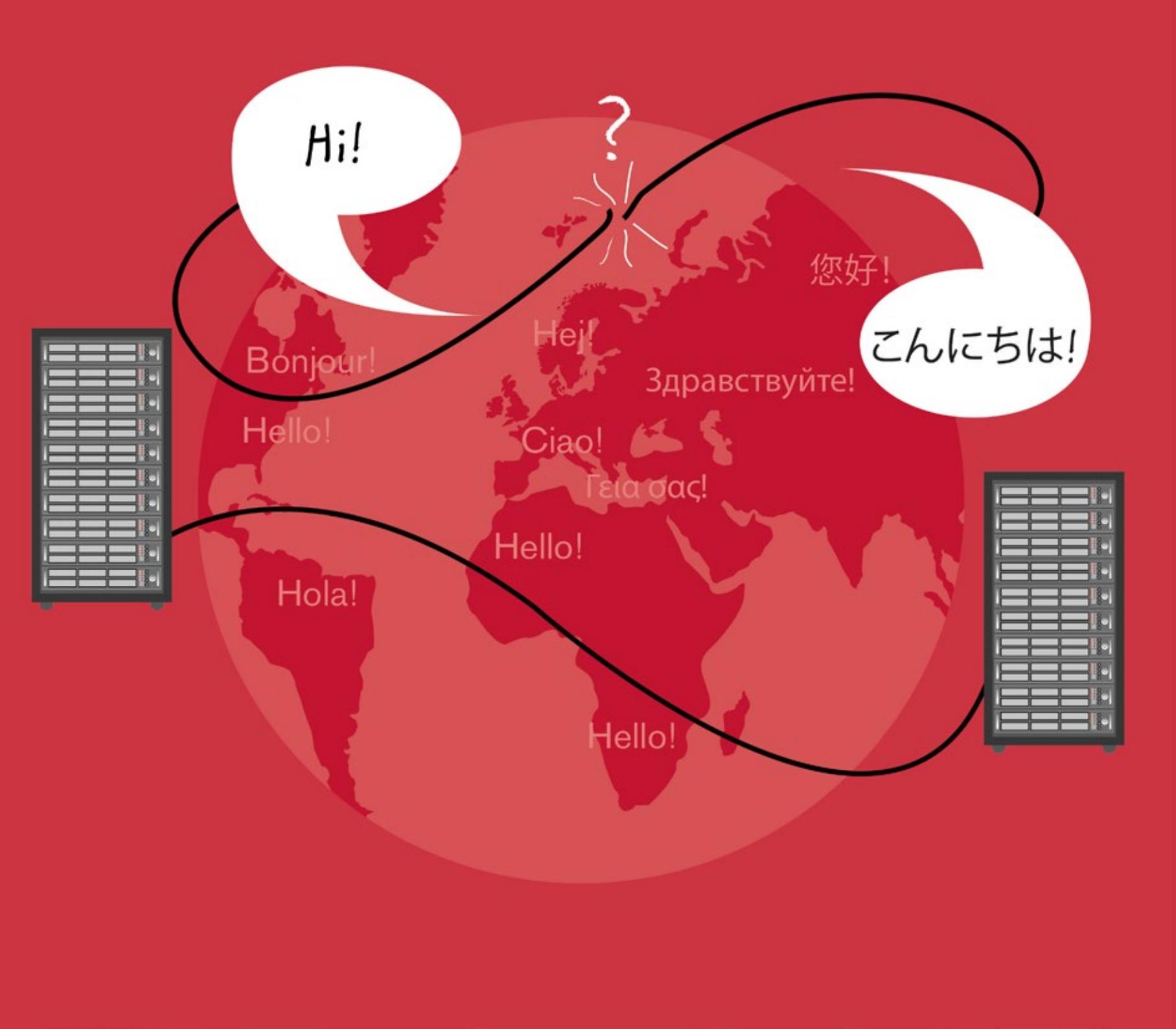
Servers





The large computers and servers can talk with each other, but they do not speak in a normal language, like English. Instead, they send numbers and codes to each other.

The good thing about this is that a computer in Sweden can understand a computer in Japan even though the people speak different languages.



Hi!

Bonjour!

Hello!

Hola!

Hei

Ciao!

Hello!

Hello!

ハ

Здравствуйте!

Γεια σας!

您好!

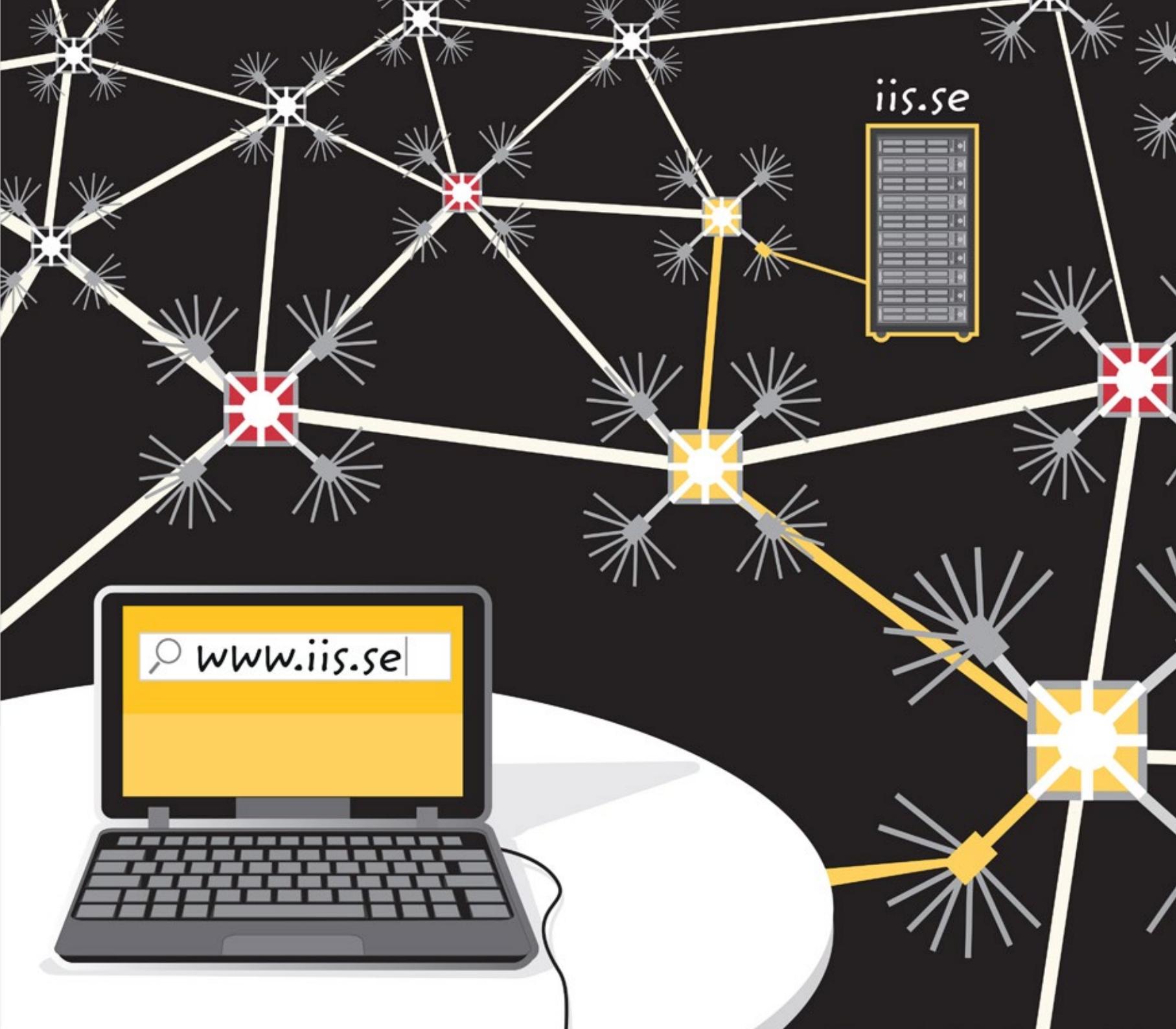
こんにちは!





If you want to check out a website, a kind of question is sent from your computer to a server on the internet that answers. The server that answers can be located anywhere in the world.

Then the website is sent to your computer and you can see it and click on it.

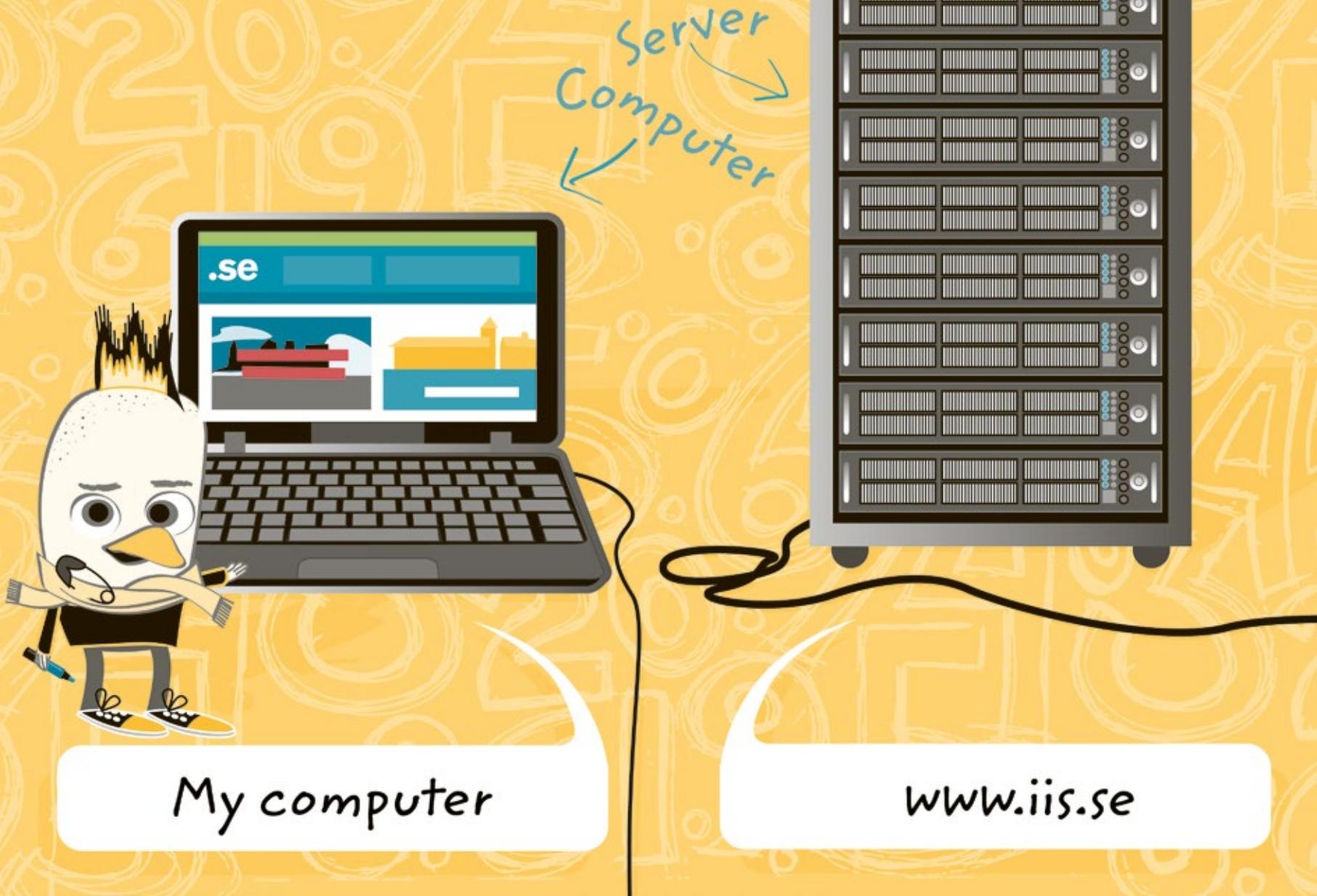




How can a website find the right place on the internet and arrive on my computer?

That is because all appliances that are connected to the internet, like computers, mobiles and servers, have their own address.

How can a website find the right place on the internet?





*It's like the house you live in.
It also has its own address so
that you can receive mail and
people can visit you.*

All appliances that
are connected to
the internet have
their own address.





You can also say that internet addresses are like telephone numbers. The right numbers in the right order make the computers and mobiles able to find each other on the internet.

It's like calling a telephone number and having someone answer.

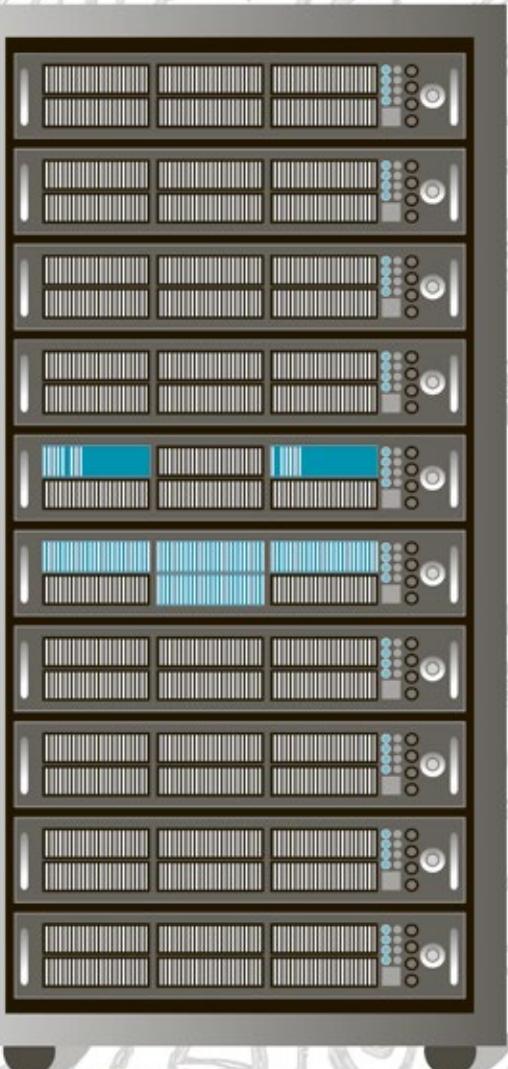


IP addresses are like telephone numbers

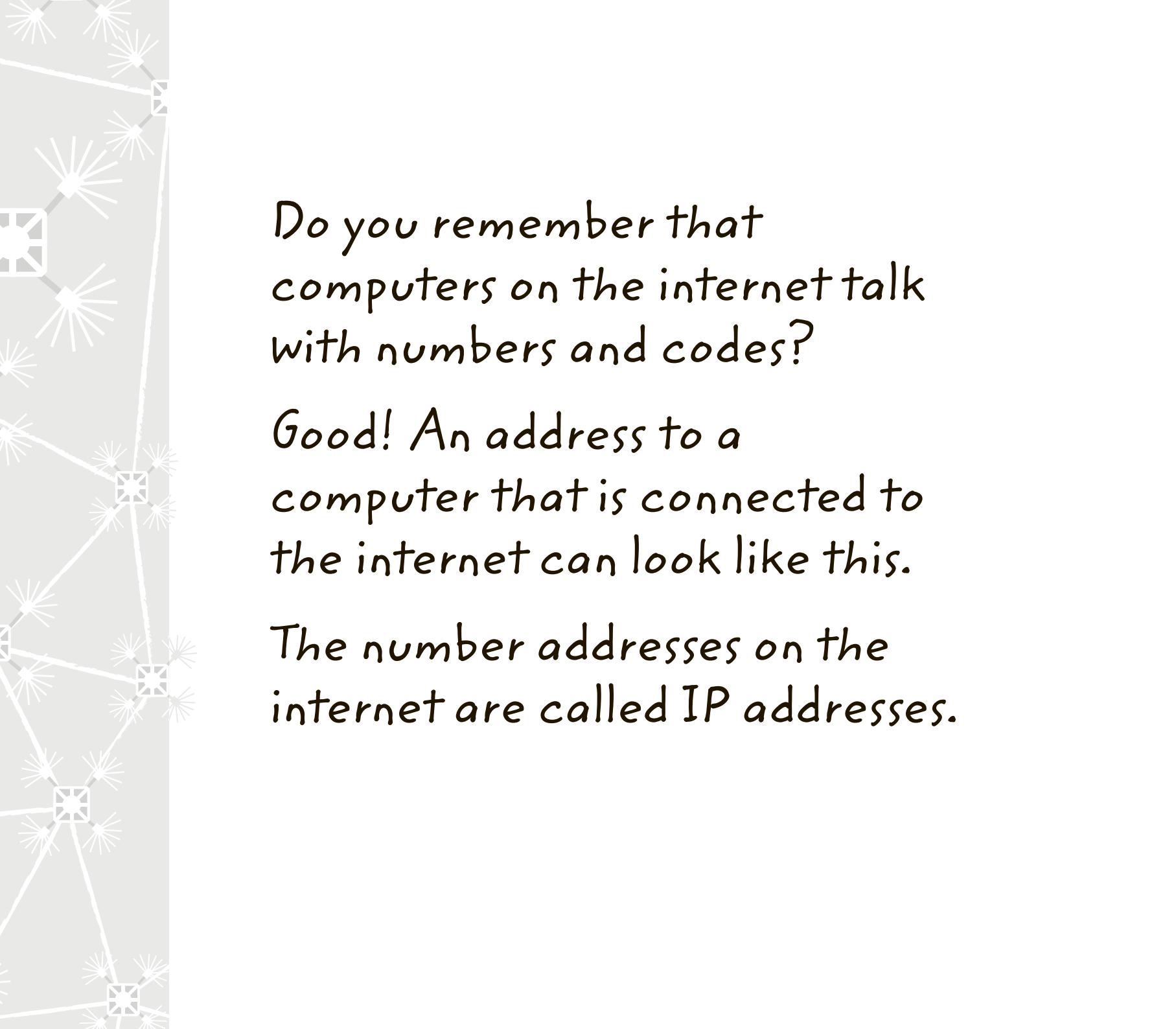


84.218.230.124

For example, my computer has this IP address
...and the web server IIS.SE has this IP address



91.26.36.46



Do you remember that
computers on the internet talk
with numbers and codes?

Good! An address to a
computer that is connected to
the internet can look like this.

The number addresses on the
internet are called IP addresses.

IP addresses

91.226.36.46

81.110.45.14

70.4.35.30

32.45.77.07

30.226.46.35

70.110.45.14

20.250.33.0

...well, you get it...





Complicated, right?
You can't read and remember
so many numbers and points!

A cartoon illustration of a grey dog with large white eyes and a small black mustache, looking intently at a computer monitor. A thought bubble above the dog's head contains several floating numbers: 123.122.789, 248.123, 156.2, and 245.6.46. The background is a green wall covered in large, faint, hand-drawn style numbers.

123.122.789
248.123
156.2
245.6.46



This is why computers
translate number addresses
to letters. As people, we
read and talk with words and
letters, not with numbers.



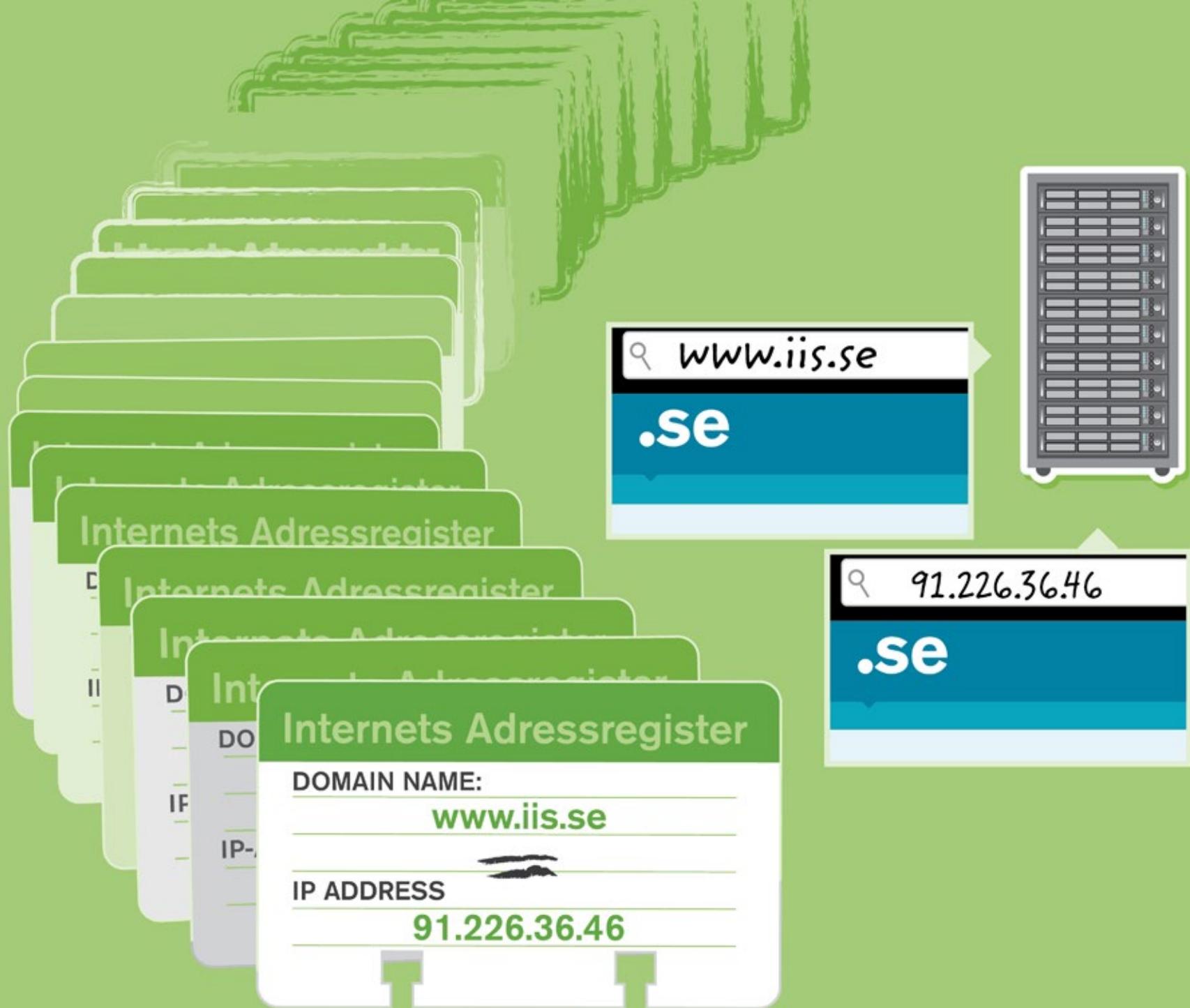
www.iis.se





If you write or click on a link to a web address, your computer then contacts the right server with help of the internet's address registry.

But actually, the address is translated to a set of numbers and points.



The internet has an address register!



Addresses on the internet
can be short like iis.se or long
like www.tekniskamuseet.se

An address with letters
instead of numbers is called
a domain name.

It is the servers that have
domain names, not the
computer, mobile or tablet.





There are around 250 million domain names in the world.

In other words, there is unbelievably much to discover on the internet.

250 million domain names





Addresses that end in .se have a connection to Sweden. And there are around 1.3 million .se addresses.

There are also other addresses that end with two letters that show which country a site has as its home.

In Sweden:



1.3 million
.se addresses





To take some examples, Danish websites often have .dk at the end, while many sites in Finland end with .fi and in Norway they use .no.

All the countries in the world have a similar letter code.





The abbreviation at the end of an internet address, like .se, is called a top-level domain and there are over 300 different top-level domains in the world.



There are more than 300 top-level domains in the world.



But there are more types of addresses on the net! Have you seen addresses that end in .com, .net or .org? These are addresses that do not indicate where in the world the server is located but which can be found anywhere.

The island of Niue has the country top-level domain .nu, which is used in the same way since the word “nu” means “now” in both Swedish and Dutch.

.au

.com

.org

.net

.nz

.nu

Niue





Now to summarize a bit:

The net is easy to use because there is a system with addresses so that you can always find the right way on the internet.

Summary

The internet is a large network of internet cables and computers that make it possible for appliances to send information between each other. (But some routes can go through the air.)

On the net, you can send and receive information. Everything is translated by computers from ones and zeros to messages, pictures, films, music or games.

All appliances – like computers, servers and tablets – that are connected to the internet can be found through their IP address and the internet's address register.

A website has a real name, a so-called domain name, and an IP address..

The Swedish top-level domain is called .se. There are over 300 top-level domains in the world that are tied to a country

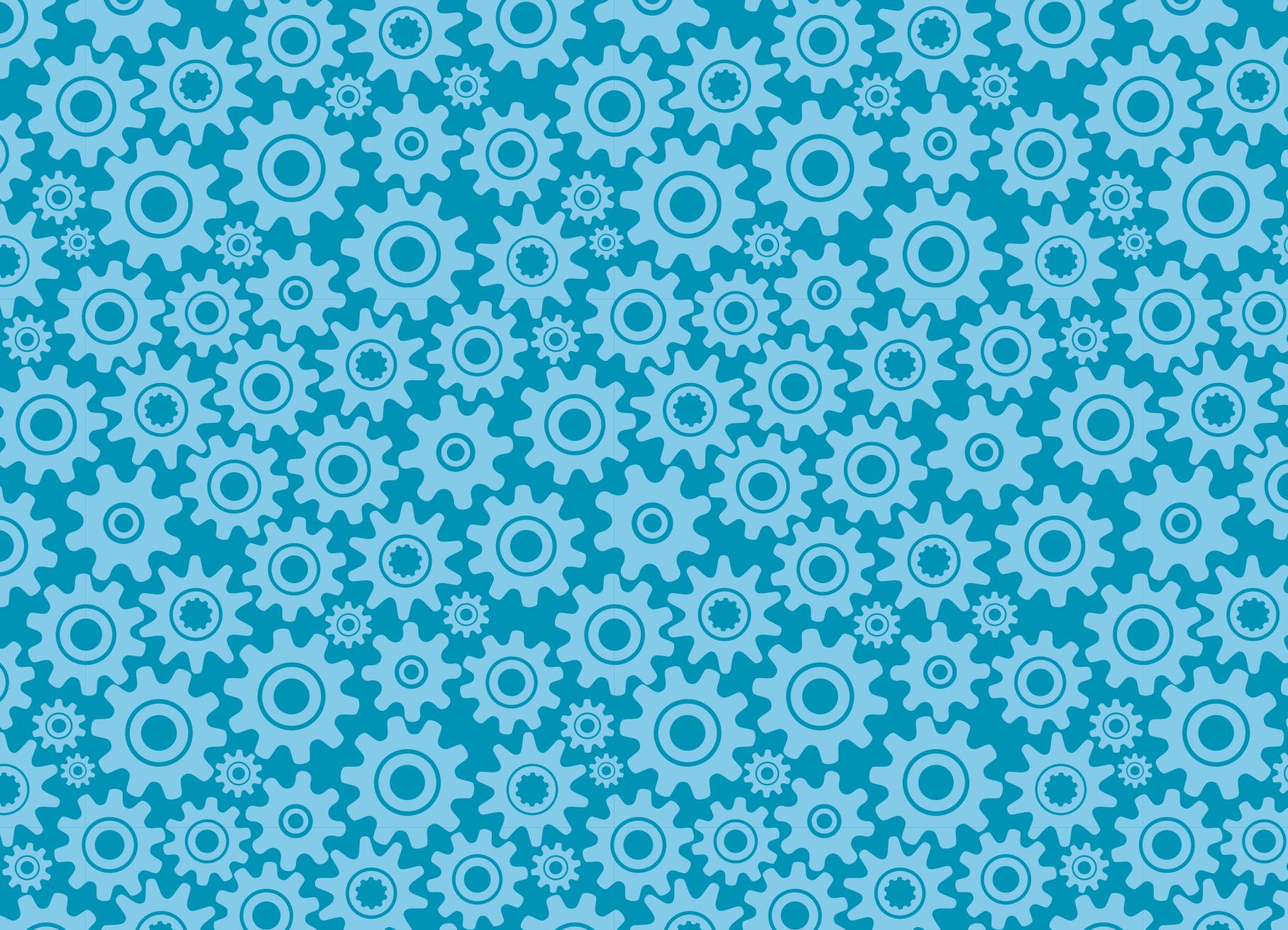


There you go! Now you know a little more about the global computer network called the internet, which is used by 2.7 billion people.

Have fun together
on the internet!



Bye!



Every new .se address contributes to the development of the internet.

.SE (The Internet Infrastructure Foundation) is responsible for the internet's Swedish top-level domain and administers the registration of domain names under .se. The surplus from the registration fees for domain names are invested in internet development that benefits all internet users, through things like this internet guide!

.SE (The Internet Infrastructure Foundation) wants to promote a positive development of the internet in Sweden in different ways. One of our most important objectives is that everyone should be able to participate in the possibilities of the net. For this reason, we publish educational internet guides in various exciting topics. There are practical guides for those who want to start blogging, technical guides for those who wonder how the e-mail one sends reaches the right recipient, and guides that explain who actually decides on the net.

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MUSEET



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Vi driver Internet framåt

.SE (The Internet Infrastructure Foundation)
Box 7399, SE-103 91 Stockholm, Sweden
Tel: +46 8-452 35 00, Fax: +46 8-452 35 02
Corporate Registration Number 802405-0190, www.iis.se