

WHAT IS AN INTERNET BACKBONE?

AND WHAT MAKES A GOOD ONE?

WHAT IS AN INTERNET BACKBONE?

In plain English

If you already
know, skip to...

WHAT MAKES A GOOD ONE?

6 THINGS YOU NEED TO KNOW

The Internet used to be novelty
– now it's necessity.



But what keeps the
world connected?

IT ALL STARTS WITH YOU.

You want it all. Any time, anywhere and on any device.
But with a billion websites, 3 billion people and 50 billion
things on the net, how can you connect to them all?



You start by connecting to a local Internet Service Provider (ISP) or Mobile Network Operator (MNO).



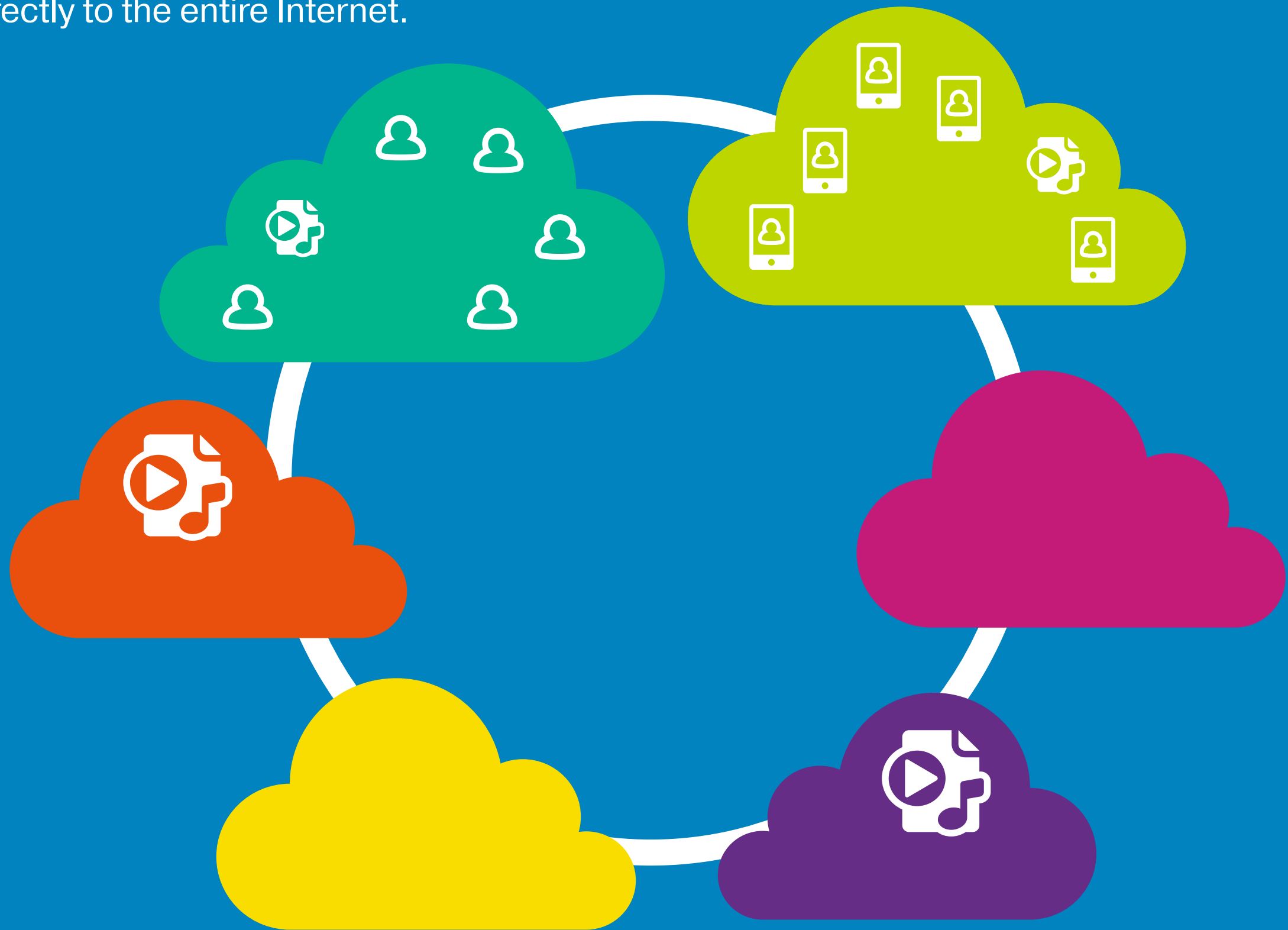
This connects you to everyone else
and all the content on that network.



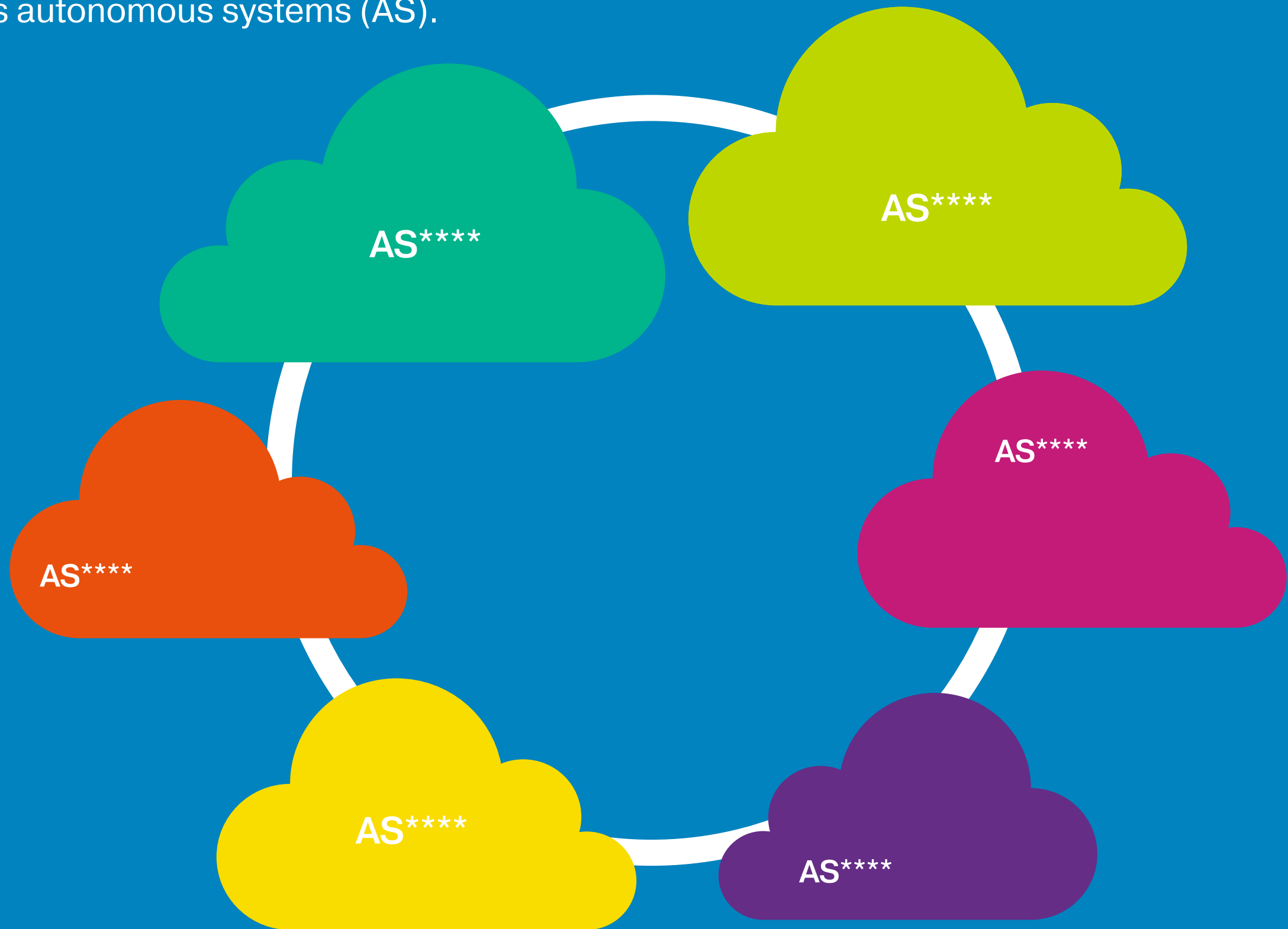
By connecting to each other, these networks connect to all the people and content on one another's networks.



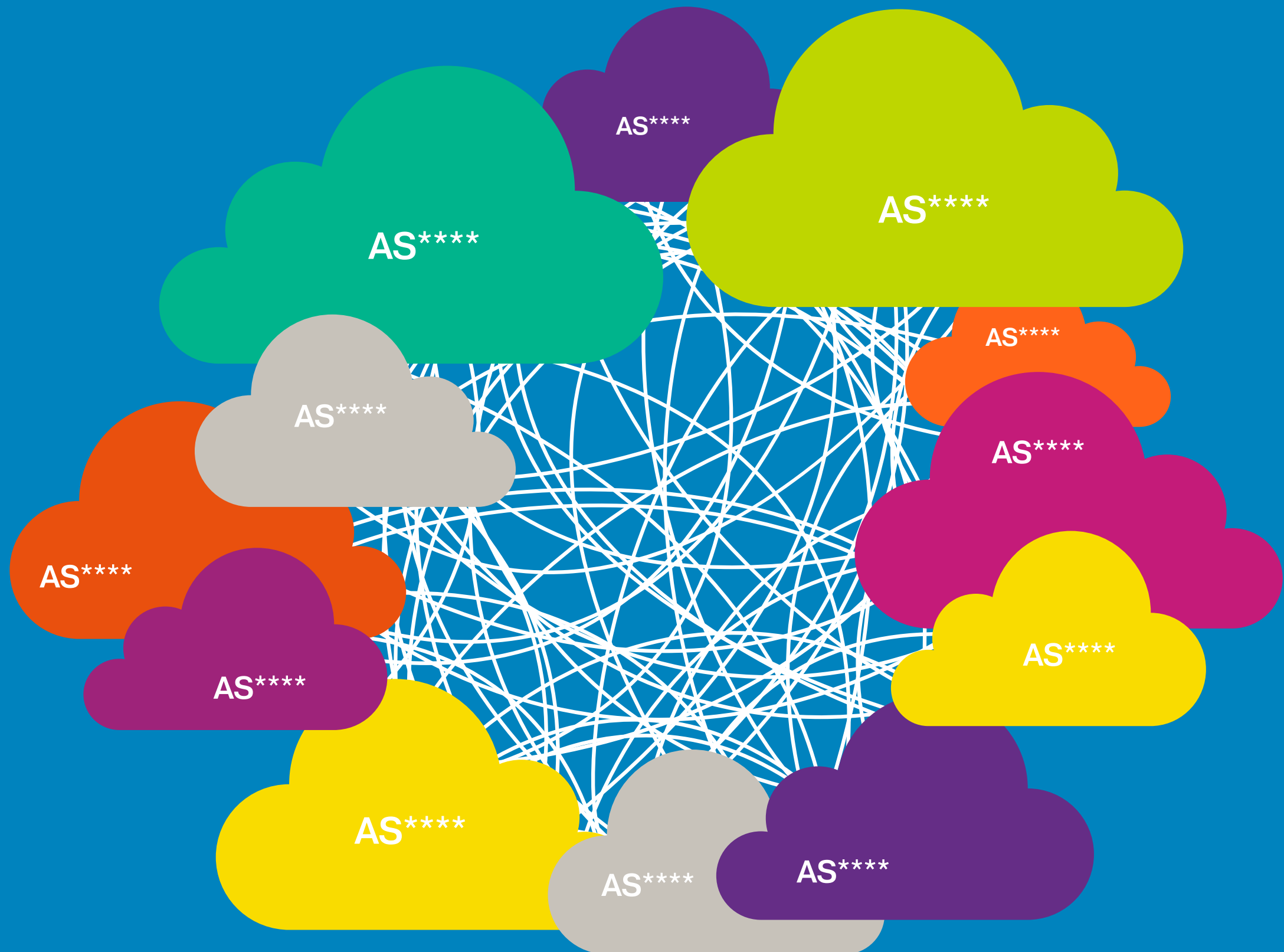
As each network connects you to even more networks and content providers, you are eventually connected indirectly to the entire Internet.



These networks and large-scale content providers are what make up the Internet. They are referred to as autonomous systems (AS).



But as there are over 50,000 AS's worldwide, connecting directly to each of them would be a nightmare.



Fortunately, they don't have to.
That's where Internet backbones come in.

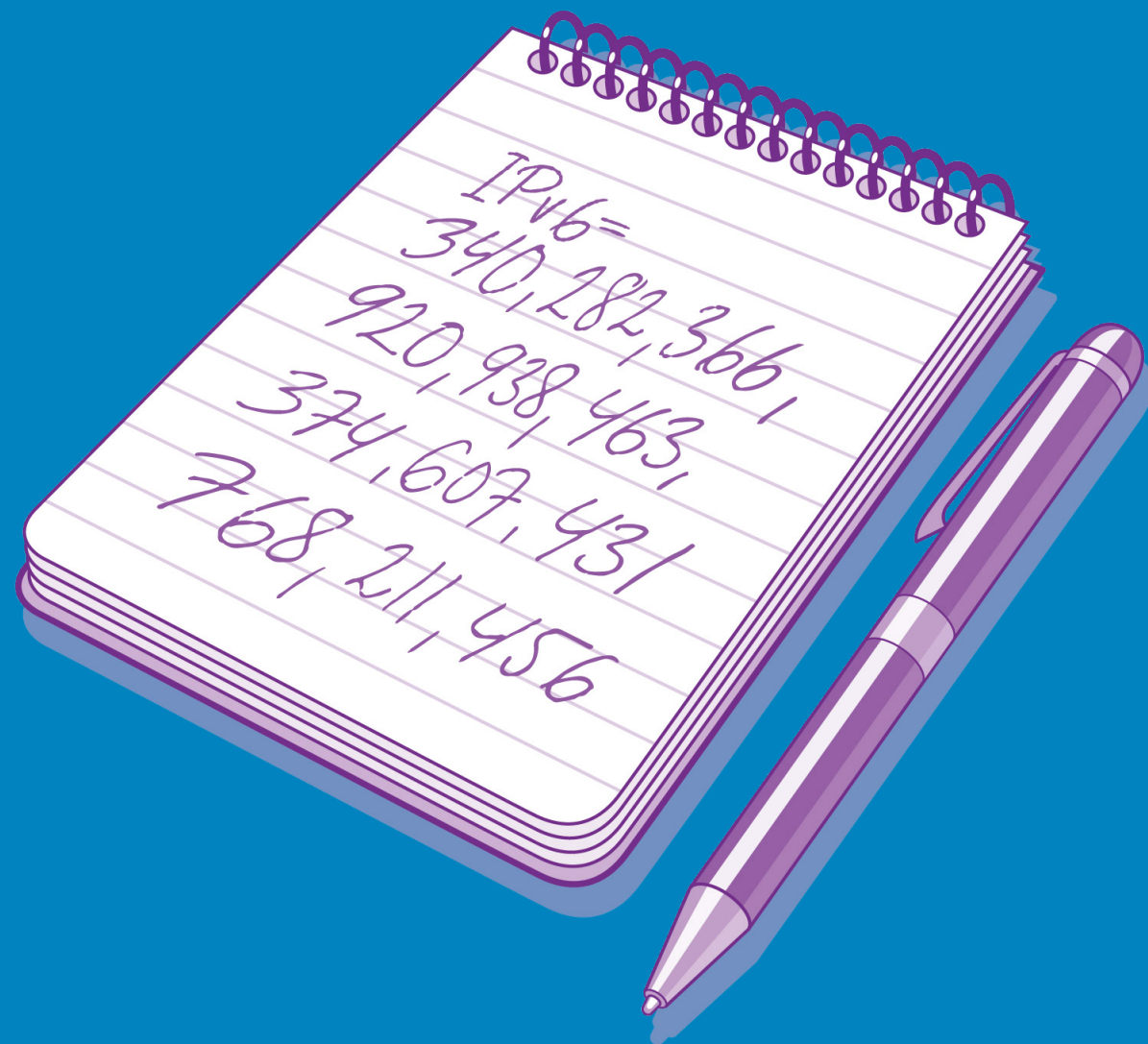


Internet backbones are the large global networks that connect the entire Internet.



But back to connecting the 3 billion people and 50 billion things on the net. They each need a unique IP address and the original 4,3 billion IPv4 addresses have almost run out.

IPv6 gives us 3,4 undecillion ($3,4 \times 10^{38}$) addresses. This means we can connect a lot more devices, but the extra traffic they generate is going to test even the best backbones.



Try saying that
out loud!

WHAT MAKES A GOOD BACKBONE?

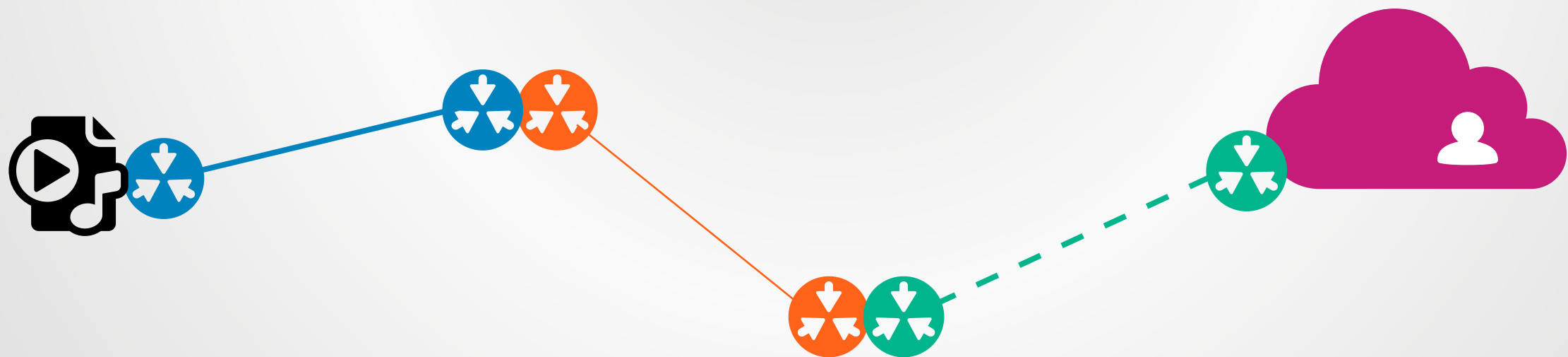
THE 6 THINGS YOU NEED TO KNOW.



DIRECT CONNECTION

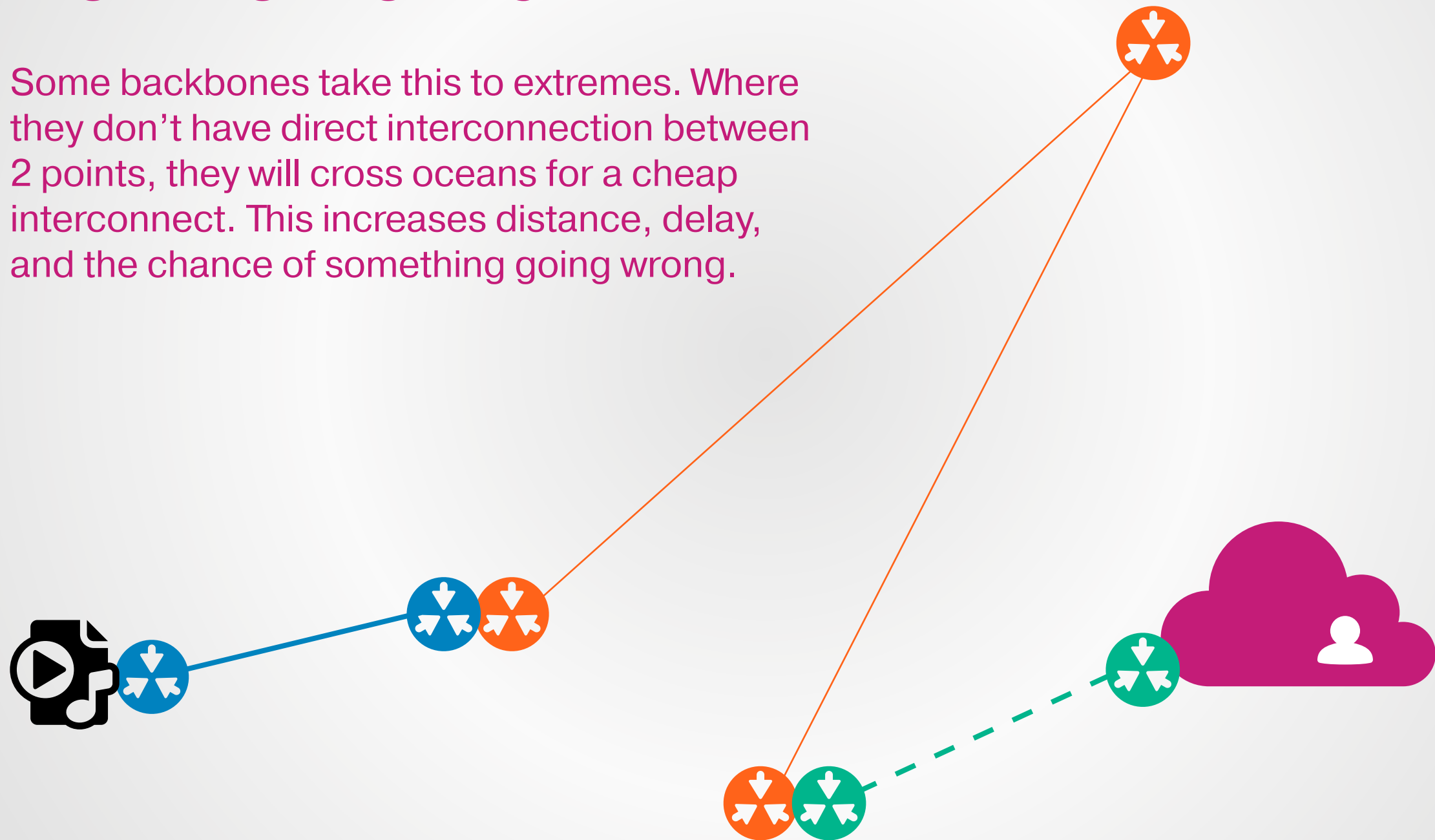
EVERY HOP COSTS YOU

No backbone can reach the entire Internet on its own. They need to connect with others. But each time traffic “hops” from one network to another, it causes a slight delay and can increase lag, jitter and packet loss.



AVOID TROMBONING

Some backbones take this to extremes. Where they don't have direct interconnection between 2 points, they will cross oceans for a cheap interconnect. This increases distance, delay, and the chance of something going wrong.



YOU CAN'T BEAT A STRAIGHT LINE

Direct connection gives end users the best quality connection. It also provides the best quality connection between networks.



2

REACH

WHO MATTERS MOST?

Because no backbone reaches the entire Internet directly, you need to prioritize the markets that matter most to you.



BE DIRECT

Look at your traffic flows and make sure you have direct connection where your demand is greatest.

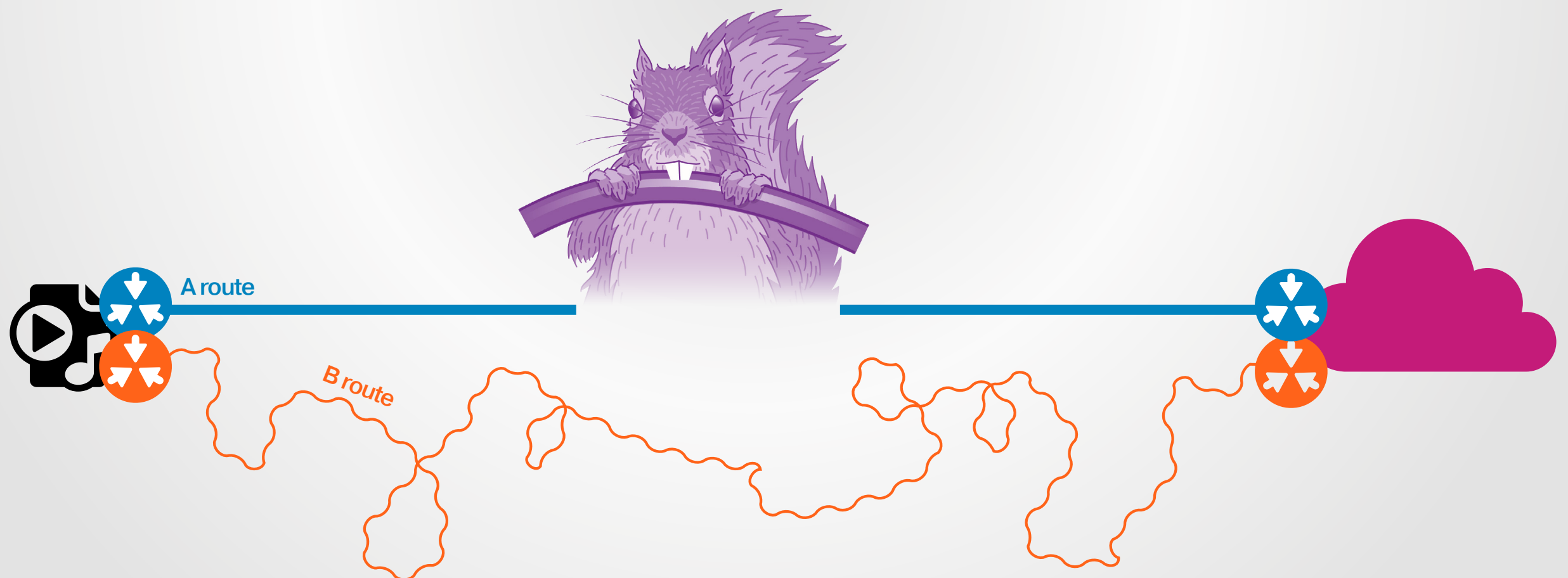


3

DIVERSITY

WHAT HAPPENS WHEN SOMETHING GOES WRONG?

The Internet might be one of history's greatest innovations, but it can still be nibbled through by a squirrel or a shark. That's why you need network redundancy via diverse network routes.



IS “PLAN B” AS GOOD AS “PLAN A”?

If anything goes wrong, anywhere on your backbone, you should always have a backup route that delivers the same level of performance as your A Route. That way, your end users won't even notice.

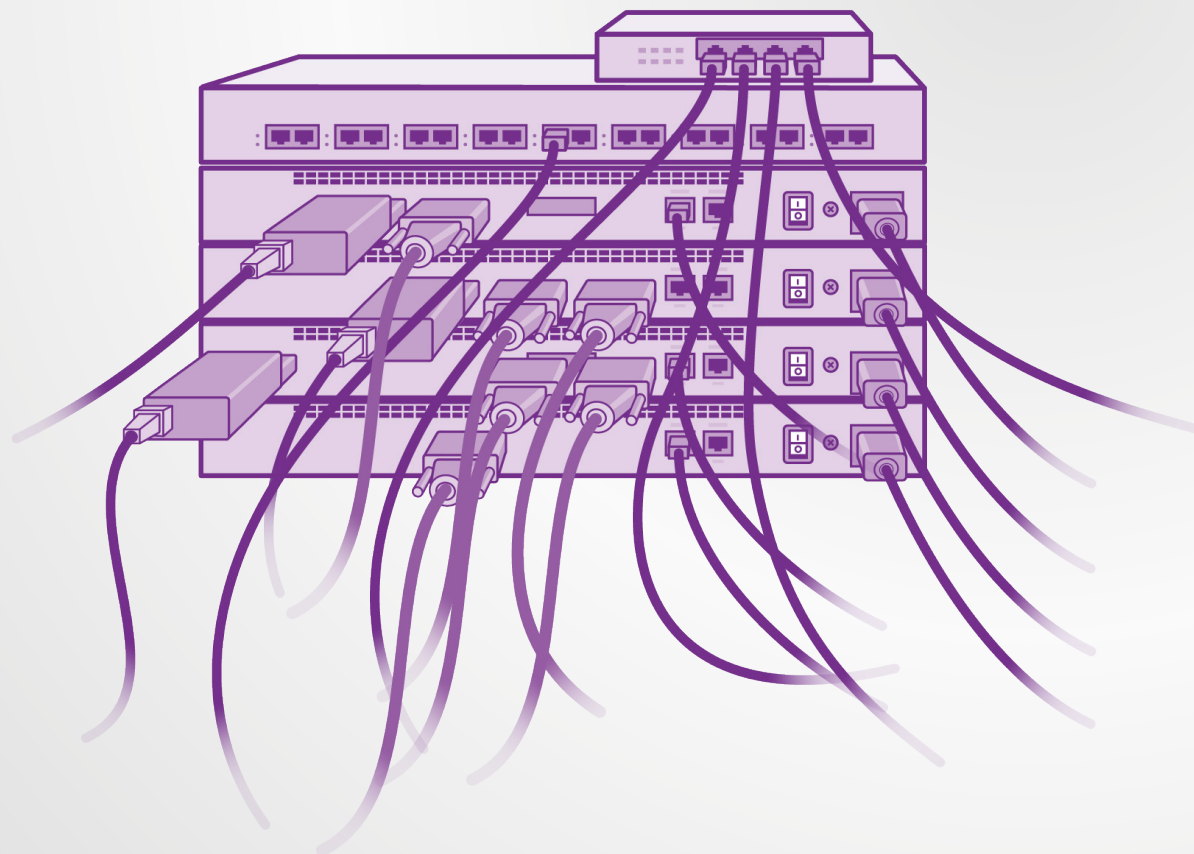




TECHNOLOGY

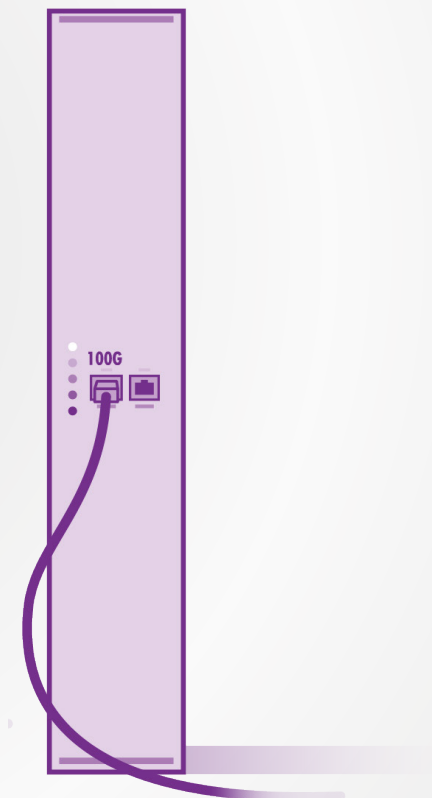
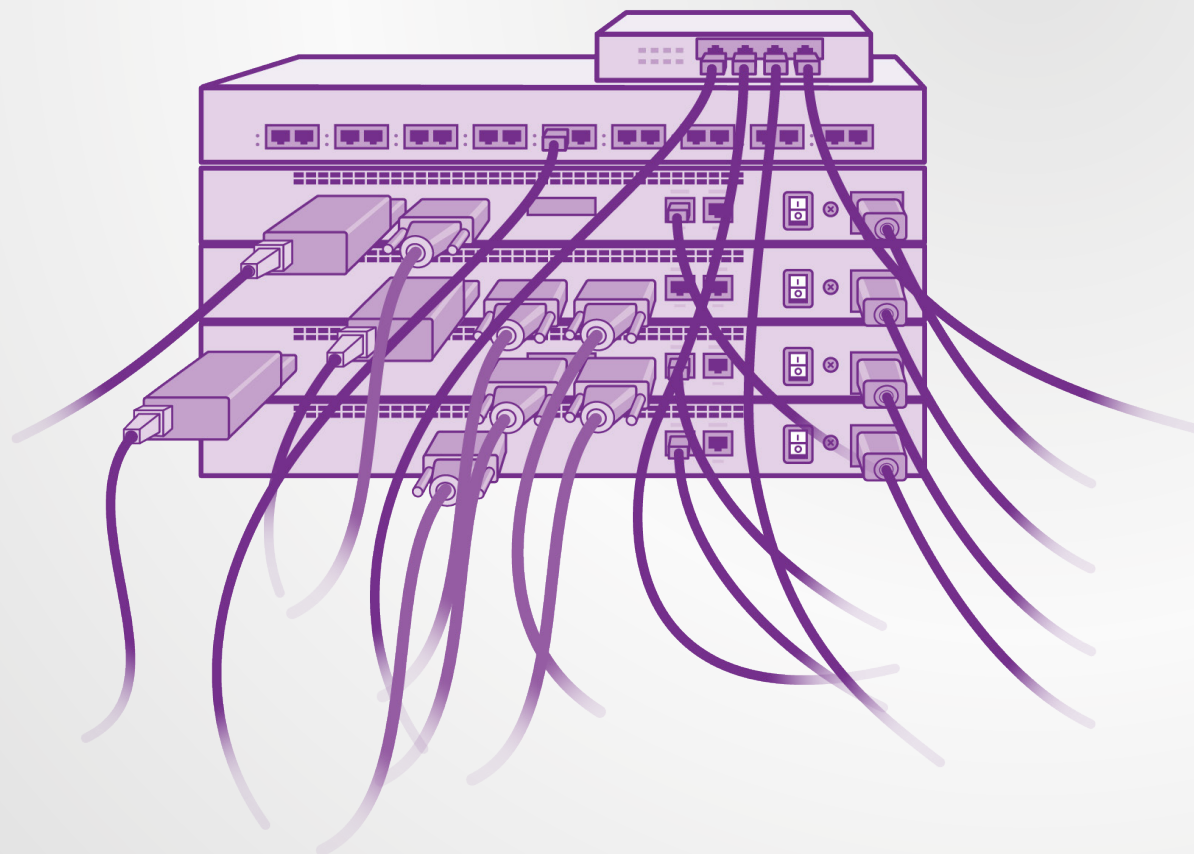
WHAT'S POWERING YOUR TRAFFIC?

Optical fiber is the same on any backbone. What you can do with it isn't. Some carriers still use equipment dating back to the great Internet boom.



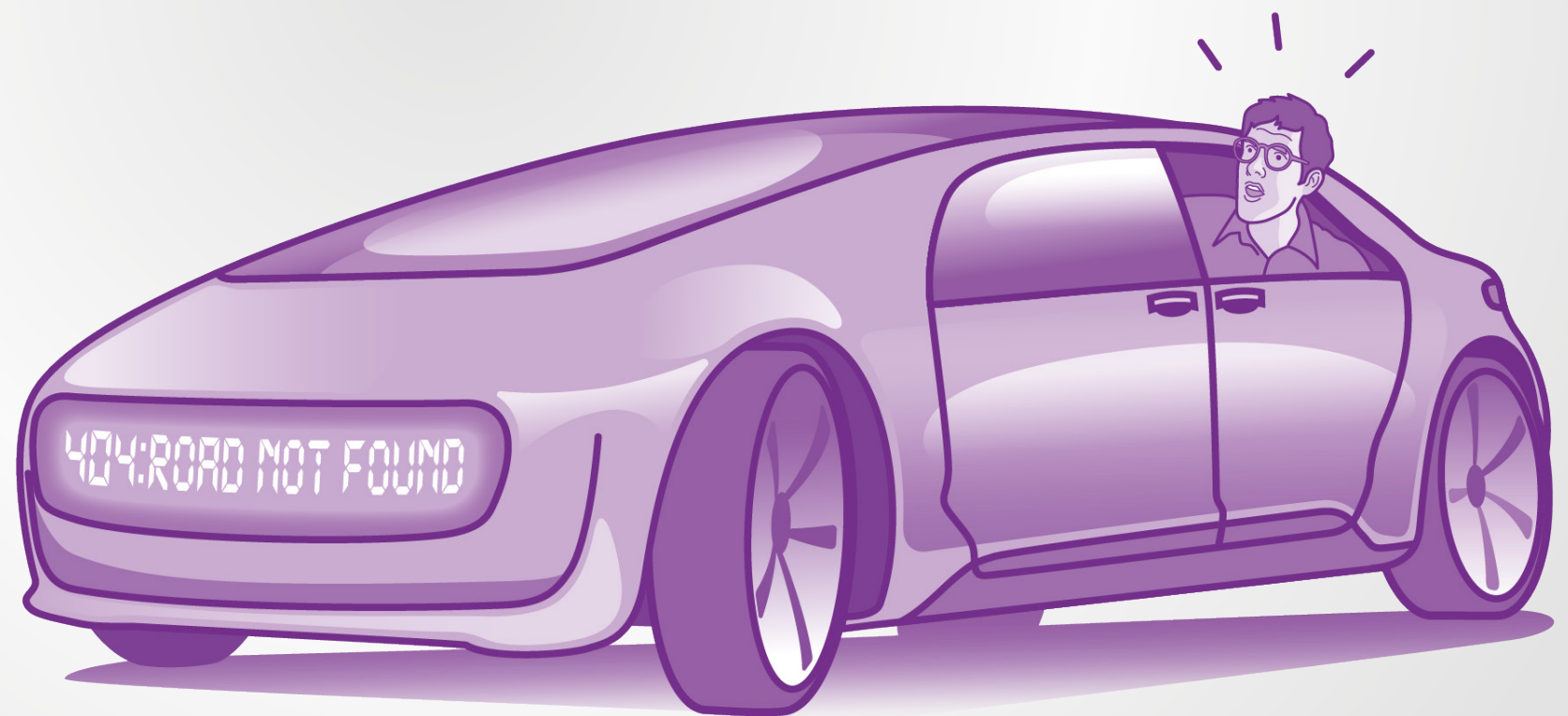
THINK INSIDE THE BOX

Some carriers invest in technology that makes life a whole lot easier. Ask about 100G ports and super-channels to find out what type of carrier you're talking to.



ARE YOU CONNECTED TO TOMORROW?

From mobile phones to self-driving cars, your backbone must support any device and every type of traffic. This means being fully enabled for IPv6 as well as IPv4.



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PEOPLE

COMPUTERS ARE USELESS – THEY CAN ONLY GIVE ANSWERS.

The most important connections in any network are people.

Of course, customers also need automated tools that put everything they need at their fingertips. But when it comes to designing a network – or fixing one – you need real people. And in a young industry, experience counts for a lot.



6

END-TO-END QUALITY

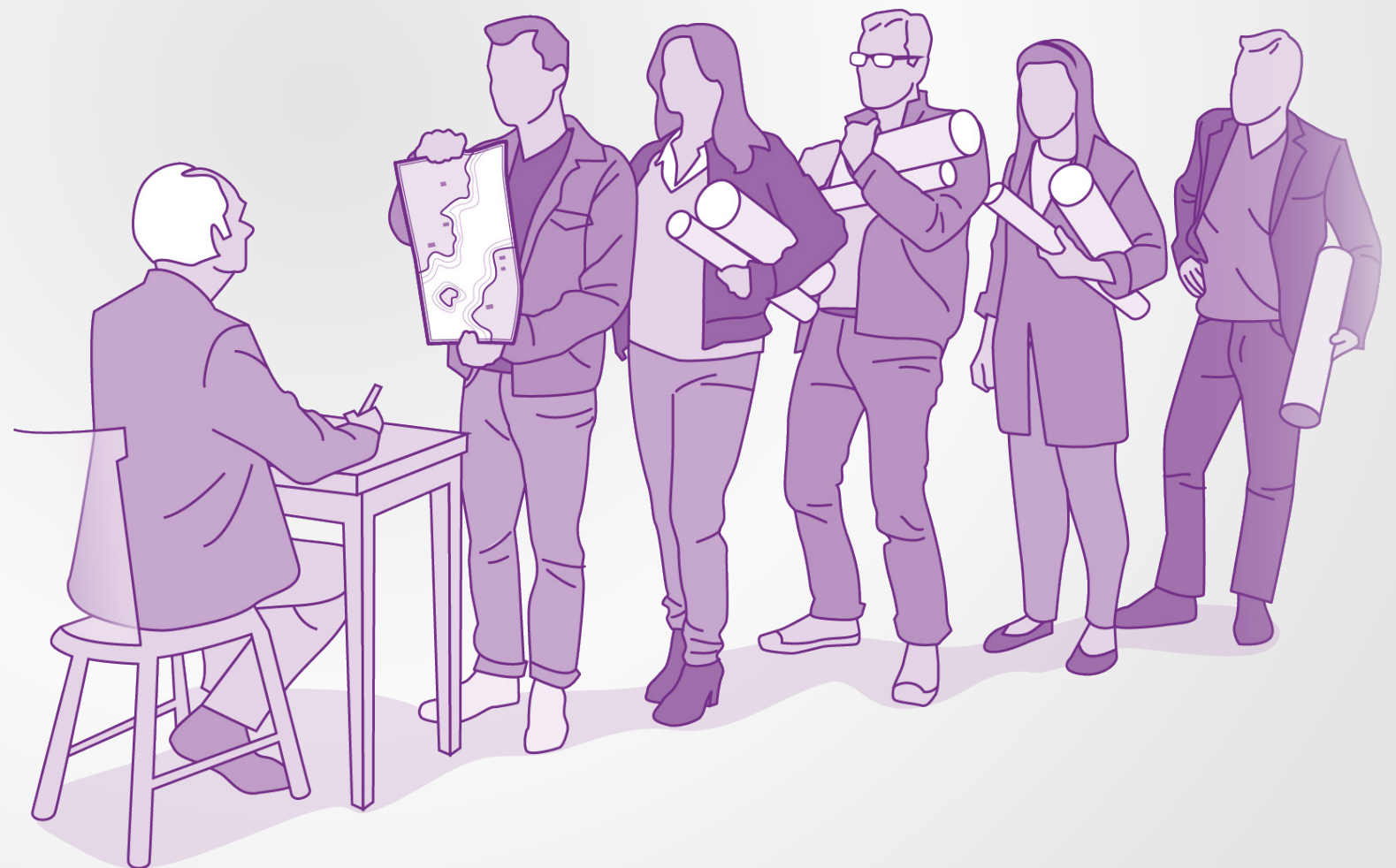
WHO'S IN CONTROL?

To deliver the best end user experience, your carrier should control their backbone. That way, if something goes wrong, they have clear accountability and the power to fix things.



SHOW ME YOUR MAP

Don't just ask to see a carrier's network map
– ask how much of it they actually light and control.



THERE'S NO SUCH THING AS ONLINE LIFE. JUST LIFE.

If you don't believe backbones exist,
send us an [email](#) and we'll prove it.

If you believe us, and want to learn
more about what defines quality in
a backbone, [click here](#).

WHATEVER CARRIER SHOULD LIVE BY