The Memo – Episode 1
Environment: should we unplug the Internet?

— Germain:

Imagine a world in which data sharing is strictly regulated and rationed per person. Everyone gets “the equivalent of a small 3G plan from the early 2000s”. // No more long nights spent binging TV series, no more vlogs, Insta stories, cute filters or Facetime... To get around you have to stop and ask a stranger or even figure out how to read a map... in paper.

The result: “A majority of Millennials fall into a deep depression.”

Well, some are happy about it, especially the ones who like to go to concerts. Now they can enjoy a clear view of the stage without having to look over a sea of phones all recording the same thing!”

This post-digital world was dreamed up by a journalist... in a fictional article published recently in LaCroix.

Her story takes us on a quantum leap into the year 2030... The Green party has been in power for 3 years, after they were elected on a simple campaign promise: to lower people’s energy bills. But to make good on this promise, they have to “close 20% of data centers withing 5 years”.

But will we really have to give up our screens in order to become more environmentally responsible?

[Jingle]

— Germain :

Hello everyone, and hello Marine!

— Marine :

Hello Germain !

— Germain :

Welcome to the Memo, the podcast that breaks down the latest news in digital. Today, we’re talking about the environmental impact of digital technologies... and the first thing we have to do is to acknowledge the problem. What do you think, Marine?

— Marine :

Yes, and most of the time we don’t even realize that what we do online has an impact on the environment... In fact, we are often much more likely to assume just the opposite... because everything is paperless and virtual. We don’t watch DVDs anymore, we open Netflix. We don’t listen to CDs, we stream from Deezer... But just because these things are virtual does not mean that they have completely vanished... Our TV series are no longer stored on DVDs, but instead as data... in massive data centers.... that are connected to us by underwater cables...

— Germain :

But when you’re sitting on the couch or working at your desk... you don’t see that side of things.

— Marine:

Not at all! And in La Croix, the CNRS engineer Françoise Berthoud is comparing the Internet to electricity... it seems perfectly natural to everyone... She is one of many scientists calling for action to make the Internet “more resilient, more localized... and to put an end to making hardware that goes obsolete too quickly.”

— Germain. :

So what exactly happens when we watch an episode of a show on a streaming platform, for example?

— Marine :

You can read through all the nitty gritty details on the US-based website called “High Scalability”, which conducted the report. It’s impressive. In short, Netflix’s biggest problem is figuring out how to deliver the same continuous service to all its customers – who are scattered across every continent, mind you... So Netflix said, No problem, we’ll just duplicate our architecture 3 times across 3 world regions.

Then every time you want to sit down and watch a show or movie, the file goes through a long process... and the most complicated step is transcoding... that’s what makes the video file playable on every platform. And for that task, Netflix can have up to 300,000 processors working at the same time.

— Germain :

And that’s not including its browsing data...

— Marine :

That’s right. Netflix saves the browsing history for its 158 million customers, so it can personalize the platform to each viewer and suggest new series or movies that are similar to ones they’ve already watched... And that requires a massive amount of energy...

— Germain :

And just how much energy do these data centers use?

— Marine :

200 terawatt hours: that’s what I read in the American science magazine Nature. It may not mean much to you, but it’s more energy than some countries like Iran use, for example. At the same time, it’s still less than half of the energy used by the global transportation industry... In fact, the real problem is actually tied to the increase in uses. As a result, energy use may climb by as much as 20% by 2030... and to meet that need, we will have to find some real solutions.

— Germain:

Do we have any leads?

— Marine :

Yes, and we have already made some important progress. The first step was creating giant data centers... with better performance... so that for the same data volume, they are now using less energy. Next, we are starting to see more automated systems. The most resilient data centers manage to keep their processors running at maximum capacity. That way, they can run fewer processors and shut down the rest. On top of that, processor capacity is actually doubling every two and a half years while maintaining the same energy use...

The next question to solve is cooling... because for now, we mainly use water...

— Germain:

Another issue is code, which can use up a lot of energy!

— Marine :

Yes, that’s the idea behind bloatware, which is a neologism describing software or applications that are too large or complex, and thus need resources outside the software. Databases, APIs, remote servers... and for that reason they tend to monopolize the machine’s processing power...

— Germain :

And a lot of times, that energy is used for no good reason!

— Marine :

That’s true, and one figure that really struck me... it came from Françoise Berthoud, the engineer I mentioned earlier, who published it in the online review interstices, which is dedicated to digital. She explains that on average, our phones run about 35 applications on a constant basis. So not only are they more and more complex, offering more and more functionalities by default, but they also keep running all the time. What she proposes is to develop algorithms that can regulate the energy used by these apps. And that would also help improve the obsolescence cycle for these devices.

— Germain :

Because now we have more and more devices and have to upgrade them very, very often.

— Marine :

Every two years on average for smartphones... that represents an immense amount of energy use! Not to mention their manufacture... or extracting the precious metals they need... Only 18% are reused in Europe.

But brands are thinking about solutions to limit this situation... One example is the Fairphone in the Netherlands. Nearly every part on the phone can be replaced! So you have no excuse anymore, you truly do not need to change phones!

— Germain :

Thank you Marine and thanks to everyone for listening. You can find links to all the articles we mentioned in the episode description. Until next time for a new episode of the Memo!

Sources :

- Et si…Internet était rationné (La Croix)
- Françoise Berthoud : « La plupart des gens ne font aucun lien entre numérique et environnement » (La Croix)
- Bitcoin consumes more energy than Switzerland, according to new estimate (The Verge)
- « POUR UNE SOBRIÉTÉ NUMÉRIQUE » : LE NOUVEAU RAPPORT DU SHIFT SUR L'IMPACT ENVIRONNEMENTAL DU NUMÉRIQUE (The Shift Project)
- Netflix: What Happens When You Press Play? (High Scability)
- Le syndrome de l'obésiciel : des applications énergivores (Interstices)
- What are rare earths, crucial elements in modern technology? 4 questions answered (The Conversation)
- Bas van Abel: 'We're suffering from electronic anorexia' (DW)
- Google to Use Recycled Materials in All Hardware by 2022 (PC Mag)