

BTS NRC

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The Trouble with Bitcoin and Big Data is the Huge Energy Bill

Once upon a time, a very long time ago – 2009 in fact – there was a brief but interesting controversy about the carbon footprint of a Google search.

It was kicked off by a newspaper story reporting a “calculation” of mysterious origin that suggested a single Google search generated 7 grams of CO₂, which is about half of the 5 carbon footprint of boiling a kettle.

Every service that Google provides is provided via its huge data centres, which consume vast amounts of electricity to power and cool the servers, and are therefore responsible for the emission of significant amounts of CO₂. Since the advent of the modern smartphone in about 2007 our reliance on distant data centres has become total, because everything we 10 do on our phones involves an interaction with the “cloud” and therefore has a carbon footprint.

The size of this footprint has been growing. At the moment, about 7% of the world’s electricity consumption is taken by our digital ecosystem but this is forecast to rise to 12% by 2020 and is expected to grow annually at about 7% through to 2030.

15 The big internet companies are acutely aware of this. Electricity costs money and they are fanatical about reducing costs. And they are desperate to avoid the PR¹ downsides of being perceived as energy hogs². So they have responded to a challenge issued by the environmental group Greenpeace some years ago – to commit to having all of their activities powered by renewable sources. Facebook, Apple and Google made this “100% 20 renewable” commitment four years ago and have now been joined by nearly 20 other internet companies.

The trouble is that server farms and networks account for only 50% of the electricity consumption of our networked world. The devices we use consume another 34% and the industry that manufactures them takes up the remaining 16%. Making environmental 25 progress on these fronts will be much harder. A desktop PC running eight hours a day, for example, emits 175kg of CO₂ in a year. So you can imagine the carbon footprint of a large city office block that has thousands of desktop PCs running for the whole of a working day.

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¹ PR = Public Relations

² Energy hogs = very high energy consumers