What use are apps when your web infrastructure is underwater?

March 3 2014, by Nigel Linge

Even the tallest infrastructure creeks under flood pressure. Credit: Derek Harper, CC BY-SA

According to Ofcom, 80% of adults in the UK had access to the internet in 2013 and each spent about 35 hours online each month. And half of all adults in the UK access the web using their mobile phones, spending an average of five hours online per month.

The average UK household has three internet enabled devices and more than 17% of homes are connected to the internet via superfast broadband

services. For many people, the internet is the first port of call for virtually everything.

Businesses have responded in turn and now see having a website and online services as a top priority. And we are often urged to seek information online before attempting to contact customer support over the phone. Some might say we have become too reliant on the internet. More reliant than our infrastructure justifies.

This winter has seen unprecedented high winds and flooding resulting in widespread and in some cases, long-lasting power outages in the UK, particularly in the west of England. Whole villages have been inundated and families have been forced to evacuate their homes.

Time and time again, companies have advised their customers to go online to check their websites for the latest information. Some organisations have even created apps specifically designed to assist flood victims; others have established Facebook self-help groups. There's a fundamental problem here.

There are two primary ways in which we gain access to the web, via a landline and using a mobile connection. A landline connects our homes to the local telephone exchange. For those customers with superfast broadband connections, the majority of these pass through a piece of street furniture called a primary connection point, recognisable as a green metal cabinet. That cabinet needs electrical power, as does the local telephone exchange.

Within our homes the landline connects to a wireless router and also, for a lot of homes, a cordless telephone, both of which need electrical power to work. So, when the lights go out, your router and cordless phones are useless.

Very few people have the means to power these devices without mains electricity. The local telephone exchange does have electrical backup which includes emergency diesel generators but the green street cabinets providing superfast broadband only have batteries that keep them going for about four hours.

Therefore the only thing that is going to work in your home is a traditional analogue telephone plugged directly into your landline. Have you still got one? If your laptop's battery is charged and you kept an old modem and dial-up internet account then you could connect for a couple of hours but you'll be back in the 1990s in terms of speed.

What about a mobile connection using a smart phone or broadband dongle? Surely these can get you online. That depends on how severe the power outage is and how good the local infrastructure is. Your mobile connection relies on establishing radio transmission with the nearest mobile base station. These can be identified by their aerial masts and are normally visible at the side of roads or on top of buildings.

They vary in size and many are well above the ground keeping them away from floods. However, while they all have battery back-up, generally these are only designed to cope with short duration power cuts. As we have witnessed this year, long duration power outages will result in the base stations shutting down. That is bad news for your mobile phone signal, which is likely to be lost.

Of course, street furniture and other key pieces of infrastructure could themselves be submerged under water or have been damaged, which will prolong any web outage.

Since Christmas 2013, BT's infrastructure arm Openreach has published several MBORCs (matters beyond our reasonable control) declarations. These in effect state that conditions are so extreme that the company is

not able to restore service within normal expectations. Major disruption to the environment does inevitably stop the engineers themselves from physically getting to or gaining access to sites to carry out repairs. As is the case for so many other vital services, it is difficult to tell when the internet will be restored. It's even harder for residents in Somerset to find this out.

Organisations that rely on the web as their primary means of delivering customer services need to become far more aware of the fragility of our infrastructure and crucially the dependency of the web on having a supply of electricity to make it work. At times of crisis, the customers in most need are often the ones with no access.

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