Hey, You, Get Onna My Cloud

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**BACK IN THE** mid-1980s PCs began to invade the workplace. Those who ran the mainframes in their glass palaces found that their users preferred having their files and programs on their own machines, and not shared and administered by the IT priesthood. The pitfalls of this approach in terms of backup soon became apparent, but it did not stop the march to the “personal” computer.

The pendulum has swung back with the advent of the cloud. More and more we are once again storing our files and programs far from our computer. We no longer entrust our stuff to those on another floor of our building, but send it somewhere off in a cloud, where we do not know. And we are not just giving work material to them; we are giving everything. Based on a paper in this issue of *IEEE Design & Test*, we might even be sharing the temperature of our living rooms.

Our on-again—off-again use of the cloud points to a divergence in how we handle stuff. Some of us like our things close to us; some of us would rather have them available only when needed. Some of us have bookshelves full of books read and to be read, and some would rather go to the library. Some of us have garages full of our things; some get just what they need and donate anything no longer useful.

One advantage of the cloud is that it lets you access your files and programs from anywhere. Or maybe not.

When I was in grad school, before PCs, I did my research on Multics, the famous time-sharing system. I was in Louisiana, where daily summer thunderstorms and an iffy electrical system meant that power went out on a regular basis, keeping us from our files. I brought an old manual typewriter to my office, so, I told everyone, I could write even without electricity.

Perhaps we are adding a new vulnerability to our computing. A laptop can run for hours without external power. The lack of Internet access can make a person who is dependent on the cloud as cut off from being able to do anything useful as I was back in Louisiana. Using the cloud for embedded devices might make the situation much worse. Imagine if all your appliances became dependent on the cloud.

During power outages people in my neighborhood stream from their homes to restaurants, since cooking today is impossible without electricity. In a cloud-based future, will a denial-of-service attack on our ISPs or cloud providers produce the same behavior? Will we head for the restaurants when our microwave ovens have forgotten how to cook because they cannot reach the net? Will our smart refrigerators get confused and report that we are running out of everything? Even worse, will our smart TVs forget what we like to watch?

If we are not careful, we will be hearing something like this in the near future:

“12 000 homes have lost internet service in the local area. The Red Cross has responded with mobile access points providing cloud access from emergency satellite web servers.”

I work on a cloud-like system, and I like it. But if it goes out I can have coffee with my colleagues or
even think. If my personal cloud goes out I might miss dinner and the *Daily Show*.

The horror.

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