/dev/random
The Internet of Things

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As you read this, I will be a retired US federal government special agent, a job that I have for the most part studiously avoided mentioning over the past eight and a half years in these pages as a condition of being permitted herein to abide. I worked for the Department of Defense, which should really be called the Department of Unbridled Spending Except When it Comes to Employee Welfare, but that's a story over scotch and soda, or rather several scotch and sodas leading to straight scotch.

From this point on, I will consider myself solely a professional writer, at which pronouncement the less charitable among you will think, and perhaps even convey to the nearest editor, "When are you going to learn to write, then?" To this snide jab I have no answer, because I never read the "Letters to the Editor" for that very reason. Not that *;login:*, mercifully, features such an abomination formally. I know the editor pretty well, and he generally spares me the details of said missives, merely mentioning in passing that not *everyone* is a fan of /dev/random. To those malcontents I can only reply, in the concise and direct manner of my Gaelic ancestors, *póg mo thóin.* I expect, incidentally, that you will see a blank space or some innocuous phrase after the word "ancestors" in the preceding sentence, as the aforementioned editor will be horrified when he looks up what the phrase I wrote in Gaeilge means.

Today is a good day to di…I mean address the next spasm in the prolonged tetanic demise of the once noble TCP/IP, the Internet of Things™. Don't correct me if I'm wrong, but haven't we been fighting the SCADA security wars for a number of years now? Have we learned absolutely nothing from the threat of having our dams, factories, and traffic lights manipulated at will by a 14-year-old in a Minsk basement? Shall we now allow said juvenile delinquent access to our refrigerators, home security systems, and aquarium heaters? Have I used up my question mark quota for October yet?

Looking at the network source code for many of the devices on the IoT, it's as though we've regressed to 1990 and the ubiquity of Telnet. Plaintext authentication credentials (when there are any at all), no respect for egress filters, and rampant strcpy()-esque code flaws drag the IoT down security-wise to the point that it is more accurate to refer to it as the Internet of Targets. I've struggled through some dense and esoteric debates on the fridge-as-spam-relay topic, with respected infosec pundits asserting that this particular manifestation of embedded processor insecurity is not significant in the larger picture. Perhaps they're right, but if my household appliances are going to forward 419 scams and the expressions of interest by foreign women in a fictitious profile I never posted, I should at the very least be given options in that process.

For example, I would want some form of load balancing in place. If my refrigerator's processor is devoted to dispensing advertisements for erectile dysfunction treatments, it won't be very efficient at dispensing ice from the ice-maker or keeping my frozen yogurt from melting and leaking from the carton to coat the contents of my freezer in an uneven layer of crème fraîche. That computing task needs to be shared with, say, the smoke detector, while the thermostat and light dimmer can alternate pumping out pleas from friends and relatives who

had all their belongings stolen while on a sudden trip overseas and need some money wired to them.

Priorities need to be taken into consideration, as well. If the day's tasks consist of sending out notifications of huge lottery wins by random email addresses, scatter-gunning phishing attempts containing malicious links to everyone in some harvested database, and stock tips for non-existent securities, my appliances need to know in what order these tasks are to be carried out. There should be a master scheduler—perhaps the microwave or immersion blender—ensuring that the day's work is accomplished on time and in the most efficient manner. There's little worse than finding out your leased botnet took longer than it should have to distribute those 100,000 cheap wristwatch and generic drug spams because it had to cook dinner, turn on the sprinklers, or wash a load of grody old dishes.

I can see malware coming that, when installed on your domestic IoT, considers the functions for which the system was designed to be nuisance processes and kills them whenever they try to start. You might notice that you've lost control of your home appliances…or you might not. The second alternative is more intriguing, in the bleak dystopian world view that seems to be popular in the entertainment media these days. Any universe where Archie is murdered trying to stop the assassination of a gay senator is not a world I would choose to inhabit. Reggie, maybe.

Imagine, if you will, the White House of the relatively near future: filled with IoT gadgets to make the lives of the President, the First Family, and the White House staff more productive, efficient, and less cluttered. The Secret Service and Executive Office of the President have a squad of certificate-laden cyber-stars in charge of firewalling the bejeezus out of the internal network to keep those pesky hackers from taking control over the Royal Household. Sadly, like most canned "experts" born of boot camps rather than boots on the ground, they are ill-equipped for the task and miss some rather important entry points. One fine morning, the staff come to work to discover that not a single IoT device on the premises is functioning as expected.

At first, it's just annoying: Devices turn on or off when they aren't supposed to, settings change themselves, and so on. At some point, however, it escalates into something more sinister and intrusive, until at last the very lives of the people involved are at stake. The situation nosedives, spinning out of control until the President, who is currently airborne aboard Air Force One, can't even trust his own plane or pilots. Nothing is as it seems. World stability hangs in the balance, and you have to take the book into the bathroom with you because it's just that hard to put down.

Look for my future novel *Cybergeist* if you want to find out what happens. Man, I love being a writer.