INTERNET OF THINGS

A WORLD OF
CONNECTIONS

Angelo Fernando explores the world around him and finds 'things'

I don't know about you, but the word 'cloud' strikes me as one of the more annoying pieces of jargon there is, these days. It baffles me, as to why tech people (I'm talking about those who could explain an internal combustion engine in less words than this sentence) repeat a word that means nothing to the rest of us.

But while the 'cloud' is an intangible word for something made from atoms, there is another lovely piece of jargon that is downright tangible… and sailing in your direction. It is known as the 'Internet of Things.'

It is a reference to how the physical world around us, including pieces of hardware within a few inches from our noses, will become so well-connected that they form a 'network unto themselves.' In other words, your toothpaste cap may be capable of talking to your toothbrush – and, in turn, it could file a report with your dentist, about your poor oral hygiene.

MIRRORS AND PASSPORTS Recently, I heard about someone who reads the news while shaving each morning – the news appears on his bathroom mirror! His mirror has been upgraded to become one of those 'things' that are connected to the grid, so it practically knows his political, sports and news choices. But the Internet of Things – which is now known by its fancy acronym (IoT) – is deeper and broader than this. It has been described by Gartner (the research group) as a network of physical objects that could "communicate and sense or interact with their internal states or the external environment."

Much of the networking technology in these 'things' are tiny devices, small enough to lie beneath the skin of a plastic toy or shell of a small appliance. It is a capability that makes manufacturers and retailers salivate at how human beings might be 'informed' by things they might buy, or how they might influence their purchasing decisions. The Internet of People and the Internet of Things are in one, continuous happy loop.

Intel, one of the big players in this arena, calls the Internet of Things a platform that enables connected devices to securely and seamlessly connect with each other, to deliver trusted data to the cloud. It's no accident that the word 'cloud' stealthily crept into that definition. That's because the Internet of Things is inseparable from cloud computing.

This might be a good time to define that cloudy term. Cloud computing is when shared computing resources (rather than local machines) provide services and applications through the Internet.

In case you were not paying attention, cloud computing has proved to be as porous as Swiss cheese. Just ask Oscar-winner Jennifer Lawrence, whose explicit (and private) photos were made public when her 'cloud' was hacked.

But there are bigger things at stake than protecting celebrities, if the backers of clouds and IoT want to be taken seriously. Information from street signs, to pacemakers and wearable devices could get harvested, stored and analysed via the Internet of Things, creating a treasure trove of knowledge for anyone who has access to it – or hacks into it!

In the post-WikiLeaks world, many people are extremely distrustful of how this new Internet will be used. What happens when we get to the point where we may not be able to disconnect our toothpaste tube that has an embedded strip of plastic capable of near-field communication? There's a bumpy spot in my passport cover that, I am told, is an embedded device. Like the shaving mirror, it has joined the club as another node in the Internet of Things.

FLUFF IN THE CLOUD The 'things' that are getting connected are getting closer to you. Really close! Consider Jawbone, the biometric wristband. It is essentially a sleep and fitness tracker which could send

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you an alert, should you sit around for too long, and prefer to be gently nudged. Newer versions of the device lets a user enter the types of meals consumed, so that he can chart a report of overall activity.

Jawbone's Vice President of Product Management & Safety is Travis Bogard. He has said that "this Internet of Me can start to work with me at the centre of this device here." Buzzword alert! Note how nuanced it has become – the 'Internet of Me!'

So where does this data floating around the Internet of Me end up?

Well, it is supposedly private; but the wristband is a smart device (that is, it is 'chipped'), so that it can wirelessly sync-up with an iPhone, using Bluetooth. This might be a small-scale cloud; but over time, that data could be valuable to insurance companies, employers, manufacturers of packaged goods and so on.

But what happens when the data stream between your wrist and your phone has a Jennifer Lawrence experience?

Here's another fascinating example of how IoT is getting closer to you, via bedroom linen. I once spoke to a young entrepreneur whose business model was based on the 'data' his company could retrieve from towels and linen in a hotel room. Fluffy linen wired to the cloud, for heaven's sake!

Here's how it works…

It is now possible to sew Ultra High Frequency (UHF) tags into sheets, towels and pillowcases – a boon to large hotel chains. Why? Inventory control. If a hotel's Operations Department could track the path of soiled, laundered, lost and replaced linen like FedEx packages, it would be valuable to the Housekeeping and Procurement Departments, wouldn't it?

THE 'FABRIC OF THE NET' IN 2025
Pew Research Center Internet Project surveyed 1,867 'experts and stakeholders' about the future of the Internet… in 2025. Most believed that there will be 'a global, immersive, invisible, ambient networked computing environment built through… smart sensors, cameras, software, databases and massive data centres, in a world-spanning information fabric known as the Internet of Things.'

THINGS THAT ARE CONNECTED
The American passport can communicate with a radio frequency ID reader. Here's how the consular office puts it: "To increase speed, efficiency and security at US land and sea border crossings, the passport card contains a vicinity-read radio frequency identification (RFID) chip. There is no personal information written to the RFID chip. This chip points to stored records in secure government databases."

JAWBONE'S 'UP' WRISTBAND
The wristband tracks your movements and sleep in the background. The app displays your data, lets you add things like meals and mood, and delivers insights that keep you moving forward.

When I first heard about this, I was inclined to make light of the surveillance possibilities of fluffed pillows – Wik-iLeaks, for dirty sheets. But look beyond data theft and the 'creepy factor,' and you find that the pillowcase and the wristband could be viewed as part of a deeper and wider ecosystem, in which the Internet has matured.

JUST ORDINARY THINGS For those of you who might feel queasy about where Internet of Things is moving us, consider this.

You probably have a low-tech IoT device on your person, but haven't thought twice about it: the work badge, or ID card. The chip inside the card 'speaks' to the lock on the door, when you hold it up to the sensor, and then opens it. The office doors may not be connected to the Human Resource Department – not yet. But it could be.

A company called Sociometric Solutions has come up with sociometric badges that track not just employees' entry and exit, but also their communications.

I like the idea of connected things, but I also like to be able to disconnect them. For good or bad, there could be times when we may not be able to disconnect. Or we may have to act contrary to social norms, to do so. If I try to 'disconnect' my passport, I might be tampering with an official document, but I never carry a mobile device to church, on a walk or to a family event.

There are times when one feels that the hype about Internet of Things makes it look worse than it is.

The Internet is, after all, nothing more than a collection of billions of things such as servers, routers, ATMs, satellites and devices that send and receive data. In other words – Things!