

Where's your data? It's not actually in the cloud, it's sitting in a data centre

August 31 2016, by Brett Neilson, Ned Rossiter And Tanya Notley



The new Equinix SY4 data centre in Alexandria sure doesn't look like a cloud from the outside. Credit: Equinix

Without data centres, today's world stops. Flights are grounded, Wall Street closes, and the internet grinds to a halt. Yet despite their emergence as nerve centres of the global economy, data centres have drawn almost no attention in debates about globalisation and nor are they often discussed outside of business and IT publications.

Even the recent debate on the bungling of the digital census managed by the Australian Bureau of Statistics focused on questions surrounding possible distributed denial-of-service (DDoS) attacks.

This was despite mention of [hardware failures](#) as well as inadequate redundancy and load testing, which are problems that stem from operations within data centres.

Data centres provide governments and industry with advantages in terms of improving website and internet service speed, providing access to technical and [security services](#) and expertise, and cutting labour and hardware costs.

Consultancy firm Frost & Sullivan forecasts that the Australian data centre services market will [grow by 12.4% a year](#) to 2022.

Much of this growth will be driven by regular internet users. If you use social media sites, Google applications, web-based mail services, or just carry a smartphone, you have your data stored in a data centre.

Even if you only very occasionally use the internet, you still have data stored about you: all metadata of people residing in Australia is now legally required to be stored by internet service providers for [two years](#).

Where's your data?

But where are these data – your data – being stored? Ask someone in Australia where everything they've ever uploaded to social media is actually located, and they are more likely to say "in the cloud" than "in a data centre".

Although cloud technologies make it difficult to pinpoint data to a particular data centre, the reality is that data centres are never too far

from us.

They are in our cities, suburbs and occasionally in rural and remote locations. In order to investigate the data centres near us we began looking in the inner Sydney suburb of Alexandria.

Most Sydneysiders are aware of the ongoing transformation of Alexandria, which includes parts of the urban renewal project called Green Square.

In the 1940s it was the country's densest industrial area: more than [22,000 people were documented to be working in 550 factories](#) that were crammed into a 4km-square boundary.

Today the suburb is best known for its warehouse apartments, tech industries, offices, commercial businesses and showrooms. The industrial look of the suburb has largely been retained thanks to a [large number of heritage-listed buildings](#).

A lesser-known fact about Alexandria is one that is shaping its current development phase: it is one of the places you need to be if you want the fastest connectivity in Australia.

Alexandria, along with Brookvale on the Northern Beaches of Sydney, is where the Southern Cross Cable network "lands" in the country. This cable is one of five that sit above the ocean floor to connect Australia with the rest of the world.

As New York University's Nicole Starosielski has explained on The Conversation, "undersea cables transport almost 100% of transoceanic data traffic".

Few people know that Alexandria plays a role in connecting them to rest

of the world, transmitting data through telecommunication networks.



Servers in the Equinix SY4 facility. Credit: Equinix

This is not surprising. Neither the landing port nor the suburb's cluster of data centres are easy to find.

Taking a walking tour around the data centres of Alexandria requires research and planning. Data centres generally do not have a company name on their front gates. They are secured by guards and surveillance technologies.

We decided to explore Alexandria by focusing on one company that has four data centres in the area, including a recently opened facility that will become one of the country's largest data storage and processing plants.

Equinix is a US corporation that operates some 145 data centres across five continents. These data centres are "carrier-neutral", which means they operate independently from the companies that interconnect within them.

Among Equinix's clients are cloud service providers such as [Amazon Web Services](#) and [Microsoft Azure](#).

Equinix bills its data centres as "international business exchanges". Peering services like those offered by Equinix allow companies to enhance speed and obtain a competitive advantage by connecting directly with each other inside its facilities rather than having to establish links over the much slower public internet. High-frequency trading is one financial sector that benefits from such arrangements.

Equinix's four Alexandria data centres are spread along Bourke Road. One is housed in a [refurbished warehouse](#) designed by renowned architect Harry Seidler in the late 1960s.

The recently opened facility, dubbed SY4, will almost double the company's capacity in Australia. A [development application](#) submitted in 2014 details plans for power supply, water management and noise control.

The document states that the "data centre is to provide 24/7 mission critical services to business customers by providing a secure and reliable location for the 'co-locating' of their equipment".

Bricks and mortar

An argument can be made that the public doesn't really need to know where data centres like those in Alexandria are located. After all, much of the data they store, process and transmit are private and confidential.

However, since data centres comprise a growing global industry that provides critical social and economic infrastructure we think they warrant research.

Governments spend a great deal of resources safeguarding critical infrastructure. The protection of data and information systems is now included in this work.

However, the focus for data security is on the development of software, as though we have forgotten that data storage happens in real places on the ground – and not in "virtual" clouds.

Not knowing where data centres are located, or indeed what they actually do, prevents us from having conversations about how this infrastructure is governed, supported and protected.

We need to ask how [data centres](#) can and will impact on the economy, different industries, government policy, society and the environment.

Becoming acquainted with these facilities is a first step to understanding their role in shaping how digital communication and content are stored, used and moved around the world.

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