



## RESEARCH NOTE

### The changing face of real estate

As with most industries, **real estate is evolving**. **Retail real estate** has historically been the dominant asset class, but due to the competitive impact of ecommerce it has lost its premium rating. **Retail rental growth** is waning, and in some cases turning negative. To compete with ecommerce, retail landlords will need to reorient their offering. This will be a difficult and costly process. We have written extensively about this trend; retail real estate should be avoided.

### The emergence of digital real estate

The direct beneficiaries of ecommerce and the growth of the digital economy are **data centres** and **digital infrastructure assets** such as fibre and towers.

An example of this asset class becoming more mainstream is the current float of **“360 Capital Digital Infrastructure Fund”**.

Australian real estate company, **360 Capital** are finalising the capital raising \$115 million to invest in a diverse portfolio of digital infrastructure assets. Their rationale for investment in their 360 Digital Infrastructure Fund is as follows:

*“the digital revolution is creating an opportunity to invest in technology infrastructure assets to support the rapid growth of cloud, Internet of Things and the hyper connected world”*

The Fund is targeting a **10% internal rate of return for investors**.

To provide an example of the type of asset within the portfolio, the Fund will contain a Perth based data centre, leased to a data centre operator for six years, generating a yield of 6.5%.

We expect the 360 Digital Infrastructure Fund will be provide a solid vehicle for investors to gain access to digital infrastructure assets and the growth of the digital economy.

### Data Centres

The investment trend into data centres is gaining traction globally. Major global telecommunication companies have begun to sell their data centres and technology infrastructure into Funds. For example, Australian analysts and investors are assessing whether **Telstra (TLS)** should sell their infrastructure assets into a Fund (assets such as data centres, fibre and cables).

In this note we focus on one of the largest digital real estate assets – **data centres**.



**NextDC (NXT) Data Centres**

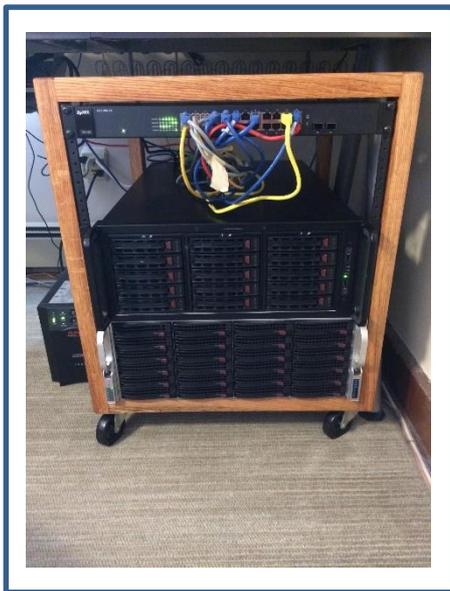


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### What is a data centre?

A data centre is a building that houses computer equipment like servers, routers, switches and firewalls, as well as supporting components like backup equipment, fire suppression facilities and air conditioning. Data centres are essentially **large warehouses that house computers**.

The 1990's: Computer server stored in wooden or metal racks



Today: Computer servers housed together: in 'technologically advanced' data centres,



### Some industry jargon: Megawatt (MW)

It is important to note how data centres generate economic profits:

- Traditional real estate landlords charge tenants a **dollar rate per square metre per year**:
  - time and space
- The data centre industry charges tenants a **dollar rate per megawatt (Mw) per year**:
  - time and energy

**Megawatt (MW)** is the variable used in the data centre industry to describe how tenants pay for the use of the landlord's asset.

To put power in context, Australia's electricity grid has about 50,000 Megawatts of capacity.

A 1MW power station running at 100% capacity will generate **8,800 Megawatts** of power per year. The calculation is: 1Megawatts \* 24 hours in a day \* 365 days in a year.

This describes the difference between capacity and actual power production.



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### The data centre industry has grown exponentially...

Data centres are typically used by companies for the storage, processing, or distribution of large amounts of data.

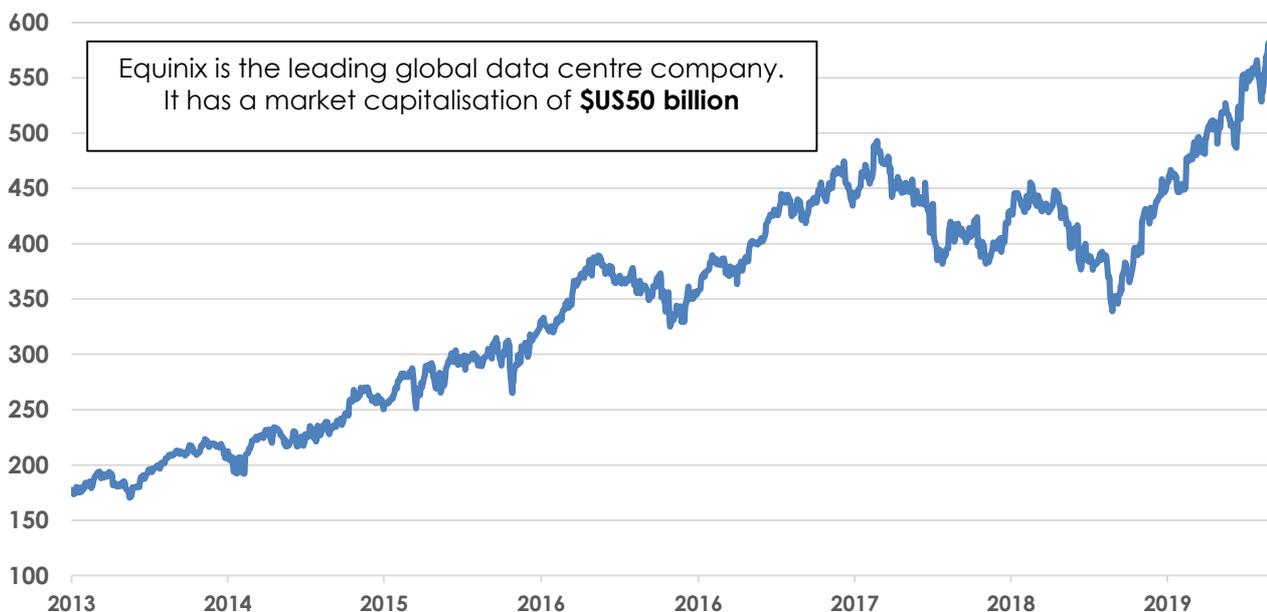
Data centres have grown significantly over the past few years. Growth has been driven by the significant **cost savings** from companies moving their 'in-house' data centres to a specialised data centre facility. The other major driver of the industry has been the **exponential growth of data**.

The growth of data centres has been rapid, they now number in their many thousands. The major listed companies that provide data centre services including **Digital Realty (DLR)**, **NextDC (NXT)**, **Equinix (EQIX)** and **Coresite Realty (COR)**.

The largest listed player is Equinix (EQIX), with a market capitalisation of \$AUD75 billion, larger than the entire Australian telecommunications sector.

Reports from investment bank Goldman Sachs and real estate company Jones Long LaSalle suggests suggests **1,100 megawatts** of data centre capacity is planned for the Australian industry, more than triple current levels. If this is achieved, the data centre industry would use as much electricity as 2.5 million houses. For context, there are 11 million houses in Australia.

Equinix - Five year share price chart





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### Data Centres as an Investment

Data centres are becoming a mainstream investment. Ten years ago, investment returns were very high, with returns of 20-30% available. Over time, as the assets have become better understood, returns have contracted to the 8-12% range. This return profile is still higher than you would expect given the relatively low volatility of income streams and high tenant retention rates.

### The revenue model for a data centre

Depending on specifications, a 5-Megawatt (MW) would cost about \$40 million to \$60 million to build (\$8 million to \$12 million per Megawatt). The **development phase is the highest risk** component of the process. The developer must build to the globally recognised Tier 3 certification, which attests to the data centre's ability to operate with close to 100% uptime.

Once **fully leased**, the assets risk profile falls markedly. In terms of revenue generation, the data centre operator charges about \$5 million per megawatt –\$25 million per annum of gross rent. After operating costs and overheads, free cashflow yield to investors is 10-12%.

### Background: Australia's NextDC (NXT)

NXT is the leading listed data centre company on the ASX. The company has built about 50MW of data centre capacity for \$600 million. NXT also generally own the land and buildings they operate in, which has cost a further \$610 million. The company is planning to build a further 150MW of capacity. This is indicative of the expected growth of data in the industry.

NextDC (NXT) - Five year share price chart





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### What is driving the growth of data use? → The Cloud

The '**Cloud**' is now a well-known concept:

*"The **Cloud** is a term used to describe a global network of linked computers operating as a single system.*

*It is designed to store and manage data, run applications or deliver content such as streaming videos, office productivity software or social media."*

*These applications and files are available from any device of computer connected to the internet. "*

As discussed so far, the **first growth phase** of data centres came from companies moving their servers from their offices into external data centres. There is still material growth stemming from this trend, with industry surveys suggest **80%** of companies still run their servers on their premises. Given the significant cost savings from moving to an external data centre, growth should continue at a rapid clip.

The **second growth phase** for data centres comes from companies disposing of their need to even own their own computers in an external data centre. They can move directly to the Cloud and use the servers of cloud providers.



**Compelling economics** are driving the migration of enterprises from owning and operating their own infrastructure at a data centre to the 'public cloud'.

A recent report by leading IT consultancy Gartner estimated that **80% of enterprises** will use public cloud solutions within five years

*"The traditional enterprise data centre is heading for the history books, overtaken by cloud computing.*

Gartner Research



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### Who delivers the cloud? Hyperscalers

The Cloud has been developed by **Hyperscalers**. Industry consultants have classified between 20 and 30 global hyperscalers. These Hyperscalers are the major companies like Google, Facebook and Amazon that are seeking to dominate the Cloud.

These companies not only rent space from data centre operators such as Equinix, NextDC or Digital Realty, they have also built about **200** of their own data centres.

For example, Google own many of its own data centres, and own an estimated **1 million computers**.

### Hyperscalers - an illustration of the scale they require

A recently incorporated Australian company called Airtrunk raised nearly \$1 billion from Goldman Sachs and Deutsche Bank to develop **100 MW** of data centre capacity.

Airtrunk are building massive data centres specifically for Hyperscalers such Amazon, Google, Alibaba and Microsoft.

### Fact → Power and data centres

Given the power usage by data centre tenants, data centres represent some of the largest carbon emitters globally. And with data usage growing exponentially, emission output will also grow. These growth forecast these emissions move to a level this would surprise most readers:

*“Researchers say this will be directly related to the fact that the data centre sector could be using **20% of all available electricity** in the world by 2025 on the back of the large amounts of data being created at a fastest speed than ever before seen”*

**Goldman Sachs, 2019**



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### Modular Data Centres – the push to the “Edge”

With the rapid growth of data creation that is geographically dispersed, data centres need to get **closer to the source of data**.

This has created a new type of data centre called **Edge Data Centres**. Edge data centres are almost the opposite of Hyperscale based data centres. Small and geographically deployable.

The growth of Edge data centres is significant. The Edge is the requirement to push storage and compute closer to customers. This demand is coming from the Internet of Things, high performance computing, 5G telecommunications, augmented and virtual reality, and connected vehicles. Bell Labs have predicted that 60% of servers would be placed in an Edge Data Centre by 2025. (Source: Jones Lang Lasalle)

Edge data centres are built in a **modular fashion**. Modular data centre systems consist of customised modules and components that create scalable data centre capacity. Modules can be shipped to be added, integrated or retrofitted into an existing data centre or combined into a system of modules. Deployment is rapid, taking a few months instead of a few years for traditional data centres.

An ASX listed data centre company called **DXN Limited (DXN)** produces **Edge data centres**. DXN owns an existing large-scale data centre in Sydney which is currently in ramp up phase.

The real growth trajectory for DXN comes from the production, sale and/or ownership of Edge infrastructure modules. DXN are building a large order book of modular data centres to be deployed to the Edge. DXN's Edge data centres are the only Tier 3 recognised modular data centres globally.

As other data centre operators are doing, we expect over time DXN will establish an **infrastructure fund**, that will hold the Edge data centres. This model means DXN will become more capital light over time and enable a more rapid growth rate. This strategy was employed by the Australian real estate investment trust sector in the early 2000's.

The Fund holds a position in DXN to gain exposure to data centre growth, specifically Edge data centre growth. We expect capital expenditure on data centres to grow rapidly over the coming three to five years, Edge will be a major beneficiary.





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