

Data centres: the infrastructure driving digitisation

In 2006, then Google CEO Eric Schmidt, popularised what would become a defining metaphor for modern computing with the phrase 'in a cloud somewhere'. However, the cloud's conceptual roots trace back decades earlier. As a high school student in the early 1970s, Bill Gates accessed a PDP-10 Mainframe Computer in Seattle's University District through a set up known as time-sharing*. This centralised resource is an example of the precursor to the cloud, where powerful computing is available on demand.

Bill Gates, among others, would go on to make prominent personal computing. But while we all now have our own devices, much of the processing happens in a similar way to how it first did over half a century ago - on someone else's computer.

The cloud

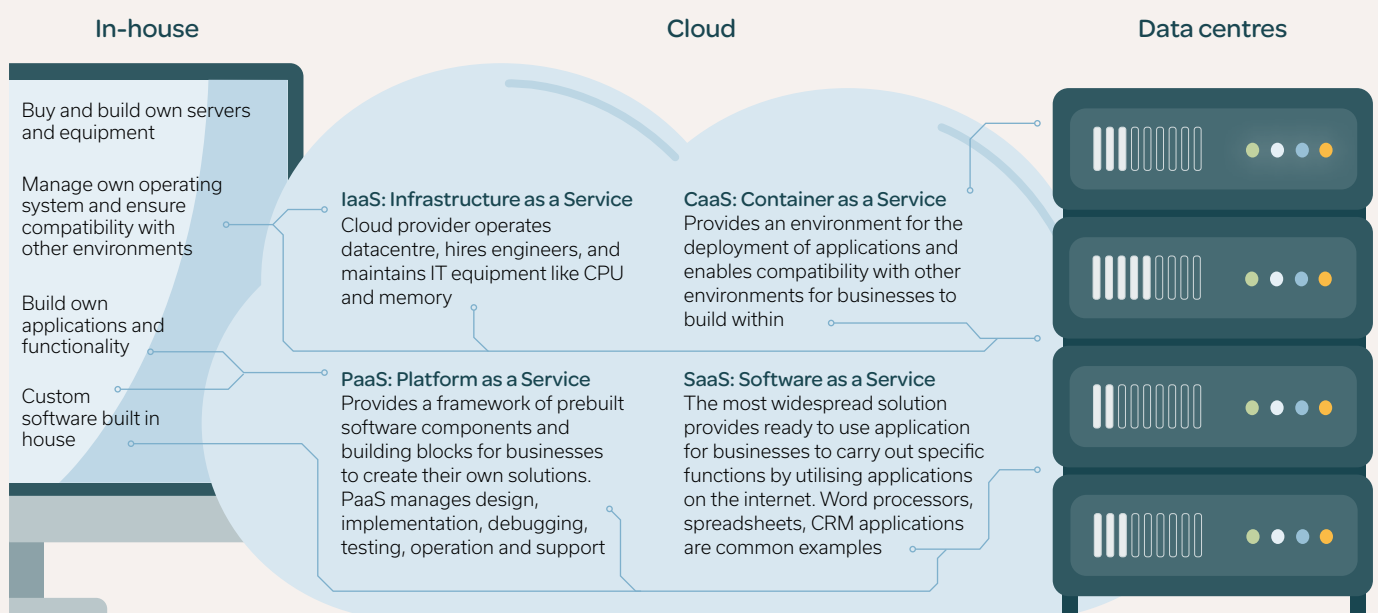
One no longer needs to attend a designated location to access it - this would significantly detract from today's digital experience. Instead, endless entertainment options on streaming services and gaming platforms, secure banking and health care services, global

messaging and video communication, and many more online activities we now take for granted rely on the cloud for a range of applications.

Rather than making large investments in dedicated resources; Infrastructure as a Service (IaaS), Software as a Service (SaaS), and even Containers as a Service (CaaS) can instead be added as businesses grow. Advancements in artificial intelligence (AI) have unlocked further opportunities for cloud-based enterprises which create the perfect environment to support its rapid scaling and large volumes of data.

Cloud service companies offer solutions for businesses to carry out all aspects of their digital enterprises by provisioning computing on demand. Forming the building blocks of most modern digital services, companies can rent the features and tools they need to run their own online applications. Hyperscalers - Amazon Web Services, Microsoft Azure and Google Cloud Platform are the three main cloud service providers, but there are many other SaaS businesses that provide specific applications.

How computing depends on the cloud and data centres



*As teenagers Gates and his friend Paul Allen were banned from using the campus computer after manipulating code to gain free computing time.

Data centres

If one were to 'visit' the cloud, they'd be surprised to find it's not a single place, but a network of physical sites known as data centres. These secure facilities housing vast banks of servers, cooling infrastructure, and backup power systems play a critical but often underappreciated role in the cloud ecosystem. Portfolio holdings, **NextDC** and **DigiCo** operate data centres under a co-location model, enabling cloud providers like hyperscalers, and enterprises, to rent space in data centres to house their own computing chips while gaining access to the most advanced and efficient computing infrastructure.

Enabling extended geographical reach where building proprietary data centres is not feasible, and creating direct links to important networks and stakeholders means data centres play a fundamental role for most businesses operating online are helping the digitisation of the global economy.

We believe companies like NextDC and DigiCo, with their state-of-the-art equipment and regional expansion are positioned to benefit from increasing demand. Facilities are often pre-leased before completion, with long-term contracts (10+ years) offering predictable income.

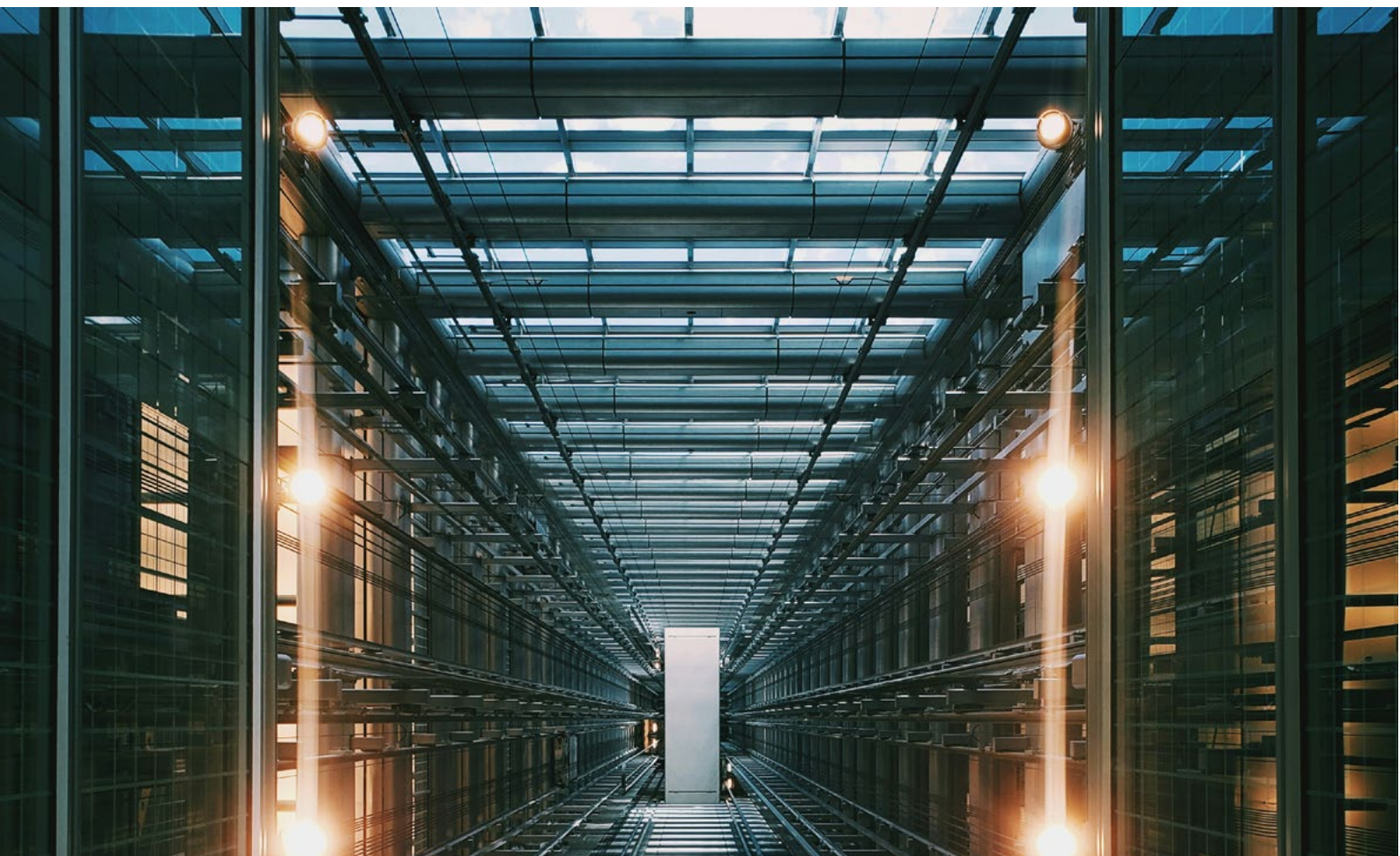
We took an opportunity to invest in NextDC after a recent share price fall, resulting in markets mispricing the company's future earnings. Investors fixated on short-

term political and trade relationships miss the long-term drivers behind NextDC's role in digital expansion. This dislocation presented a compelling entry point for long-term investors. As portfolio holdings continue to deliver operationally and market places more value on their future growth profile and their strategic role in the AI/cloud infrastructure stack, we are optimistic about the potential for growth.

Environmental impacts

While the benefits of the cloud are clear, one of our considerations is the environmental impact. Cloud data centres require vast amounts of water and energy to cool and operate their equipment, consuming 1.5% of global electricity in 2022¹.

Most of the carbon emissions come from electricity sourced from the grid, which presents a challenging backdrop for Australian data centres where 65% of electricity comes from fossil fuels². Attributing the 'owner' of emissions along supply chains is complex and depends on the scope of reporting. Scope 1 and 2 emissions are those that come directly from a business or its electricity use, and NextDC currently assumes responsibility for all the emissions from its operations under this definition. However, once accounting for Scope 3 - indirect emissions in supply chains - these may instead be attributed to data centre customers.





Although energy intensive, the absence of data centres would mean computing takes place on less efficient, in-house systems. Each year in Australia, data centres save 2TWh of electricity than would be consumed if the computation had taken place locally - a 67% saving³. As more computing shifts to the cloud, data centres are highlighted as significant emitters. Though less visible, in-house systems would produce more emissions in aggregate. We remain pragmatic about viable solutions and believe through their scale data centres can advance digital infrastructure more sustainably.

Environmental opportunities

Across the industry, improvements in energy efficiency have limited energy use despite a huge increase in workloads. Between 2015 and 2022, data centre workloads increased by 340%, meanwhile their energy use (excluding crypto-related use) rose by only 20-70%⁴. At its most efficient site, NextDC achieves a PUE of 1.25, and the average across its locations is 1.42⁵ - more efficient than the industry average of 1.56⁶.

It does this by embracing technological advancements to reduce air leakage and optimise temperature of IT equipment, the cooling of which accounts for around 40% of total data centre energy consumption. Innovations like immersion-cooling has been implemented at some sites, and its newest Adelaide site has adopted a cooling approach that uses filtered ambient air from the outside to replace warm indoor air.

Water tanks for retention and reuse have been installed to further manage resources. These advancements use minimal electricity and water to help mitigate environmental impacts.

While grid electricity provides most of its power, NextDC is exploring opportunities to source its own renewable power, such as the solar arrays helping to reduce emissions at sites in Melbourne, Sydney and Perth, as well as procuring clean energy from other providers. In recognition of the efficient design and power-use, NextDC's M1 Melbourne data centre was certified as Australia's first five star rated facility, and its S1 Sydney facility was awarded the same rating by industry body, NABERS.

There are challenges to face as digitisation continues, but data centres are already taking steps to address them, and we are optimistic about future developments. At scale, data centres not only enable the cloud, but they also help make computing more energy-efficient and environmentally sustainable than legacy in-house models ever allowed.

Taylor Halliday
Investment Specialist

³**Power Usage Effectiveness (PUE) represents the proportion of total power consumption to the useable power delivered to IT equipment; a PUE closer to 1 is better.

Sources:

¹ IEA (2025).

² Australian Government. Department of Climate Change, Energy, the Environment and Water (2025).

³ Mandala (2024). Empowering Australia's Digital Future.

⁴ IEA (2025).

⁵ NextDC (2024). Environmental, Social and Governance Report.

⁶ Statista (2025).

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