IJGlobal
A Green Street Company

The server service

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22/08/2019

One of the themes of the digital era is inconspicuousness. This digital virtue has its sublime incarnations – the algorithm, the silent servant simplifying so much of human toil. Rather more mundane is the dust-covered router concealed behind the sofa.

Consonant with this theme of the unseen is the largely unknown data centre. Most relying on their operation are cheerfully unaware of these information warehouses; the wider ignorance of the role of data centres is arguably as great as their importance in today's world.

So much of modern communication, commerce, and convenience is predicated on data. As data as a commodity increases in value, the importance of efficiently collecting, storing, processing, and transmitting that same data augments in parallel.

Data centres must keep sensitive business and public records secure, rely on uninterrupted power supply, and must be maintained at optimum condition.

Telecoms companies and specialist data centre businesses developed the asset class. Latterly real estate players and infrastructure investors have begun taking a greater interest.

Now viewed as attractive investments, data centres are far less inconspicuous to investors.

Data centres to date

Data centres have existed in one form or another since the advent of computers – the first electronic general-purpose computer, ENIAC (1946), was primarily designed to calculate and store artillery firing tables.


James Dodsworth, White & Case

From purely military uses 70 years ago, digital data is now required for the most mundane of daily activities.

Previously analogue activities such as phone calls and mass media have now migrated to the internet and it is difficult to overstate how ubiquitous data consumption has become.

In June, investment firm Digital Colony concluded fundraising for its $4.05 billion digital infrastructure fund, Digital Colony Partners.

Jon Mauck, managing director at Digital Colony and Digital Bridge (which co-founded Digital Colony), has been involved in data centre investment for more than two decades. He describes two important factors in the development of the market: "One was that IT systems and computing became more expensive; companies grew uncertain of how to manage

these burgeoning systems and costs. Real estate partners stepped in to provide the capex.

“Another was telecom deregulation – multiple carriers were exchanging customer traffic to each other’s networks which required a neutral place for the fibre to converge. This became the impetus for an interconnection spot – the airports of the digital world.”

Following the .com bubble, other strategics found their feet. Digital Realty, one of the premiere real estate investment trusts active in the sector, was able to buy up cheap real estate with good customers.

Things changed rapidly in 2008 with data centres demonstrating counter-cyclical qualities. Formerly, the significant owner-operators were sizeable financial institutions. Building data centres was very expensive, however, at a time when balance sheet repair was a priority. The drive to outsource became an advantage that the strategics and US real estate investment trusts (REITs) capitalised on.

James Dodsworth, White & Case’s global head of real estate and an adviser on major, recent transactions in the sector said: “Owner-occupiers realised they could take contracts, leases, or service agreements, negotiating terms acceptable to risk compliance and corporate governance teams *and* business would still prosper. Not only would the data centre be taken off balance sheet, it was arguably better from a risk perspective to have someone solely focused on data centres rather than doing it in-house.”

Increased growth in cloud computing between 2012 and 2014 was driven by companies such as Microsoft and Google. The increasing importance of social media and the rising fortunes of new media platforms like Netflix were significant supporting currents.

“There are a small number of players who drive a disproportionate amount of growth,” says Dodsworth. “But if you just look at that, you miss half the picture – lots of businesses use data centres including most professional services. Anyone who manipulates data uses them.”

A vast user-base comprising the individual at one end and the world’s largest companies at the other have helped mature the asset class. This is strongly evidenced as cloud computing – delivering computing services remotely over the internet – comes to the fore.

Computing data centre computing

Data centres collect, store, process, distribute, or permit access to the data concentrated within them. They are sometimes referred to as server farms.

These servers, which increase in processing power when networked together, are connected to wider communication networks so users can access them. The more servers there are, the better they are able to handle surges in data traffic.

Data centres are at the intersection of several different asset classes. The hierarchy of elements constituting these assets is called the stack. At the very bottom is the land upon which a centre is built.

Next come the ‘passive’ physical assets: the shell, referring to the ‘bricks and mortar’ structure that houses the equipment and auxiliary systems within; the racks which hold servers; networking devices; cabling; and other computing equipment.

The heat generated by IT equipment requires significant environmental control systems which can be addressed using sensors, water cooling, fans, and other air-conditioning systems. Fire-suppression systems feature here too.

Another critical service at the physical level are systems to prevent power-outage. Considering the mission-critical nature of data centres for their users, failsafe mechanisms are essential. These include backup generators, batteries, and uninterruptible power supplies.

Network connections are a further fundamental element within a data centre permitting the flow of traffic from the

wider network to and from the servers.

The actual computing equipment then follows next in the stack.

Beyond is the service layer where you have the basic services including hosting data. The highest layer is the application layer – the most service-centred part of the whole stack – the cloud-based applications.

Access to cheap energy is essential as the largest of these power-ravenous assets have energy demands of over 100MW. Land rights (leasehold, freehold) is also an important consideration, as is location.

'Edge' refers to how close a data centre needs to be to its customers which affects 'latency', the time taken to retrieve data. If data retrieval speed is critical, a more centralised location is necessary.

In Europe, the prime data centre locations are known as the FLAP markets: Frankfurt, London, Amsterdam, and Paris. All are financial centres with large populations and notable for having high volumes of international fibre interconnectivity. Dublin and the Nordic countries are emerging as other important European locations.

In the US, the largest market globally, Ashbourne, Virginia is widely recognised as the Mecca of data centres. Other important locations are Dallas, an east-west fibre handoff point, Chicago, and Santa Clara.

In Asia, Hong Kong, Singapore, and Tokyo are major hubs, as is China, while Indonesia is a growing market.

Investment opportunities

Paul Mortlock, CBRE

The scale of a data centre will have major import on the business model adopted by the owner. Data centres can broadly be divided between hyperscale and colocation offerings.

Hyperscale data centres have the largest footprints, and will typically have a single occupier – a very limited number of customers have requirements necessitating such facilities. They will often have their own teams of operatives managing the equipment.

Colocation centres have multiple occupiers, and are divided between retail and wholesale: retail customers are smaller businesses requiring a smaller amount of rack space and energy consumption; wholesale colocation customers – larger professional institutions – have greater needs.

Revenues are generated through contracts that can range between one and 25 years. However, owing to the varying needs of individual customers and the varying sizes of data centres, revenues fall within a wide bracket.

Wholesale tenants will typically lease a suite and pay a fixed rental price per kilowatt per month. Smaller retail customers pay fixed monthly costs due to the impracticality of invoicing power charges. Supplementary services can be purchased including connectivity and security solutions.

Paul Mortlock, investment director at CBRE, says: "Investors can access the sector in a number of ways including the acquisition of share capital in public traded vehicles, equity investments into private operators, joint ventures with growing enterprises and acquiring traditional leased data centre freeholds, although opportunities are very scarce."

Greenfield investment in the space requires deep pockets and knowledge. This explains why some investors have approached investment by leveraging the expertise of strategics. In a recent deal, GIC, the Singaporean sovereign wealth fund, partnered with data centre specialist Equinix on a $1 billion joint venture to build a total of six new hyperscale data centres across the FLAP locations.

"It is no surprise that you're seeing sovereign wealth take advantage of opportunities that require large tickets as in the Equinix deal," says Charlie Scott, investment director at Amber Infrastructure, manager of the National Digital Infrastructure Fund. "Even though there's a lot of dry powder within infrastructure PE and investment funds at the

moment, the ticket sizes on some investments are substantial by comparison. It's a lot to take on."

Scott describes Amber's strategy in the space as a combination of both build and buy, given the demand for new capacity and attractive opportunities to acquire established platforms. "The beauty of the sector is that once you've cracked it in one area, while there are those local challenges that you need to be aware of, on the whole all those trends driving data consumption data use, growth of fibre, growth of mobile, are all common wherever you are."

CBRE's Mortlock says: "The European markets are going through an extraordinary period of growth and have been since 2016". He says activity is two to three times anything seen previously and that CBRE expects Frankfurt, London, Amsterdam and Paris to grow by 21% in 2019 alone, reaching over 1,600MW in size.

According to Synergy Research Group, 2015 saw 17 data centre M&A deals totalling around $5 billion globally. By 2017 this had quadrupled to $20 billion across 48 deals.

Domestic platforms tend to be bought up by international players able to connect them into their international networks. Large hubs with a focus on wholesale and hyperscale assets have pushed up ticket prices.

DWS bought two data centres in the Netherlands in 2019 through its Pan-European Infrastructure II fund, which it is combining into what will be the largest independent data centre provider in the Netherlands. One of these deals was the carve out of Dutch telco KPN's data centre business NLDC.

DWS' European head of infrastructure equity Harold d'Hauteville says: "The NLDC data centres were one of the services KPN was offering its clients, but there was no strong focus on the utilisation and the sale of colocation by KPN as it was not core business. This is an attractive opportunity in data centre consolidation. Underutilised data centres that need some repositioning, which means access to a good portfolio with a lower entry multiple."

Asterion Industrial Infrastructure Fund I, the €1 billion fund led by former KKR-manager Jesus Olmos, did something similar with the acquisition of 11 data centres from Telefónica in May (2019).

Amber's Scott says: "We expect the Telco carve out theme will continue. Many carrier-owned sites were built largely to serve underlying connectivity networks and customers, with storage sold as part of a package. Listed carriers have been looking to capture the arbitrage between public listed multiples and private transaction multiples. By selling and leasing backing these assets, they can capture material value through multiple expansion while maintaining their operations and customer relationships as before."

Scott says infra investors can create value by driving operational improvements and running these assets as dedicated data centre businesses.

Scale matters in deals as they afford capital efficiency, extend customer relationships, and improve visibility. Over time, quality data centres will be better positioned in good and bad markets. Most importantly this business is anchored on monetising cash flows – the quality of customer contracts and agreements is essential.


Steven Sonnenstein, Digital Bridge

Several players stressed the long-term nature of these investments as mid to high teens can be achieved annually with a portfolio approach but shorter horizons do not allow monetisation of investments.

Steven Sonnenstein, managing director at Digital Bridge and Digital Colony, says: "Allocations in infra are growing at cost of public market allocations, PE, and real estate. Digital infra within the infra asset class generally constitutes 10-15% of any one infra portfolio. And that is growing."

Sonnenstein adds: "The lions' share of our LP base would love to get direct exposure and co-investment opportunities in the sector, but most are not structured to be able to do so."

Competition

As an asset class blending real estate, tech, and infrastructure, competition is unusually fierce. Infrastructure investors must contend with REITs, PE firms, and strategics. More recently sovereign wealth funds and other institutional investors have been drawn to the sector.

“I would say competition is intense: you just need to look at pricing of recently announced closed deals,” says White & Cases’ Dodsworth. Indeed, EBITDA multiples have consistently increased in the past five years. Multiples in the high teens are not uncommon, and some transactions have seen multiples into the twenties.

CBRE’s Mortlock says: “Operator success is typically underpinned by high quality, well connected facilities, with an experienced management team benefiting from deep routed C-level relationships with occupiers and an enviable track record.”

Scott says strategics are competing in a very acquisitive way given their established customer relationships. “Your ability to monetise and increase utilisation is higher and so you can afford to be much more aggressive on pricing, potentially pricing out financial investors.”

Reputation is everything in the data centre world. Sonnenstein explains: “Providers are expected to guarantee a service that is maintained 99.999% of the time. If not, penalties are strict and customers won’t renew. Customers undertake extensive due diligence before signing a contract, that can take anywhere between 12 and 18 months.”

This makes it challenging for infrastructure investors to participate in the sector without the advantage of partnering with strategics.

“It has actually matured into a unique, distinct asset class”, according to Dodsworth. “Those that participate actively are those who have decided to focus on it and build a model and profile.”

Sonnenstein agrees: “Digital infrastructure is atypical in the infrastructure universe. These asset are not like roads, subject to ebbs and flows of the macro economic environment and the geography in which road sits. It’s more complex. Not only must you understand the physics behind asset, but also that what you own is a mission critical piece of infrastructure that customer businesses cannot survive without.”

Scott meanwhile sees a “dearth of high-quality management teams able to drive growth by managing companies as dedicated businesses with the right sales strategy and focus” as the key barrier for infrastructure investors.

The Future

As the underappreciated function of data centres becomes better known, so too, inevitably, do the risks and drawbacks connected to these assets.

As infrastructure critical to government and industry business, they are prime targets for terrorist attacks, as well as state and industrial espionage.

The intense energy demands resulting from the consolidation of computing that data centres represent must also be addressed. Requiring constant and reliable energy means that data centres are not yet able to run entirely on renewable energy sources.

Estimates suggest between 2-3% of global electricity consumption is already from data centres.

Improving efficiency by lowering cooling costs or finding means to utilise waste heat generated by equipment would be welcome advances.

Soon the internet of things and 5G technology will multiply the number of end points enormously. There are an estimated 9 billion IoT connected devices today; that is set to explode to 25 billion by 2025.

If infrastructure investors can deepen their knowledge of data centres, they will be better positioned to take advantage

of a critical component of the emerging digital landscape.