Understanding the
hyperscale
revolution

As growing demands fuel the need for greater capacity, hyperscale is transforming the data centre market. Yet what is hyperscale, how can businesses respond to these changes, and is hyperscale right for them? This guide will explore the rise of hyperscale, why a business may select it as a solution, and what they should consider before they commit.

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What is hyperscale?

Hyperscale means rapidly achieving massive scale in data and cloud computing, using large and expandable data centres. It enables businesses to rapidly enter new markets, whether by building their own hyperscale data centre (HDC) or by purchasing space in another provider's existing facility.

By partnering with a hyperscale provider, they can meet unprecedented demand for services from a global audience of customers, with reduced risk and a reduced total cost of ownership (TCO).

A hyperscale provider builds, owns and manages the data centre facilities required, but businesses can utilise their facilities and the cloud computing power they provide. Delivering 10,000 m² of space and power in the range of 25+ megawatts on average, a HDC provides the space, power, infrastructure and connectivity for customers to scale as needed.

Hyperscale allows you to scale up quickly and focus on what's most important – your business, your customers and delivering the services they need.
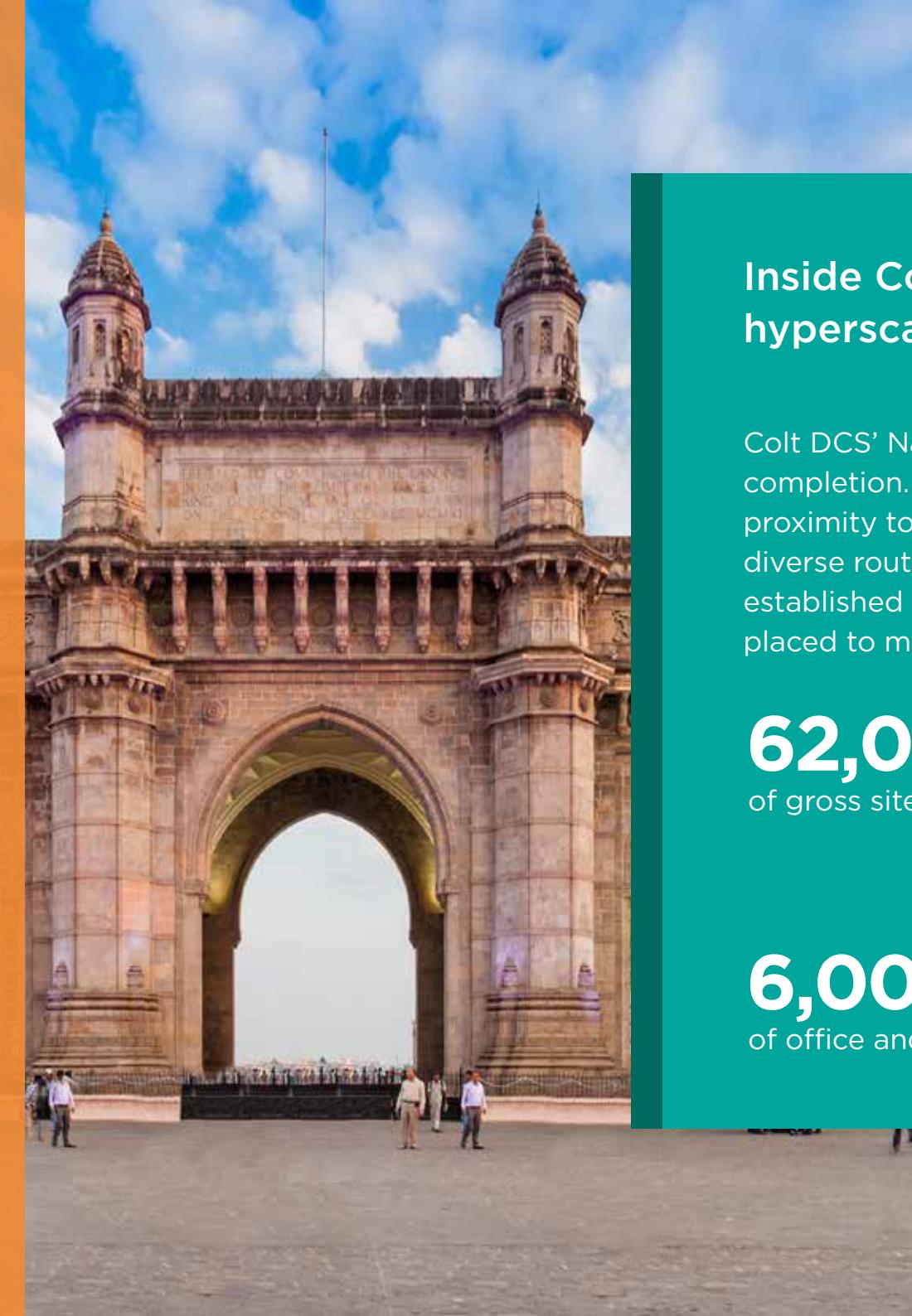
Inside Colt DCS' Mumbai hyperscale data centre

Colt DCS' Navi Mumbai data centre will be the provider's largest on completion. Located in Kalwa Industrial Area, the site is in close proximity to other highly connected data centres, with multiple diverse routes available to key carrier hotels. Colt DCS has established relationships with local providers and is well placed to meet customer fibre demands.

62,000m2
of gross site area

60MW
of IT power in stage one of construction, with an additional 40MW planned for stage two

6,000m2
of office and storage area

3.0kW/m2
power density

Why hyperscale?
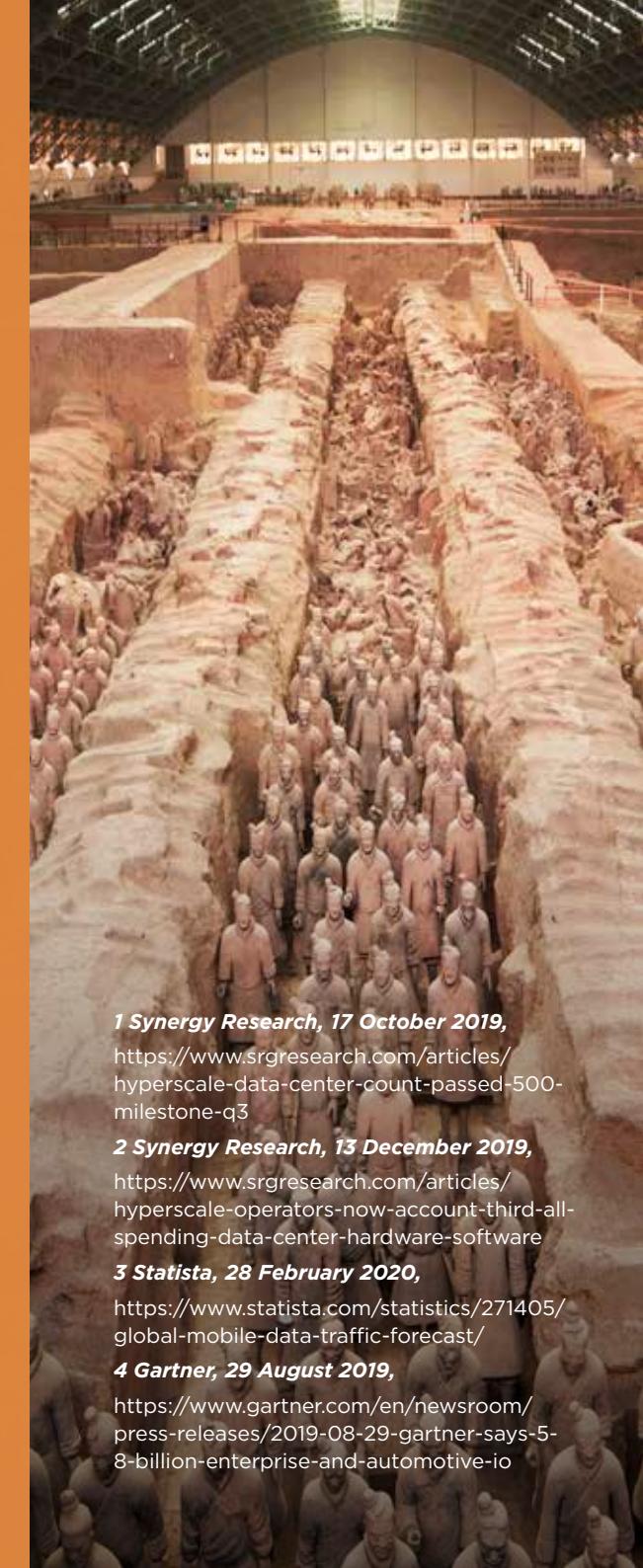
Hyperscale is a relatively new phenomenon in the wider data centre market, but it's gaining momentum fast. There are **more than 500 large HDCs in the world today[1]**, having tripled their number since the beginning of 2013. Hyperscale providers also now **account for 33% of all data centre hardware and software[2]**, compared to only 15% in 2014.

Hyperscale is the culmination of several global trends that have been driving the need for rapid and sustainable data centre capacity. Chiefly, there has been unprecedented growth in mobile internet and data consumption globally over the last few years, particularly in the developing world.

By 2022, mobile data traffic is expected to reach 77.5 exabytes per month at an annual growth rate of 46%[3], driven largely by mobile.

New technologies and innovations are driving much demand, as has the growing acceptance of the business community towards data-driven decision-making and the need to store data off-site. Artificial intelligence (AI), the Internet of Things (IoT), driverless cars, augmented reality (AR) and virtual reality (VR) need massive amounts of data to function, adding further pressure to the data infrastructure industry. It's estimated there'll be **as many as 5.8 billion enterprise and automotive endpoints by the end of 2020[4]**.

1 Synergy Research, 17 October 2019,
https://www.srgresearch.com/articles/hyperscale-data-center-count-passed-500-milestone-q3

2 Synergy Research, 13 December 2019,
https://www.srgresearch.com/articles/hyperscale-operators-now-account-third-all-spending-data-center-hardware-software

3 Statista, 28 February 2020,
https://www.statista.com/statistics/271405/global-mobile-data-traffic-forecast/

4 Gartner, 29 August 2019,
https://www.gartner.com/en/newsroom/press-releases/2019-08-29-gartner-says-5-8-billion-enterprise-and-automotive-io

Many organisations are turning to hyperscale solutions to plug the gap in their services, meet rising demand and gain a strategic foothold in new and fast-growing markets.

Cultural and societal shifts are also accelerating the need for data storage space and capacity. The growing consumer movement for data privacy has seen the emergence of data privacy regulations, including the General Data Protection Regulation (GDPR) and China's Cybersecurity Law. Data needs to be carefully managed and protected, but that isn't always possible in back office server rooms and private clouds.

More recently, the outbreak of Covid-19 has seen a massive and sudden rise in the need for IT services to facilitate remote working, connectivity and streaming entertainment. Cloud-based productivity and business tools and platforms, including AWS, Google Cloud, Microsoft's Azure and Teams, witnessed unprecedented surges in user numbers.

Ultimately, businesses and consumers are demanding reliable data and network capacity, but the underlying data infrastructure is struggling to keep up. Companies want to deliver the best-performing services, but latency issues and bandwidth constraints are harming quality. Organisations need more data centres that are even closer to their customers, but often lack the time and resources to build them themselves.

As a result, many organisations are turning to hyperscale solutions to plug the gap in their services, meet rising demand and gain a strategic foothold in new and fast-growing markets.

The power of hyperscale

A hyperscale facility provides businesses with a one-stop shop for all their IT and capacity needs. It removes the burden of building, staffing and operating a complex data centre environment, reducing risk and costs over time. Speed is also critical; businesses can access new markets and reach new customers quickly, while rapidly scaling capacity as needed.

Partnering with a hyperscale provider can be the gateway to many new benefits, often unachievable in a standard data centre.

Speed and Scalability

A traditional data centre is built to meet a set capacity, with any extensions requiring significant time and resources. More rack space must be built to meet demand, but should that demand fall at any stage then companies find themselves paying for the maintenance of costly and unnecessary assets.

A HDC doesn't share that limitation. Hyperscale facilities are built in a campus-style design that allows organisations to build out further data centres quickly within the same location. Equally, more or less server racks can be deployed or removed with a reduced material cost to the customer. This enables organisations to scale their data storage and capacity rapidly to meet ever-fluctuating demand.

Cost efficiency

When an organisation needs to scale up or down in a HDC environment, it doesn't have to foot the bill due to its lower TCO over the data centre assets. The decision to scale and reduce capacity becomes much faster and easier, as there's a lower financial risk for the customer in doing so. This is ideal for limited-duration IT projects as there's no need to invest in a lump sum acquisition of computing resources you know are only temporary.

Hyperscale facilities are also specially designed to deliver a more efficient economy of space. The amount of computing capacity a customer receives in a given floor space will be significantly higher in a HDC when compared to a standard data centre.

Access to latest technologies

Innovation represents a big outgoing for many organisations, and it's only trending upwards. Organisations today **expend 20 times more resources on R&D than they did in the 1930s[5]**.

Technological upgrades can be a consistently rising cost centre for many, but it's mitigated in a hyperscale environment. The latest tools and technologies – like Zoom, Office 365, and AWS for Enterprise – can be acquired without paying for the privilege, as it's the provider that invests in the upgrade. As a result, product innovation becomes much cheaper for organisations as a guaranteed part of the service level agreement.

Strategic objectives

The rise of large digital customer bases in international markets has been a major driver of hyperscale growth. Whereas HDCs were rarely found outside the US 10 years ago, India, China and South-East Asia are now some of the most hotly contested markets for hyperscale requirements.

Locating a hyperscale facility closer to your international customers delivers a superior, low-latency and high-bandwidth experience. From a competitive point of view, this results in improved customer satisfaction, retention and a larger market share. Latency is key to the digital customer experience – **every 100-second millisecond delay in load times can hurt conversion rates by 7%[6]**.

Investing in hyperscale also allows an organisation to quickly land bank across multiple geographies. It's a quick way to gain a foothold in a potential growth market, and provides the space for future expansion.

Skills challenges

It's becoming increasingly difficult for businesses to acquire the IT and technical skills they need to operate a complex data environment. Indeed, **more than half of operators report challenges in filling job vacancies or retaining existing data centre staff[7]**. With hyperscale, by contrast, it's the provider's job to supply much of the talent. Businesses receive all the benefits of a data centre without the required headcount for security personnel, maintenance and service technicians.

6 Akamai, 19 April 2017, https://www.akamai.com/uk/en/about/news/press/2017-press/akamai-releases-spring-2017-state-of-online-retail-performance-report.jsp
7 Uptime Institute, May 2019, https://journal.uptimeinstitute.com/the-data-center-staffing-and-skills-shortage-is-here-now/

Finding a solution to scale with your ambitions

Once an organisation has realised it can benefit from hyperscale, the first step in the implementation process is to choose a solution and a provider. Ultimately, a data centre is only as effective as its operator. Organisations need to pick their partners carefully, and have a deep and specific understanding of their IT estate and needs.

Hyperscale has been described as a buzzword by some, and in recent years many new players have entered the field. Companies are spoilt for choice, with many potential providers to choose from. You need to consider each carefully and assess which hyperscale provider best meets your IT needs and objectives.

Location

This should be your top consideration. The closer the site is to your target customers, the better and lower latency experience they are likely to have. However, you should also keep in mind all of the locations the provider operates in. If these are future growth markets for your business, then the contracting and implementation process should run smoother if you select the same provider.

Cost

Different providers can offer radically differing pricing plans. Some offer a more flexible contract than others, where you pay for only what you use and can adjust the cost for how much security and technical support the hyperscale provider will offer. Others, however, may try to lock you into a long-term contract, with a fixed rate that doesn't let you tailor what you want to pay for. It's important to ensure you are getting value for money, as well as a solution tailored to your needs.

Scalability (in terms of power density & expansion capacity)

Not all HDCs are created equally. The local power ecosystem will affect the power density the site is able to output, and the physical location of the site and how it's constructed will determine how many extensions can be made. Both of course can have a big impact on your ability to scale and at what speed.

Security and Certifications

Depending on your industry, you may have an increased need for security. Common standards are very important, so the hyperscale provider should be able to offer the same, if not better, levels of security than at your own sites.

Physical and cybersecurity systems need to be regularly tested to ensure they remain robust and able to keep up with growing facility sizes and data traffic, so ensure you enquire about testing regimes. You should also look out for sites that use automation and AI-powered monitoring solutions as these provide a constant and real-time level of security.

Experience

Hyperscale has only recently achieved real market penetration, but some organisations have a data centre pedigree running into the decades. In general, you should seek out proven success. Experienced providers are more likely to build global teams that can offer seamless customer service and delivery, regardless of the site's location. Choosing the more experienced partner can mitigate risks and is likely to lower the occurrence of damaging downtime.

Conclusion:
Scale to succeed

Faced with disruption and spiralling demand, organisations don't have the luxury of waiting to build their own IT capacity. They need to work and deploy fast, but they also need to think for the long-term. It's no longer a case of what customers need now – it's what they'll need in the next five to 10 years.

Businesses have to scale for the future. To do this, the scalability of IT infrastructure is key. This means data centre facilities need to be able to rapidly increase capacity on a whim, while ensuring they operate at peak efficiency 24/7 – the solution is hyperscale.

The core competency of your business isn't to be a data centre operator. Hyperscale can empower your business with all the tools and capacity it needs to grow and innovate, without the responsibility of having to operate and maintain it. Above all, hyperscale allows you to scale up quickly and focus on what's most important – your business, your customers and delivering the services they need.

Our Hyperscale Data Centre Locations

EUROPE
Frankfurt West
London North
London West
Paris South West
Rotterdam

ASIA
Mumbai
Osaka
Tokyo Inzai Campus
(Inzai 1, 2, & 3)

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in **Colt Data Centre Services**

When it comes to data centres, scale matters.

At Colt Data Centre Services we are experts in hyperscale. With over 20 years' experience, we have been designing, building and operating data centres since 1992.

Considered both global and local, we have multiple sites located across Europe and Asia Pacific.

From 24/7 manned environments to intelligent security monitoring systems, we ensure the security of our client's infrastructure is paramount.

100% carrier neutral, our connectivity solutions offer access to global and multi-cloud platforms on demand.

We are hyperscale.

Accreditations
ISO 27001, ISO 14001

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