



How to Design and Maintain Fit-for-Purpose Data Centres

Hosting infrastructure that enables the digital world has become a business-critical service that calls for highly specialist skills.

What's driving data centre demand?

A consequence of businesses becoming more tech-driven and consumers demanding more streaming services is a boom in data centres. Valued at \$187.35b in 2020, the global market is projected to reach \$517.17 billion by 2030, registering a CAGR of 10.5% from 2021 to 2030, according to Allied Market Research.

The data centre's role in satisfying a worldwide appetite for more bandwidth and connectivity is also significant. A report by Market Research Future into data centre structured cabling, looking at trends by product types such as copper wire and fibre optic, predicts that the industry will be worth \$6.72b by 2030, with a 12.32% CAGR throughout the 10-year forecast period.



Everything as a service

What data centre growth reflects is a fundamental change in the way IT services are delivered and consumed. Businesses are moving their infrastructure and applications to hyperscale public clouds from the tech giants, or turning legacy infrastructure into private clouds that emulate the agile capabilities of public clouds.

They are outsourcing more infrastructure to colocation facilities, moving away from inhouse servers and stacks. Driving it all is the pursuit 'everything as a service', making IT easier to manage and more predictable to cost. By 2025, 40% of newly procured premises-based compute and storage will be consumed as a service, up from less than 10% in 2021, according to Gartner.

A similar evolution has transformed consumer habits, with streaming services for film and music replacing solid state media. New entertainment business models as well as the explosion in social media are all enabled by data centres that provide the scale and resilience to deliver global services,

24/7.

An emerging digital economy is also changing the way traditional sectors function. Data centres are becoming hubs for healthcare, education and other vital public services, as well as helping established businesses like travel and media reinvent themselves in the 21st century.

Future growth guaranteed

Further fuelling the growth of the sector is a new wave of technology. What the World Economic Forum calls Industry 4.0 – which includes analytics, AI, automation and IoT (Internet of Things) – relies on the scale and compute power of data centres to make them viable. And the exponential growth in data is similarly enabled by racks of virtualised storage in global data centres.

Demand for more bandwidth is synonymous with data centre growth. It is driving investment in structured cabling inside facilities that are increasingly used as interconnection points. As internet companies shift their strategies, from generating demand to generating supply and investing in subsea cabling, data centres will become even more important, providing a bridge into backhaul networks in different continents.

At the same time the evolution of edge computing, bringing compute power closer to machines and devices that generate data, will see the growth of micro data centres. Multi-Access Edge Computing (MEC) and the rollout of 5G will advance this trend, enabling innovative low latency services to flourish outside of traditional data centres.



Not all data centres are the same

Data centres were once owned by companies that offered colocation services and little else. The advent of virtualisation followed by the development of hyperconverged infrastructure – combining network connectivity, compute and storage – has expanded data centre use cases and the profile of data centre ownership changed.

Hyperscale cloud providers and internet companies have their own data centres distributed around the world, bringing workloads closer to the global customers that access them.

More traditional data centre companies like Equinix continue to offer a wide range of services to multitenant customers, from colocation to multi-cloud connectivity, while Internet Service Providers (ISPs) and telecom companies use their own facilities to provide interconnection hubs for their clients.

White and grey spaces

Merger and acquisition activity has been a long-standing feature of the sector, with diverse owners ranging from real estate investors to some of the world's largest internet companies. They all end up with facilities divided into white and grey spaces. White spaces are where the racks of equipment are placed, containing servers, storage and network components. Grey spaces house the backend equipment, the switches, transformers, cooling systems and generators that keep the racks in the white spaces 'live' and available.

Demand for more white space means a proportionate increase in grey space infrastructure. Where it gets more nuanced is when the data centre is designed and built to optimise components, whether it's using virtualised stacks in the white space to cover fewer square metres, or the way hot and cold aisles are designed across the two spaces to improve power efficiency.

How Indigo helps

Diverse customer experience

For over 20 years Indigo has worked with every type of data centre customer, from enterprise clients, telcos and equipment vendors to the new wave of hyperscale cloud providers and internet companies.

From design to fit out

Indigo engagements often start with a design evaluation of the proposed facility, whether its purpose-built or a modular/mobile data centre. A rigorous process ensures all design elements are compliant with current data centre standards and in line with best industry practice. From working out floor layouts, cable runs and power requirements to hot and cold aisle management, Indigo is expert at matching the environment to the needs.



Maximum utilisation

Using Data Centre Infrastructure Management (DCIM) software, Indigo helps drive efficiencies by increasing equipment utilisation while reducing electricity consumption

costs. By constantly monitoring infrastructure, DCIM generates data that contributes to continual improvement and reduces the risk of issues leading to downtime.

Best connected

Structured cabling and cross connect expertise ensure best-in class Meet-Me Room connectivity. Certified in a wide variety of fibre and copper cabling technologies, Indigo network engineers are masters at circuit patching, often a weak point in network infrastructure that goes unnoticed until it's too late.

Greenfield/brownfield capabilities

The Indigo team can design and build greenfield facilities or optimise hyperconverged stacks in existing racks and cages. Every aspect of the modern data centre is covered, from rack layout design and documentation to building diverse power supply requirements – including sizing of cables and cable routing.

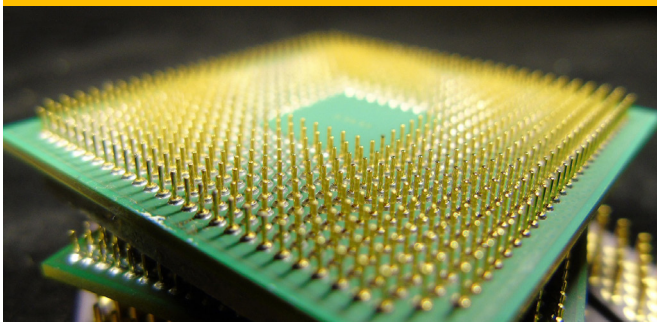
End-to-end services

From desktop CAD design to feet-on-ground equipment rack elevations, infrastructure audits and project management, all the way through to custom testing services, labelling and documentation, Indigo offers the full range of data centre services.

Overcoming challenges and obstacles to growth

Like every business sector, the data centre market has been hit by the perfect storm of post- pandemic supply chain issues, a global economic downturn, skills scarcity and the environmental impact of climate change. While there are signs that a shipping backlog is starting to ease, there are still well documented shortages, including the availability of microchips that are integral to power and electronic equipment.

Electricity tariffs are spiralling globally and will have a big impact on a sector already in the spotlight because of the volume of electricity they consume from local grids and their carbon footprint. With governments setting industry targets for reducing carbon emissions, the pressure is on data centres to use more renewable energy sources and develop energy-efficient alternatives for powering data centre activity.



Innovation and talent

Innovation is rife in the sector to address sustainability issues, including innovative chilled-water systems and hydrogen fuel cells that could be used to replace diesel-powered backup generators. Natural air cooling has made European hemisphere locations attractive for data centres in the past, but the pressure they put on local grids may see more facilities built in less populated, underdeveloped parts of the world where there is less competition for power.

To top it all, data centre owners and investors are struggling with skills shortages that have been exacerbated by the pandemic which prompted millions of people to change jobs and re-evaluate their careers. Finding the combination of network, power and engineering talent to build and run data centres is a big challenge, particularly as the geographical spread of facilities expands into different corners of the world.

How Indigo helps

Smooth supply chain

Supply issues have been an issue since the pandemic, and while competitors have struggled it's been 'business as usual' for Indigo, largely because of deep relationships with top quality suppliers who ensure stock is available.

Leading-edge innovation

Indigo is technology agnostic with 20 years' experience of working with leading-edge equipment from the biggest vendors. The company's success is predicated on skilling up and being adaptable to change, whether it's incorporating the latest hot/cold aisle designs or bringing 5G backhaul into a facility.

Skills for hire

With 'feet on the ground' Indigo can provide contracted and full-time support. From project managers and senior engineers who can be on site and oversee third-party contractors, to 24x7x365 NOC technical support, Indigo can augment inhouse talent or provide a full outsource, filling skills gaps with accredited specialists.

Maintenance and remote hands

Indigo combines on-the-ground engineering expertise with 24x7x365 NOC (Network Operations Centre) support to keep Data Centre

services up and running. It covers first line reactive/preventative maintenance, second line remote technical help, escalating to third line expert support when necessary.

Flex up and down

Clients carry out multiple installations simultaneously with Indigo; they can flex their engineering and support requirements up and down to meet business demand, only paying for what they need and avoiding the challenge of hiring internal resources that are increasingly difficult to find.



Under pressure to be future proof

A challenge for data centre owners and investors is their ability to adapt to market demands and take advantage of new waves of technology. There is the logistical headache of infrastructure audits, meeting regulatory requirements with the right certifications, and regular testing to ensure equipment and security – physical and virtual – is always optimised.

In multi-tenant data centres offering turnkey solutions, there is the challenge of serving the needs of disparate users, particularly when it comes to providing Points of Presence (PoP) and interconnectivity. For hyperconverged providers, there is pressure to manage and maintain the same environment and service standard in different parts of the world, ensuring customers have a consistent experience regardless of where they are located.



Avoiding disruption

The speed of technological development coupled with disruptive market forces makes data centres vulnerable to being left behind. Owners and investors must respond with regular upgrade cycles and will need to find partners capable of delivering them. Right now, there is a huge focus on making facilities more sustainable through innovative hot/cold aisle design, the use of power efficient hardware and by sourcing renewable energy.

Edge computing and the arrival of 5G is driving the development of micro data centres that bring compute power closer to data sources, whether it's a connected car or an IoT service. At the same time, the location of traditional data centres facilities is evolving. Under-served markets like Poland, Spain and Italy are opening up to meet demand, and as the European market matures, growth is expected in less developed parts of the world, like South Africa, where power and space are more abundant.

How Indigo helps

Global footprint

Wherever the data centre, and whatever the type, Indigo can support it with on-the-ground engineers and contractors in over 90 countries.

Always available

Qualified technicians are constantly adapting the latest tools and technology to make sure critical services and POPs are always available and never compromised, while always prioritising security and safety.

Experts at the edge

Having worked extensively on 5G networks, Indigo is already experienced in micro data centres and supporting a new wave of data-driven services that place more demand on the technical excellence of supporting infrastructure.

Connecting to the future

Accredited installers of all major data and fibre cabling brands, and trained to the latest global standards, Indigo technicians are specialists when it comes to future-proofing the network capabilities of data centres. Structured cabling and meticulous CAD design ensure the facility has the appropriate levels of redundancy and scalability.

Fast supplies

The requirement for the safe, secure and consistent delivery of spare parts is an essential component of Indigo's support services. All stock is managed through a secure inventory management system which identifies part movements, including replenishment and repairs. Customers are issued secure web-portal access in real time, enabling them to make rapid decisions about the use and movement of their assets.

One-stop upgrade shop

Indigo provides the commissioning and integration/migration of active equipment and servers, along with a comp.

ISO accredited

As one of a small number of service companies accredited to ISO27001 Information Security Management, Indigo offers disaster recovery and business continuity services that help meet increasingly demanding regulatory requirements.

24x7x365 Network Operations Centre

The skills and support from the NOC allow interventions to run smoothly. Liaising between customers and engineers, the team enables access for tasks be carried out without impinging on the data centre's security.

About Indigo

Over the past decade Indigo has grown its competencies to become a one-stop shop for data centre requirements. Operating in over 90 countries, we work with owners and operators to design, build and support data centre facilities; skills that increasingly overlap with our 20-year-old infrastructure business, installing, testing and optimising fibre optic and wireless networks around the globe.

