

12 innovative edge data centre companies

Edge data centres are a key enabler of the benefits that are often associated with edge computing and distributed computing, such as low latency, security, and data sovereignty. This article features several pure-play edge data centre start-ups as well as established facility providers who are expanding into edge, looking at these companies' positioning in the edge data centre market and what they have achieved so far in 2021.

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What is an edge data centre?

Edge data centres are a key enabler of the benefits that are often associated with edge computing and distributed computing, such as low latency, security, and data sovereignty. They are generally smaller data centre facilities (2MW or less in power capacity) that cache content locally in order to offload processing of data and services from central cloud servers and minimise latency.

Edge data centres can typically be distinguished by the following characteristics:

- Remotely operated and monitored: An edge data centre is usually remotely controlled by a central cloud server, which connects to a wider deployment of smaller data centre facilities placed in multiple edge locations – close to end-users, machines and processes that generate data.
- Modular and pre-fabricated: Modular, pre-built edge data centres reduce deployment costs and time. Some edge data centres are built offsite, delivered by truck and craned into position on a pre-constructed concrete slab that has been fitted with fibre and power. This drastically shortens time taken to bring a site online, which is 90 days for Vapor IO.
- Edge location: Edge data centres can exist in three types of locations: on premises, network edge, or regional edge. (Figure 1) To find out more about the different types of edge data centres, see *What and where are edge data centres?*

The opportunity to build edge data centres in markets that are currently underserved by hyperscale data centres has attracted interest from a wide range of players, including data centre providers, CDNs, ISPs, CSPs, as well as start-ups like Edge Micro and Digital Realty. In May 2021, Liberty Global and Digital Colony joined forces to create AtlasEdge Data Centres, a joint venture between the telecoms company and data centre giant.

This article features several pure-play edge data centre start-ups as well as established facility providers who are expanding into edge. Some of these companies were previously spotlighted amongst STL's 60 Edge computing companies to watch in 2021. This article will take a deeper dive into the companies' positioning in the edge data centre market and what they have achieved so far in 2021.

Edge data centres by location

Type of edge		Data centre	Location	Number of DCs per 10m population	Latency (average)	Size
On premises edge		Enterprise site	Businesses	NA	2-5 ms	1 rack max.
Network (mobile)	Tower edge	Tower	Nationwide	3000	10 ms	2 racks max.
	Outer edge	Aggregation points	Town	150	30 ms	2-6 racks
	Inner edge	Core	Major city	10	40 ms	10+ racks
Regional edge		Regional	Major city	100	50 ms	100+ racks
Not edge		Hyperscale	State/national	1	60+ ms	5000+ racks

Source: STL Partners

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1. American Tower, United States

www.americantower.com/us/solutions/data-centers/

Edge location: Tower

Leveraging tower locations for edge

American Tower launched its first micro data centre last July in Atlanta, Georgia, leveraging its nationwide tower footprint to capitalise on the edge opportunity. By utilising the ground floor space at the base of its existing tower sites, which are already equipped with connectivity and power, American Tower is able to develop and scale new edge data centres quickly to meet market demand. Among the 42,000+ sites in American tower's US portfolio, those located closest to highly populated areas are best suited for micro data centres, as demand for localised compute is relatively high and real estate in cities is expensive. American Tower has identified and deployed edge data centres at six of these "last mile" sites so far.

In recent news

American Tower announced its sixth edge colocation facility in Pittsburgh in March 2021. The second-largest city in Pennsylvania, Pittsburgh is home to many manufacturing and healthcare companies as well as an emerging artificial intelligence (AI) and robotics industry, where the increasing use of Internet of Things (IoT) could benefit from the network elasticity and low latency that edge data centres provide.

2. DartPoints, United States

www.dartpoints.com/

Edge location: Regional; Network – tower, outer edge, inner edge; On premises

Driving local interconnection at the edge

DartPoints is a carrier-neutral data centre owner and operator, specialised in bringing colocation and interconnection to edge markets in the US. DartPoints' modular data centre designs can fit into any form of real estate, whether it be on premises in office buildings, at a greenfield site or a specifically designed Edge Meet-Me Room (MMR) in existing data centre locations. As well as edge interconnection data centres, DartPoints has partnered with DE-CIX to deliver locally deployed Internet Exchanges (IXs). These Edge IXs allow DartPoints' customers to interconnect directly through local peering with its core content and application providers both regionally and globally.

In recent news

DarPoints has announced its acquisition of Immedion in March 2021, a cloud, colocation and managed services provider with a data centre presence in seven markets throughout the US. The Immedion acquisition expands DartPoints' reach into tier 2 and tier 3 markets, where DartPoint's local IX and edge data centre deployments will facilitate interconnection at the edge.

3. Digital Realty, United States

www.digitalrealty.com/

Edge location: Regional

Reshaping global interconnectivity around centres of data

Digital Realty is seeking to change the game in enterprise colocation and interconnection. Digital Realty's industry manifesto, "Enabling Connected Data Communities", lays out a vision to tackle traditionally centralised

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interconnection models and build affordable, alternative data paths around major cities worldwide. It argues that data gravity requires a more distributed interconnection landscape where data centre geography is better aligned with data centricity.

With its Platform DIGITAL roadmap, Digital Realty plans to integrate interconnection platforms with multiple industry partners and build an open "fabric of fabrics" to localise traffic flows at centres of data.

In recent news

Following the announcement in June 2020 of a joint core-to-edge solution between PlatformDIGITAL and Kinetic Edge to enable "killer apps" for edge, Digital Realty and Vapor IO are now supporting Hivelocity, a global bare metal cloud services provider, to run multi-tier core-to-edge workloads on its bare metal edge cloud in the US. Their joint solution combines the core, regional edge, and interconnection capabilities of PlatformDIGITAL with the low-latency, distributed architecture of the Kinetic Edge network to deliver a seamless core-to-edge platform that serves as a basis for many emerging edge use cases.

4. Edge Centres, Australia

www.edgecentres.com/

Edge location: Regional

Off-grid, solar-powered edge data centres

In March 2021, Edge Centres deployed EC1 in Grafton, Australia, an industry-first, grid-independent edge data centre that is powered only by solar and lithium-ion batteries. An "inverse" of traditional data centres, Edge Centres run on a 1 MW solar array and 48 hours of battery storage, as well as a redundant mains. There are several key benefits for using solar energy to power edge data centres, according to Edge Centres:

- Quicker rollout: Solar power offers a quick-start solution, as opposed to the typical six-month period to energisation for traditional data centres;
- Cost efficiency: The low cost of solar generation, locating at the edge where land is cheaper, and remotely running a virtually autonomous data centre translates into lower data costs for customers;
- Reliability and uptime: Edge Centres use a dual solar feed and multiple inverters on a single phase, which provides greater redundancy than power sourced from a traditional utility. Excess energy can be stored in the lithium-ion batteries.

In recent news

Edge Centres is set to open 3 more edge data centres in southeast Australia by the end of this year, with each location connecting directly to points of interconnection (POIs) on Australia's National Broadband Network. Powering edge data centres with solar energy could potentially bring in new players into the edge ecosystem, such as regional solar farm operators, who can provision power for small edge data centres and diversify their sources of revenue. It has also been announced in May 2021 that Edge Centres will be partnering with US towerco Everest Infrastructure Partners to add wireless macro towers to its upcoming edge data centre deployments, supporting the delivery of new services such as 5G, IoT and O-RAN to these locations.

5. EdgeConneX, United States

www.edgeconnex.com/data-centers/

Edge location: Regional; Network – tower, outer edge, inner edge; On premises

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Global hyperscale and hyperlocal data centre provider

EdgeConneX has a global data centre presence, spanning over 30 markets in Europe and the Americas. Founded in 2009, EdgeConneX offers data centre solutions at multiple scales, ranging from 40kW to over 100MW, which covers micro data centres in the "far edge" as well as hyperscale data centres. EdgeConneX was acquired by EQT Infrastructure in August 2020.

In recent news

EdgeConneX will soon be extending its data centre footprint into India through a joint venture with Adani Group, named AdaniConneX. Adani Group is a multi-infrastructure organisation that has been investing into utility-scale, grid-connected solar and wind projects through Adani Green Energy Limited, its renewable energy arm. AdaniConneX will therefore leverage Adani's expertise in renewable power and large infrastructure projects to build out 1GW of carbon-neutral data centre capacity across India over the next decade, which will include both hyperscale and edge data centres.

6. EdgeMicro, United States

www.edgemicro.com

Edge location: Regional; Network – tower, outer edge, inner edge; On premises

Rapid data centre deployment at custom locations

EdgeMicro's Edge Anywhere offering delivers custom, build-to-suit micro data centres at flexible locations, whether it be a prequalified EdgeMicro site, a customer-targeted location or an existing bricks-and-mortar data centre. EdgeMicro's expertise in rapid, modular deployment means that new ground-up turnkey sites can be rolled out in as little as 16 weeks, while delivery of modular units will only take eight weeks. Edge Anywhere delivers 64 kW and 128 kW platforms that can be scaled up to 1 MW depending on customer capacity requirements.

EdgeMicro's data centre facilities are unmanned and remotely operated using a third-party software platform, ;Radix IoT, along with a centralised ticketing system run by EdgeMicro NOC. EdgeMicro also partners with contractors such as Murphy Company to provide remote hands and maintenance services within a two to four-hour window.

In recent news

In June 2021, EdgeMicro announced an alliance with Laser Light Communications to converge their complementary products and capabilities relating to 5G, IoT, and other emerging technologies. Laser Light is in the process of building HALO™, a global, all-optical communications network. HALO's on-demand service, "Beyond the Network Edge", makes high-volume data distribution possible in remote areas that are previously served only by RF-based satellites, such as oil rigs, disaster relief sites, or military contingency operations.

7. EdgePresence, United States

www.edgepresence.com/edge-presence-micro-data-centers/

Edge location: Tower, on premises

Expanding their edge presence through towerco partnerships

EdgePresence deploys fully-integrated, low-cost (about $1M each vs. $80M for a "traditional" data centre) micro data centres for edge computing, designed to include critical power, monitoring, physical security and cooling.

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EdgePresence is an owner- operator of edge computing points-of-presence (PoPs) located within 12 miles from the end-user, meaning that it not only deploys edge data centres on premises, such as office buildings and retailers, but also at the base of cell towers. EdgePresence has partnered with communications infrastructure providers to deploy edge data centres at their tower locations, taking advantage of the pre-established power, fibre connectivity and security to deploy quickly in tier 2 and tier 3 markets. Some of its land lease partners include SBA Communications, Vertical Bridge and American Tower (Colo Atl).

In recent news

Having secured a US$30M strategic investment from DataBank in Nov 2020, the company will continue to expand its edge footprint and expects to deploy at least a dozen micro data centres in 2021. AlefEdge has also recently partnered with EdgePresence to rollout its Software-Defined Mobile Edge (SD-ME) platform at EdgePresence locations across the US. EdgePresence's edge data centres will support enterprise customers and developers in building and consuming high-bandwidth, low-latency applications on AlefEdge's SD-ME platform.

8. Leading Edge Data Centres, Australia

www.leadingedgedc.com

Edge location: Regional

Connecting regional Australia at the edge

Leading Edge Data Centres (LEDC) aims to provide edge colocation and interconnection services to underserved locations outside of the large cities in Australia. While low earth orbit satellite providers are beginning to offer high-speed broadband internet to some Australian cities, LEDC is building the first Tier 3 edge data centres across regional Australia, broadening access to a low latency and cost effective network .

LEDC expects to have a presence in eight locations throughout New South Wales by the end of 2021, with plans to expand into Victoria and Queensland. To mitigate the environmental impact of their digital hubs, LEDC have committed to initially power their data centres by 50% renewable sources, and eventually 100% renewable sources, such as solar energy.

In recent news

In January 2021, LEDC partnered with Network as a Service (NaaS) provider Megaport to enable direct connectivity from its Newcastle data centre to public cloud providers, such as Microsoft, AWS and Google Cloud, through Megaport's marketplace. The collaboration simplifies multi-cloud connectivity for customers to an on-demand, pay-per-use model with access to global cloud on-ramps. LEDC has also obtained an AUD$20 million investment from Washington H Soul Pattinson to build over 20 edge data centres over the next three years.

9. Proximity Data Centres, UK

www.proximitydatacentres.com

Edge location: Regional

Regional edge data centres set to cover 95% of the UK population

Proximity Data Centres operates six edge data centres in major conurbation areas across the UK, such as Nottingham, Liverpool and Coventry. Proximity is rapidly growing and plans to acquire 14 further sites over the next 18 months to achieve 95% UK-wide coverage. Each of Proximity's edge data centres uses grid electricity from 100% renewable sources and incorporates renewable energy solutions such as battery storage, solar and wind power.

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Proximity uses a straightforward contracting model, requiring customers to sign just one trading contract and a single set of SLAs to cover multiple sites across the UK. They market their services to a wide range of edge use cases: content delivery for gaming and video streaming, data security for financial services, hybrid cloud solutions for industrial sectors, and cloud storage for regional governments.

In recent news

Proximity has announced a strategic partnership with ITS Technology Group, a UK wholesale fibre provider in April 2021. ITS has a joint venture with the Liverpool City Region (LCRCA) and construction partner NGE to deliver a 212km dark fibre network in Liverpool, where Proximity has recently opened its fifth edge data centre.

10. Switch, United States

www.switch.com/edge-data-centers

Edge location: Regional (Switch PRIME); on premises (Switch EDGE)

Air-transportable, enterprise-class edge pods

Switch is building out an edge data centre network to target enterprise customers in the US, supporting their latency-sensitive applications with Switch MOD 15 (Modular Optimised Design), a modular data centre that is 15 by 15 feet wide and fully air-transportable.

Switch has over two decades of experience in delivering exascale data centre infrastructure. Switch introduced its own Tier 5 Platinum data centre standard in 2017, which surpasses the highest Tier 4 Gold benchmark offered by the Uptime Institute. It promises to deliver edge data centres that are not only fault-tolerable, but "fault sustainable", with 100% power and cooling uptime.

In recent news

Switch is partnering with Dell Technologies and FedEx to "deliver exascale multi-cloud capabilities to the edge". The initiative will see on-premises edge pods (Switch EDGE, MOD 15) being built at FedEx's operational locations – the first being in Memphis, Tennessee. The edge pods will be interconnected with Switch's four regional data centre campuses (Switch PRIME, MOD 250), which contain Dell Technologies' cloud infrastructure. FedEx will serve as the anchor tenant at these deployments, which moves the data processing of its logistics network to the edge to support the automation and digital innovation required to fulfil over 16 million packages a day.

11. Vapor IO, US

www.vapor.io/36-kinetic-edge-cities-by-2021

Edge location: Regional, Tower

Building resilience at city scale with edge availability zones

Vapor IO's Kinetic Edge is an edge colocation model that uses both wired and wireless connections to create a reliable, low-latency network across major metropolitan areas in the US. Rather than having a single site to cover each of their markets, Vapor IO spreads downtime risk across multiple tower-connected sites that behave as "availability zones". Each site is SDN-based and interconnected with at least two adjacent Kinetic Edge and third-party locations to form a single virtual city-scale data centre, so that workloads can be moved dynamically in real time between edge sites as network conditions change. The power supply for each site can also be diversified, further protecting against electrical outages.

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Vapor IO Has an aggressive rollout plan to expand their nationwide footprint, having secured US$90M in Series C funding to deliver sites in 16 further markets by the end of 2021, increasing their coverage to 36 cities. This will extend the reach of Vapor IO's Kinetic Edge platform to over 70% of the US population.

In recent news

VaporIO announced the Open Grid Alliance (OGA) in April 2021, which counts VMware, Dell, DriveNets, MobiledgeX and PacketFabric among its founding members. The OGA aims to evolve the hub-and-spoke design of the Internet to become more edge-focused by increasing direct connections to the Internet and interconnections between edge facilities and reducing inefficient network routes that channel data through centralised data centres. The OGA will promote interoperable technologies and open architectures that support on-demand distribution of workloads across a global connectivity grid, enabling applications like autonomous cars, machine-to-machine communication, and immersive stadium experiences. To find out more, read The Open Grid Manifesto here.

12. Vertiv, United States

www.vertiv.com/en-emea/solutions/edge-data-centers

Edge location: Network – tower, outer edge, inner edge (SmartMod); on premises (VRC-S)

Pre-integrated, plug-and-play edge data centres

Vertiv simplifies edge deployments with SmartMod, a prefabricated modular (PFM) data centre design that can be quickly assembled on site. Using standardised building blocks that are pre-validated by engineers, Vertiv's data centre solutions are tailored to customer applications while offering the benefits of a streamlined, factory-controlled process.

PFM data centres are built in a factory-controlled environment, and fully integrated with mechanical and electrical subsystems that encompass Vertiv's wider capabilities in thermal, power, IT and infrastructure management. The data centre modules are then shipped and connected on site to create a contiguous space, just like a traditional data centre. PFM data centres are designed to be scalable, meaning that additional modules can be deployed by the customer over time, depending on future needs.

In recent news

Vertiv introduced VRC-S in May 2021, a pre-integrated micro data centre solution that is designed to support edge computing applications in the EMEA region. Similar to SmartMod, the VRC-S comes in an efficient plug-and-play format, which is factory-assembled and pre-integrated with rack PDU, UPS, cooling and monitoring systems. While SmartMod can be deployed as a stand-alone, outdoor facility, the VRC-S micro data centre has the footprint of a standard IT rack, which is ideal for edge deployments within retail stores, clinics, and light industrial environments.

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