



INNOVATION

Bridging the digital divide

Leading Edge Data Centres – Regional Australia

Prefabricated, certified edge data centre network, with remote access, brings faster and more reliable connectivity to regional Australia.



EcoStruxure™ IT Expert is part of the Edge Control portfolio of Schneider Electric's IoT-enabled architecture, EcoStruxure IT.

Better connectivity for regional Australia

Founded in 2018 with a mission to bridge the digital divide in regional Australia, Leading Edge Data Centres provides businesses and communities with greater access to stable, reliable, and cost-effective connectivity. It aims to do this through a ground-breaking initiative involving a network of lights-out, highly automated data centres.

"For years, regional Australian cities have put up with unreliable and costly internet connections, compared to their metropolitan counterparts," says Leading Edge Data Centres CEO and Founder, Chris Thorpe. "People had no alternative, but we're changing that."

Leading Edge Data Centres's potential customers have previously suffered through connectivity outages costing them up to \$160,000 a year, according to an [ITWire report](#). Leading Edge Data Centres is committed to an uptime promise which can save its customers up to 80% of that cost.

To succeed in its quest to deploy this network of more than 25 data centres, Leading Edge Data Centres realized that it would have to do things differently. The company needed a technology partner that could design and build a reliable prefabricated and certified edge data centre, which could be replicated quickly in multiple regional sites around Australia. The team was also looking for a company that could provide a network of engineers to support these sites into the future.

Looking for a sustainable, agile solution to evolve its needs, Leading Edge Data Centres approached Schneider Electric to design, build, commission, maintain and support its edge data centres. A world leader in sustainability, Schneider Electric was a good fit for Leading Edge Data Centres, which wanted the prefabricated data centres to be built in Australia and built to last.

Meeting a new need

Catering to regionally located customers, Leading Edge Data Centres began planning for its data centre network in 2018. In 2020, with a global pandemic underway, remote working became a necessity and the digital disparity became more obvious. It was this circumstance that pushed Leading Edge Data Centres to further kick-start the facility production and rollout.

"We are pioneering an edge data centre network in Australia," Thorpe says. "We are literally creating a market which does not currently exist."

Goal

Build and manage a network of reliable, cost-effective, remotely accessible prefabricated edge data centres.

Story

Leading Edge Data Centres wanted to bring stable, reliable, cost-effective connectivity to regional Australia. Schneider Electric provided the connected solutions for Leading Edge Data Centres to realize its goal.

Solution

Australian-built, designed, and tested prefabricated data centres featuring:

- EcoStruxure IT Expert
- EcoStruxure Asset Advisor
- InRow™ DX cooling units
- EcoAisle containment system
- LV switchboards and breakers
- Canalis™ 2N Busway System
- Galaxy™ UPS
- APC NetShelter™ SX Racks
- APC™ metered Power Distribution Units
- Solar inverter
- Ongoing service and support from Schneider Electric Digital Service engineers

Results

- Improved connectivity and reliability for Leading Edge Data Centres customers
- Cost-effective network rollout of prefabricated certified edge data centres

A huge challenge for Leading Edge Data Centres is that the distance between its sites makes cost-effective, in-person monitoring almost impossible. Furthermore, most of its sites are greenfield locations, and as a result, power infrastructure is limited. For these reasons, it needed a reliable solution, backup redundancies, and remote access. Leading Edge Data Centres also required an energy monitoring system to accurately track and report in real time the usage of hundreds of customers.

To date, Leading Edge Data Centres have achieved the ability to provision 100% renewable energy for all their customers. This has also entailed the implementation of a 'solar shield' which enhances the data centre's power efficiency and protects the building from extreme weather, and an on-site solar system to help support their customer's energy demands.

Prefabrication benefits rollout

To ensure rapid deployment and ultra-reliable operation, Leading Edge Data Centres chooses to utilize Schneider Electric prefabricated data centre infrastructure. The data centres are designed, built, and tested in Australia before they are shipped to site. This removes many of the traditional construction complications and ensures each new Leading Edge Data Centres facility is designed with the same quality, durability, and reliability as the last.

As well as reliability, Leading Edge Data Centres required a solution that was efficient and robust. With this in mind, Schneider Electric and Leading Edge Data Centres designed a series of edge data centres, each of a size most effective for the community they service. At the Newcastle Edge Data Centre in New South Wales, the solution includes 20 InRow DX cooling units with EcoAisle containment to keep energy usage to a minimum. The EcoAisle solution utilizes Active Flow Control to maximize the cooling systems' efficiency by balancing airflow and eliminating pressure differences inside the aisle.

Schneider Electric 2N switchboards with LV breakers bring safe, reliable power to the data centre, with energy monitoring on each circuit. The Schneider Electric



Canalis 2N Busway System allows for distribution of the power, lighting circuits, and IT network cabling, and two Galaxy VX 500 kVA Uninterrupted Power Supplies (UPS) with lithium-ion batteries provide a power backup in the event of an outage. For hosting the server infrastructure, the prefabricated data centres contain 75 APC NetShelter SX racks, complete with rack access control. To accurately charge customers for their usage, 150 metered APC Power Distribution Units allow Leading Edge Data Centres to track power usage for individual customers.

Each of these elements has Schneider Electric Digital Services methodology built into it, so each component can be accessed remotely to ensure greater efficiency and allow operators full functionality across systems.

Connecting all these devices is Schneider Electric's EcoStruxure IT Expert software. IT Expert provides proactive insights on critical assets that impact the health and availability of an IT environment. The software can then deliver actionable real-time recommendations to optimize infrastructure performance and mitigate risk. With customizable dashboards, remote device management, and device health and security vulnerability assessments, the software provides Leading Edge Data Centres with site-wide visibility.

Power for the data centres is sourced from a combination of the on-site solar system and the utility grid. Each data centre has

"We have built Australia's first edge data centre network"

*— Chris Thorpe
CEO and Founder
Leading Edge
Data Centres*

60 kW of solar panels installed on the roof. Providing backup power and redundancy, Leading Edge Data Centres has two 1,000 kVA generators which run for up to 12 hours each at full load.

Schneider Electric's Field Services team commissioned the prefabricated data centres and will manage all the critical infrastructure on current and new Leading Edge Data Centres sites going forward. Utilizing Schneider Electric's EcoStruxure Asset Advisor, technicians can manage the assets as well as monitor them 24/7 and respond to any alerts. Schneider Electric's network of engineers, spread across the country, makes this servicing possible.

Working together

Schneider Electric's Data Centre Delivery team worked closely with the Leading Edge Data Centres Project Team to ensure all project requirements were met. The Leading Edge Data Centres Operations and Marketing teams also worked closely with their Schneider Electric peers to ensure a smooth rollout across the board.

"We know that the infrastructure and technology is the most important part of a data centre, so we wanted to choose the best vendor on the market," Thorpe says.

"We decided to partner with Schneider Electric to build all aspects of our data centre, because Schneider Electric is a global leader in the data centre market.

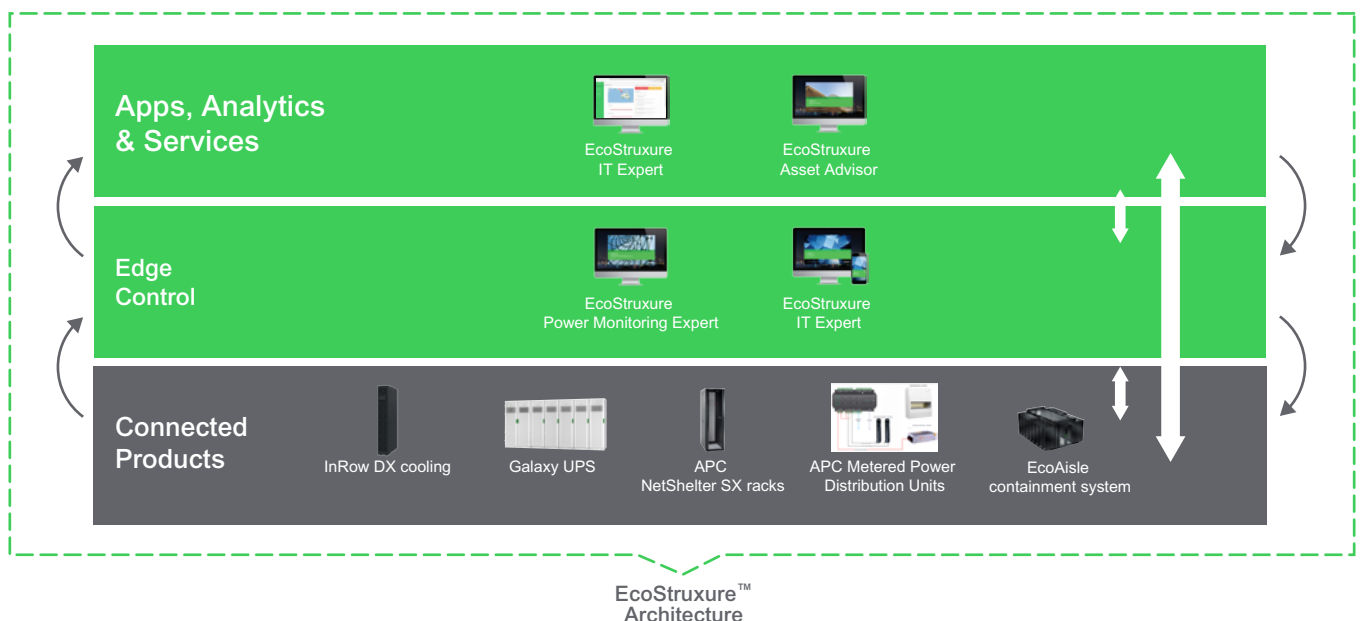
They are committed to industry-leading excellence, sustainability, and global expertise in delivering world-class physical infrastructure, and we knew this would provide us with market credibility."

Leading Edge Data Centres is now able to offer:

- **Accessibility and choice** – by providing greater choice of direct cloud access, customers can enjoy faster connectivity through the network of edge data centres across regional Australia.
- **Stability and reliability** – secure, Tier III certified edge data centres are built to withstand even the toughest of extreme Australian weather conditions, providing redundancy and fault tolerance, as well as power outage protection. The data centre buildings have an expected lifespan of 50 years.
- **Benefits to regional Australia** – measurable benefits to local and national customers including improved connectivity, competitive hosting, and the ability to develop IoT and smart cities across Australia through innovative growth infrastructures.

By design, LEDC Data Centres are built from the ground up with sustainability at the core

EcoStruxure IT





The security to move forward

In April 2021, Leading Edge Data Centres deployed the first of its prefabricated data centres in Newcastle, NSW and continues to scale. To date there are currently 6 data centres live in locations that includes Newcastle, Tamworth, Dubbo, Wagga Wagga, Albury Wodonga and Coffs Harbour. With ambitious growth plans the goal is to expand this list to 26 in the next 3 years.

The Leading Edge Data Centres facility has been designed to operate at an efficient PUE of 1.3. However, it is expected that once the site is optimized it will operate at a PUE of 1.2. This is assisted by the use of a Solar Shield on its roof, which lowers the PUE and adds heat protection for the building and the critical IT components within. It provides an additional 25-year lifecycle warranty (bringing it to 50 overall),

providing peace of mind to customers. Leading Edge Data Centres is also undertaking a Carbon Offset Program to achieve net zero carbon emissions, and is working towards NABERS energy efficiency certification for its company headquarters.

“Some of the most disadvantaged communities are in the most rural areas of regional Australia,” Thorpe says. “They often pay the price for restricted and difficult-to-source connectivity. A considerable aspect of the solution for these customer pain points has been resolved by partnering with Schneider Electric. The company’s extensive worldwide expertise in data centres has been a vital ingredient in our success and gives us the security that we need to move forwards.”

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— Leading Edge
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EcoStruxure™

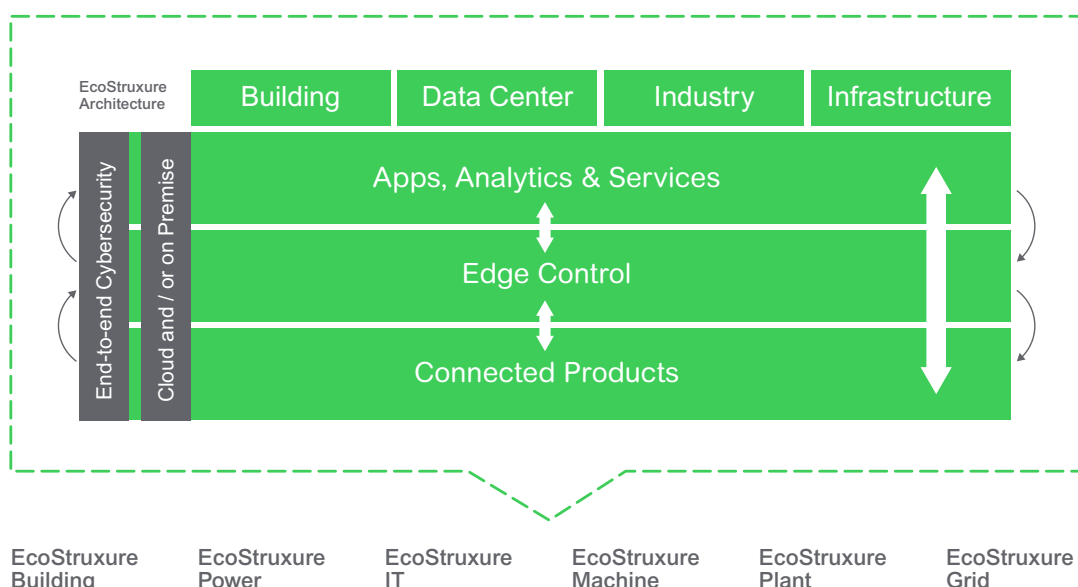
Innovation At Every Level

IoT-enabled solutions that drive operational and energy efficiency

EcoStruxure is our open, interoperable, IoT-enabled system architecture and platform. EcoStruxure delivers enhanced value around safety, reliability, efficiency, sustainability, and connectivity for our customers. EcoStruxure leverages advancements in IoT, mobility, sensing, cloud, analytics, and cybersecurity to deliver Innovation at Every Level.

This includes Connected Products, Edge Control, and Apps, Analytics & Services which are supported by Customer Lifecycle Software. EcoStruxure has been deployed in almost 500,000 sites with the support of 20,000+ developers, 650,000 service providers and partners, 3,000 utilities and connects over 2 million assets under management.

One EcoStruxure architecture, serving 4 End Markets with 6 Domains of Expertise



Connected Products

The Internet of Things starts with the best things. Our IoT-enabled best-in-class connected products include breakers, drives, UPSs, relays, sensors, and more. Devices with embedded intelligence drive better decision-making throughout operations.

Edge Control

Mission-critical scenarios can be unpredictable, so control of devices at the edge of the IoT network is a must. This essential capability provides real-time solutions that enable local control at the edge, protecting safety and uptime.

Apps, Analytics & Services

Interoperability is imperative to supporting the diverse hardware and systems in building, data center, industry, and grid environments. EcoStruxure enables a breadth of agnostic Applications, Analytics, & Services for seamless enterprise integration.

Find out more about EcoStruxure

se.com/ecostruxure

Learn More



The sustainability imperative for data centres



A framework for how to modernize data centre facility infrastructure



Why colocation providers are adopting prefab modular data centres to boost resilience and lower risks



How a flexible, innovative ups improves modular data centre sustainability goals



Five reasons to adopt liquid cooling



A framework for achieving sustainability in data centres

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