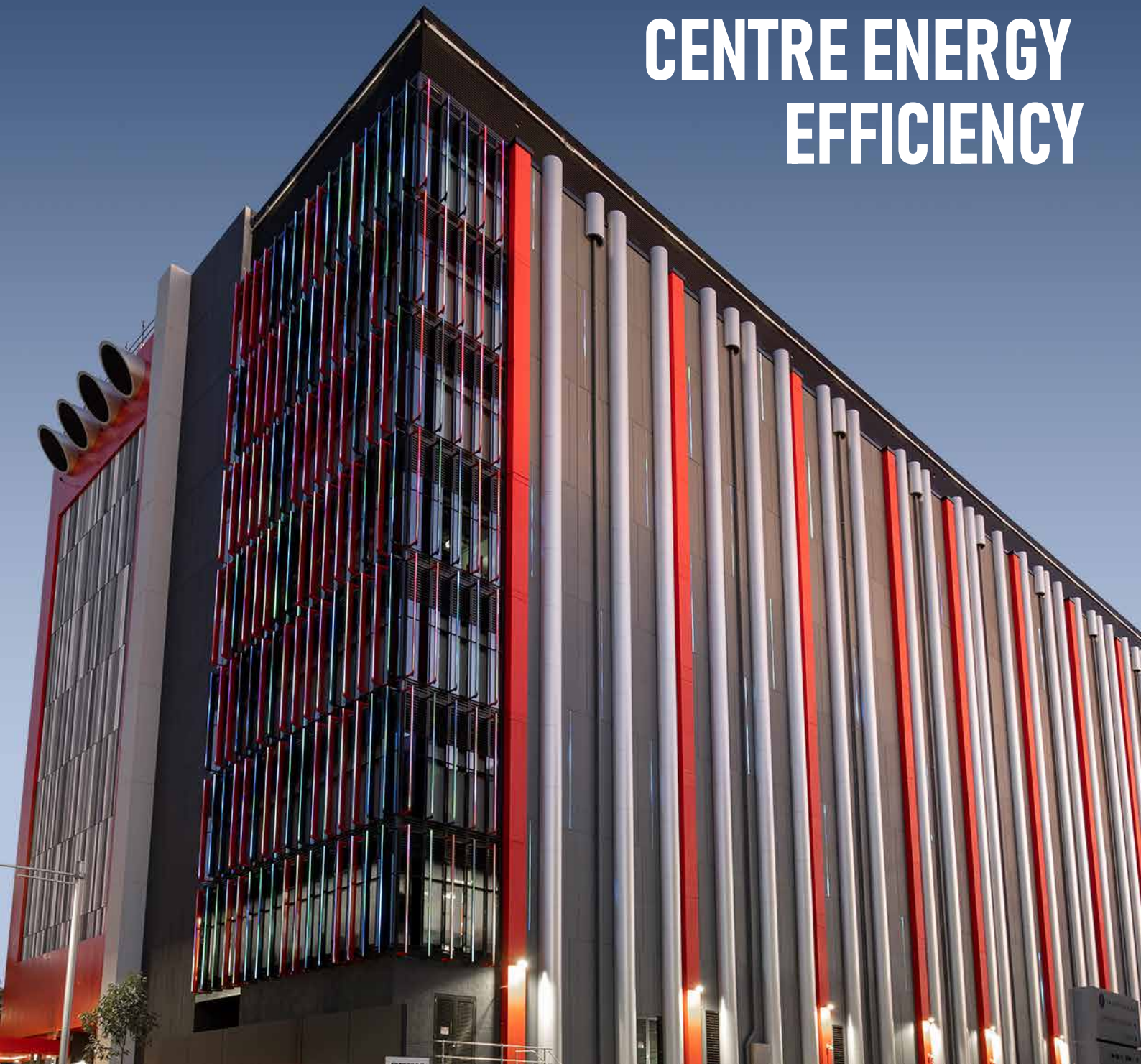


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NEXT DC

HIGH PERFORMANCE COMPUTING SET TO SUPERCHARGE DATA CENTRE ENERGY EFFICIENCY



With most industries now in the midst of accelerated digital transformation, the volume and complexity of data to be managed is one of the top priorities for leaders everywhere. The challenge is clear: how do organisations harness their data to create value and increase competitive advantage, but do it in a sustainable way?

EngineRoom is an Australian data consultancy and specialist high-performance computing (HPC) service provider that has been helping organisations to solve these complex, large-scale data challenges for the past decade. EngineRoom boasts an impressive track record in finding new and optimised use cases for data-intensive applications including artificial intelligence (AI), machine learning, data analytics, quantum computing and image analytics.

Some of the notable outcomes EngineRoom has achieved for its clients include increasing crop yields for Australian primary producers, predicting consumer credit defaults and identifying dark matter and gravitational waves.

More recently, EngineRoom are collaborating with one client in the marine industry to develop an advanced technology to clean ships' hulls, eliminating the need to send in human divers or bring the ship to dry dock. Harnessing machine learning and image analytics, a virtual diving assistant is being trained to complete the cleaning with a high degree of precision by identifying the type of boat and its relative position in the water.

EngineRoom pride themselves in their collective ability to provide high-touch, hands-on and highly personalised support to clients.

“Our priority is delivering customers the right solution for the challenges they’re trying to solve. That means taking data through a pipeline, engineering it with the right software and tools and tuning it for better performance.”

“We specialise not only in providing HPC as a Service (HPCaaS), but also in helping customers to derive meaningful value from their data,”

Jonathan Buchanan, Chief Customer and Commercial Officer, EngineRoom.





DATA CENTRE INNOVATION AND SUSTAINABILITY GOALS

Amidst the current transformative climate, EngineRoom identified the need for rapid and sustainable evolution in the data centre industry.

Realising that the data centre innovations of the next few years will heavily focus on densification of compute in the rack, EngineRoom started exploring densities and different, more sustainable ways of cooling them.

The result of these trials is EngineRoom's HYDRA, a range of liquid immersion cooling solutions that significantly increase the output and energy efficiency of data-intensive compute. Heat generated by the IT hardware is removed by circulating a dielectric fluid into direct contact with the components.

This means more processors can be placed in each server, enabling far more effective and energy efficient cooling. The technology also allows users to remove or disable power hungry server fans, further reducing the overall power draw.

Liquid immersion also improves hardware reliability, reduces facility maintenance costs and has the potential to slash or eliminate water consumption.



THINKING DIFFERENTLY ABOUT COLOCATED SPACE AND SOLUTIONS

Just as the HYDRA technology warranted a different way of thinking, EngineRoom applied the same thinking when it came to a data centre partner they wanted to work with to bring HYDRA to market.

“We engaged with a number of different data centre providers around how they could support us in bringing our vision for HYDRA to life. NEXTDC was a clear choice for us because of our shared values of innovation, thinking outside the box to solve challenges, and being proudly Australian”.

“We weren’t interested in throwing our tanks into any available space. We wanted a strategic partnership with a company who would take full advantage of HYDRA, who would approach our relationship with a flexible and open mindset and think differently about getting the right outcome.”

“NEXTDC was the only provider who really understood that.”

The result is a custom-built space at NEXTDC's S2 Sydney data centre, which came to life in one of the facility's more unconventional spaces - underground.

"We were extremely confident in NEXTDC's engineering capability, which is highly regarded in the Australian market."

"Another consideration for us was selecting a provider with a strong national footprint and brand recognition, which means we are best positioned to scale and grow together. EngineRoom will be able to tap into NEXTDC's well-established Australian identity to build confidence with our own customer base."

A LOWER COST BASE, BETTER PERFORMANCE AND ENERGY EFFICIENCY

When the benefits of HYDRA are fully realised, the solution offers numerous advantages in the form of cost savings, energy efficiency and server performance.

The HYDRA technology can result in a 40-50% lowering of the cost base. EngineRoom is already recording a 30% improvement in the performance of its own servers, with the savings in compute cost and the reduction in carbon emissions being enjoyed by both the company and its customers.

"We need 30% to 50% less data centre capacity than we would running the same workloads in an air environment, which translates directly into capex and opex savings."

"Additionally, NEXTDC is passing on the energy efficiency benefits in our contract, and we're able to pass those benefits back to our own customers.

LOOKING AHEAD TO A SUSTAINABLE FUTURE

The EngineRoom and NEXTDC teams continue to collaborate and explore the full benefits of this exciting new technology, particularly with regards to sustainability.

**"We didn't need a bigger space,
we needed bigger thinking.
EngineRoom and NEXTDC were
standing shoulder-to-shoulder
on this, and the thinking was
as different as it gets."**



The partnership is already exploring different ways to reuse the excess heat, which is difficult to do with air cooling. Some of the options include turning it into energy and using it to provide office space heating, drinkable hot water or other ancillary power.

"Liquid cooling technology represents a sizable shift in both design and operation, but the results are well worth it. Data centres that adopt it will be able to deliver world-leading energy efficiency, regardless of the location and climate."

"The technology also opens up the possibility of rural and regional access to high-performance, low-cost compute."

**"It's been a marvelous
experience of commercial
and contractual flexibility."**

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NEXTDC's premium digital infrastructure platform enables you to grow and scale without limitations, reach new customers, and strengthen business resilience.

Our data centres and custom colocation solutions are engineered to grow in line with the dynamic nature of your business. Enabling greater flexibility, speed and agility through solutions that scale and prevent friction, supported by the country's most network-dense and highly skilled ecosystem of cloud platforms and digital services providers.

To find out how NEXTDC can help you enhance the reliability and efficiency of your digital infrastructure so you can focus on driving growth, capitalise on new opportunities, and create value for your customers, contact us on **13 NEXT** or visit **www.nextdc.com/contact**

