

Case study

Delivering resilient, energy-efficient cooling for a mission-critical telecom data centre



Background

A major telecommunications provider operates mission-critical data halls in Brisbane, Queensland. Ensuring uninterrupted service and precise environmental control is central to its operations. The existing water-cooled CRAC systems were nearing end-of-life, limiting system resilience and energy transparency. The client engaged Vertiv, in partnership with Air Water Power (AWP), to modernise both cooling and electrical infrastructure to meet current and future operational demands.

Challenges

The client faced several critical challenges before the completion of this project. The existing water-cooled CRAC units were reaching end-of-life, limiting system reliability and energy efficiency. Any replacement work had to be carefully staged to maintain continuous operation in both the customer and third-party technical spaces, where downtime could have severe operational impacts. Additionally, integrating modern energy management systems required coordination across mechanical and electrical disciplines to ensure accurate monitoring and reporting. Finally, the facility's electrical infrastructure needed to be strengthened to support the new CRAC units and rooftop condensers, ensuring uninterrupted power and robust redundancy for all mechanical systems.



Industry: Telecommunications.

Region: Queensland, Australia.

Project: Data hall cooling and electrical infrastructure upgrade.

Partner: Air Water Power (AWP).

Vertiv Products & Services Deployed:

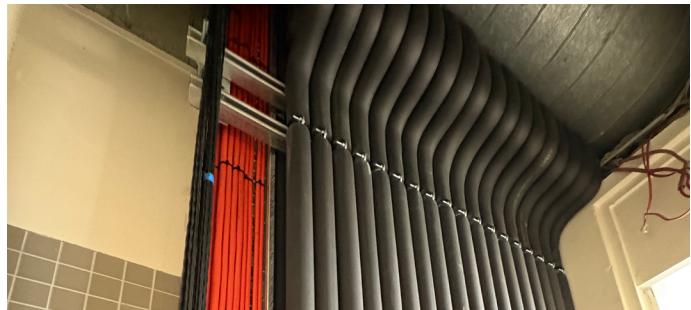
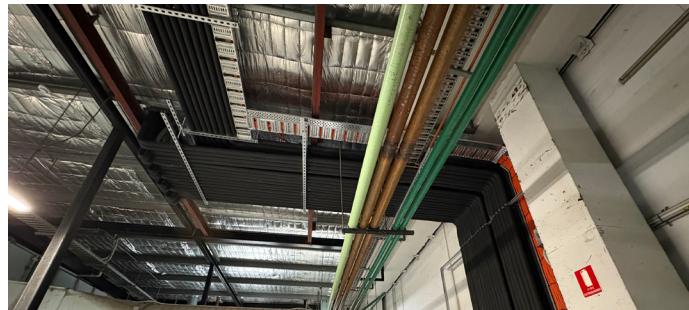
- Vertiv™ Liebert® PEX4 PX1045DA Downflow CRAC Units.
- LSF85-3 and LSF62-3 Rooftop Condensers.
- Main Switchboards (MSSBs).
- Energy Management System (EMS) Panels.



Vertiv™ Liebert® PEX4

Key Solution Elements Included:

- Replacement of end-of-life CRAC units with DX CRAC units.
- Installation of high-efficiency rooftop condensers.
- Lead/lag and standby configuration for continuous uptime.
- EMS integration for real-time energy monitoring.
- Purpose-built electrical distribution to support mechanical plant.



Project Execution

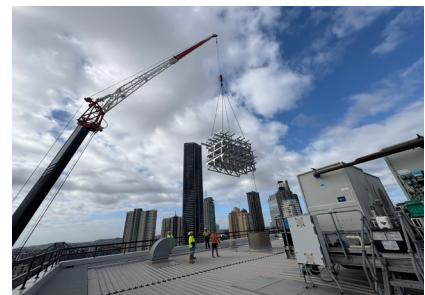
The project involved the staged replacement of 8 existing Vertiv™ Liebert® PEX 135FA-100_M CRAC units with Vertiv™ Liebert® PEX4 PX1045DA downflow CRAC units, supported by LSF85-3 and LSF62-3 rooftop condensers. The replacement required careful sequencing to maintain uptime across all technical spaces.

An additional enhancement to the project was the use of AWP's Environmental Monitoring System (EMS), which provided real-time visibility of temperature and humidity conditions throughout the upgrade. This enabled proactive risk mitigation, ensured stable environmental control, and supported uninterrupted operation during each stage of the works.

Project milestones included:

- Removing end-of-life DX CRAC units from both level 1 technical spaces.
- Installing and commissioning new DX CRAC units with lead/lag rotation and standby capacity.
- Installing rooftop condensers on the level 16 plantroom to support heat rejection.
- Deploying EMS panels for real-time energy monitoring and trend reporting.
- Installing purpose-built MSSBs to provide dedicated and reliable power to the mechanical plant.

The project was executed in close coordination with AWP and the client's electrical contractor to ensure minimal disruption to ongoing operations.



Results and key outcomes

1. Delivering highly resilient, always-on cooling:

The upgraded CRAC units, configured with redundancy and standby capacity, provide reliable cooling even under peak loads or equipment faults. This ensures the client's mission-critical operations continue without thermal risk.



2. Improving energy transparency and operational efficiency:

The new EMS panels enable real-time monitoring of energy use across mechanical systems, providing actionable insights to optimise cooling efficiency and support sustainability and auditing objectives.



3. Establishing future-proof infrastructure:

With upgraded CRAC units, rooftop condensers, and purpose-built MSSBs, the facility now has a modern, scalable infrastructure that can support future IT growth. This enhances site resilience, electrical reliability, and readiness for future digital service expansion.



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