Case Study

How Telehouse will achieve 461 tonnes reduction in CO_2 carbon emissions with EkkoSense

Deploying an initial trial of EkkoSense's data center optimization software results in a potential 10% cooling power reduction at the Telehouse North facility

The **EkkoSense®** Effect

100%
Thermal Compliance

461
Tonnes CO_2 Saved in Phase 1

10%
Cooling Energy Saved

Telehouse is a leading global data center provider who puts sustainability at the heart of its operations.

Data center operators are under pressure to support rising digital workloads while also being asked to deliver carbon savings to help meet corporate net zero targets. However, by pursuing a software-enabled, AI-powered approach to performance optimization, data center teams can gather real-time performance insights to support both increased workloads and secure quantifiable energy savings in terms of carbon reduction.

That's what Telehouse, EkkoSense and CBRE have achieved at the Telehouse North facility. Results include helping to not only optimize cooling and thermal performance, but also to provide real-time operational visibility needed to secure a 461 tonnes reduction in CO_2 carbon emissions as well as a 10% cooling power reduction.

A leading global data center service provider

Telehouse is a leading global data center service provider, bringing together more than 3,000 business partners including carriers, mobile and content providers, enterprises and financial services companies. Established in 1989, Telehouse provides reliable, secure and flexible colocation, enabling organizations to accelerate speed to market and create business opportunities through fast, efficient and secure interconnections. The Telehouse London Docklands campus is Europe's most connected data center campus.

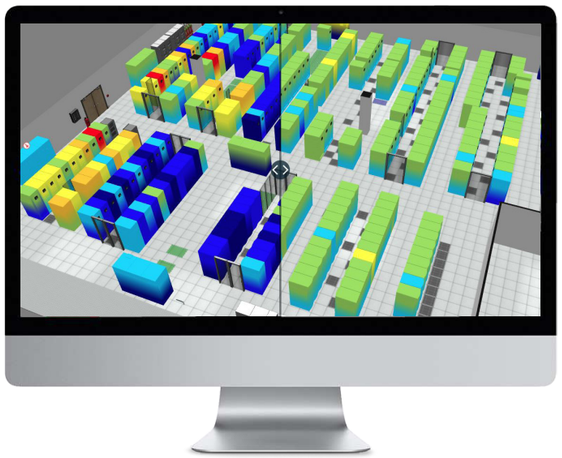
As an environmentally responsible business, Telehouse puts sustainability at the heart of its data centers. The company strives to enable best practice operational performance across its data center estate, concentrating resources where the most significant environmental improvements can be achieved. In addition to taking advantage of 100% renewable energy and complying with ISO standards for Environment and Energy Management, Telehouse already takes full advantage of cloud, virtualization and innovative cooling to contribute towards efficiency. The company recognizes that improving cooling efficiency is one of the most effective ways to optimize performance and secure environmental improvements.

Achieving clear environmental targets

In addition to meeting environmental goals, Telehouse faces the ongoing challenge of ensuring that its data center operations continue to support both its customers' evolving colocation and hosting requirements as well as the company's own business growth objectives.

Telehouse needed an environmental strategy to deliver against both challenges – enabling improved data center performance while at the same time securing carbon reductions. Telehouse engaged its services partner CBRE to identify next steps for its data center performance optimization programme. CBRE advised that Telehouse engage EkkoSense to deploy the EkkoSoft Critical AI-powered monitoring software. Backed by EkkoSense's specialist cooling optimization skills, EkkoSoft Critical was considered an excellent solution to help Telehouse accelerate cooling and airflow optimization across its UK data centers.

The project goal was to secure continuous performance improvements around visibility, efficiency and resilience, with the initial phase at Telehouse North – the company's oldest facility that opened in 1990. Target project outcomes included optimizing cooling performance, removing potential thermal risk, and unlocking quantifiable carbon savings to support Telehouse's carbon reduction goals for 2022 and beyond.



Backed by EkkoSense's specialist cooling optimization skills, EkkoSoft Critical was considered an excellent solution to help Telehouse accelerate cooling and airflow optimization across its UK data centers.

Increasing the level of insightful data available to Telehouse's operations team

The powerful ML and AI-powered EkkoSense optimization software works by monitoring, visualizing and analyzing the performance of data center facilities. It analyzes thousands of temperature and cooling points across the site in real-time to identify where levels of cooling can be tweaked, and dramatically increases the level of insightful data available to the operations team to remove risk and improve resilience.

Sensor deployment across the data halls provided Telehouse with the ability to monitor and identify performance improvements. If the temperature in a section of the data center is outside the normal range, the sensors will flag this. The EkkoSoft Critical 3D visualization and analytics platform continuously provides advice to the Telehouse team about adjusting cooling settings such as fan speed adjustments, cooling set points, floor grille placements etc. – resulting in quantifiable cooling energy savings and a reduction in carbon emissions.

The EkkoSense software includes 3D visualization capabilities, which Telehouse can use to gain a much clearer picture of where overcooling is taking place, the location of hotspots or any other inefficiencies that need optimizing to benefit their customers.

Presenting all this machine learning data in a comprehensive 3D view, makes it much easier to visualize the complex thermal performance of the thousands of racks deployed. With the EkkoSense software now collecting 3,000 data points every five minutes, the millions of data points already collected contribute directly to the effectiveness of machine learning algorithms to support continuous improvement in cooling energy usage and overall energy savings.

Unlocking significant carbon emission reductions for Telehouse

Deploying EkkoSoft Critical at Telehouse North has performed ahead of target and succeeded in improving quantifiable energy savings and carbon emission reductions.

According to Telehouse's Senior Operations Director, Paul Lewis: "It's very difficult to manually inspect every element of a data center to identify inefficiencies and make improvements. EkkoSoft Critical provides us with a highly granular level of data and visualization to help support our green agenda - and ensure our customers meet their sustainability targets. We've already made significant carbon emission reductions from our initial rollout of EkkoSoft Critical at Telehouse North, and we're eager to implement the software around our wider campus to extend these capabilities."

EkkoSoft Critical provides us with a highly granular level of data and visualization to help support our green agenda - and ensure our customers meet their sustainability targets.

EkkoSoft® Critical

Key EkkoSense innovations that distinguish the company's software-based optimization approach from more traditional legacy DCIM approaches include:

- **The application of machine learning analytics built right into the heart of EkkoSoft Critical** – based on PhD-level thermal expertise, data from 50m+ data points in critical facilities around the world, as well as real-time inputs from sensors deployed across an organization's entire estate – from Edge facilities through to the largest enterprise sites
- **Unique Cooling Advisor functionality that provides continuous tangible optimization recommendations to deliver cooling energy savings up to 30%** – your own virtual PhD expert continually optimizing your facility, and always on hand to help in-house data center teams to deliver the next best optimization outcome
- **The application of EkkoSense's distinctive Cooling Zones capability that shows the real-time correlation between cooling units and IT racks to support optimization and provide very effective redundancy and resilience testing** – providing organizations with a much higher degree of confidence in the ongoing resiliency of their cooling plant
- **A Lightweight and easy-to-manage M&E Capacity management capability** – meaning that you no longer need an army of people or huge costs to deliver an effective centralized capacity management process
- **Use of the latest Web technologies** – including gaming interfaces to provide data center teams with the most intuitive, easy-to-use and simplest to manage monitoring and management capabilities. By creating immersive Digital Twin representations of your data center, operations teams get to see all their current cooling, power and thermal conditions via a single, accessible 3D visualization
- **Truly granular levels of sensing** – taking advantage of EkkoSense's latest low-cost IoT wireless sensor technology to allow sensors to be deployed in higher numbers across the data center right down to rack-level – making true machine learning-based analytics and real-time thermal management of critical facilities a reality. This is typically complemented by our EkkoAir vendor-agnostic cooling unit smart meter that provides real-time cooling duty information, highlights unperforming units and helps predict potential failure points before they happen

The result is EkkoSoft Critical - an immersive, intuitive and effective M&E software platform that helps customers such as Telehouse to:

- Become fully ASHRAE-compliant and remove thermal risk
- Identify unused cooling capacity and unlock potential capacity increases
- Directly support their green agenda & reduce carbon footprint in the quest for net zero
- Gain real-time monitoring insights from anywhere with full remote visibility
- Optimize cooling and gain energy savings
- Plan, predict and model M&E capital spending with confidence

Addressing corporate energy saving requirements

On first engagement, EkkoSense identified that a potential 10% saving against cooling load saving was achievable from optimizing data center cooling at Telehouse North. This cooling energy saving will enable Telehouse to achieve an anticipated 461 tonnes reduction in CO2 emissions from its first EkkoSense deployment.

The impressive cooling energy saving at Telehouse North is a key factor in the company's decision to extend EkkoSense optimization to its other London sites.

Fast deployment, quick results and rapid ROI for Telehouse

The combination of EkkoSense's deep optimization skills and EkkoSoft Critical software have succeeded in securing a quantifiable positive energy impact for Telehouse within just 3.5 months from initial deployment.

The success of the trial has proven to form a new chapter in a long line of sustainability wins for Telehouse. The organization powered the world's very first multi-storey adiabatic cooling system in 2016, its North Two data center is certified to the BREEAM excellent standard, and all of its sites are supplied with 100% renewable energy. Rolling out EkkoSense to Telehouse's other London sites will help extend the company's focus and commitment to ongoing sustainability.

Next steps

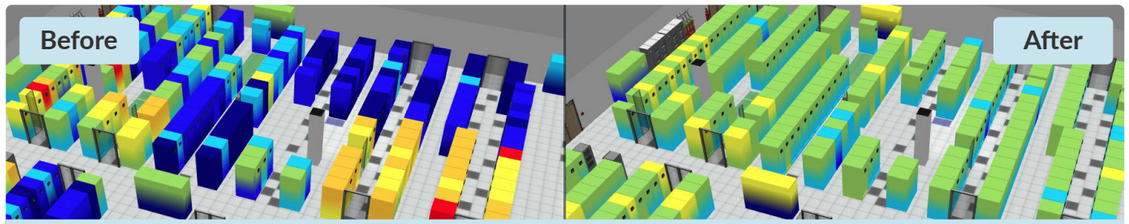
The initial results achieved with Telehouse have proved extremely promising, but this is just the beginning. EkkoSense's technology works to continuously identify further optimization opportunities and push the efficiency of Telehouse's operations that little bit further.

EkkoSoft Critical also proved to be especially valuable for Telehouse at a time of record-breaking temperatures in the UK. During July and August 2022, the software helped Telehouse's data center team to successfully monitor and protect equipment and maintain uptime.

Telehouse also looked for the EkkoSense project to increase visibility and resilience. By massively increasing the number of thermal sensors and providing 3D visualization, Telehouse's operations team now has a real-time 3D view into thermal performance.

This proved of real advantage during the summer heatwave, with the team able to immediately identify potential thermal hotspots before they became an issue. EkkoSoft Critical was also able to highlight areas that were being over-cooled, presenting further opportunities for energy saving and carbon reduction.

From the detailed optimization report, Telehouse has been able to track the energy impact of its Telehouse North facility in great detail, and is now able to monitor energy performance for its customers at a much more granular level. The organization is now exploring how the solution can be used to improve capacity management processes, identify any capacity constraints and better quantify available capacity.



EkkoSense Deliverables

- EkkoSensor wireless sensors
- EkkoAir wireless cooling duty sensors
- EkkoSoft Critical software
- Performance Optimization Managed Service

Benefits Achieved

- Energy savings delivered
- Reduction in carbon emissions
- Removal of thermal risk
- Platform in place for further capacity release

ROI

- 461 tonne reduction in CO2 carbon emissions from phase one deployment
- 10% reduction in cooling power usage

TELEHOUSE www.telehouse.net

Bring the power of EkkoSense AI to your critical facilities

Ekko Sense
+44 (0) 115 678 1234
info@ekkosense.com
www.ekkosense.com

Discover more

Request your free demonstration and experience the future of data center optimization, today.

www.ekkosense.com/demo

Book a demo