



The EkkoSense® Effect

Case Studies





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Securing over £1m data center cooling energy saving for Virgin Media O2

To help deliver against its sustainability and net zero targets, Virgin Media O2 is optimizing the performance of its data center and core network sites with the most advanced, AI-powered optimization software.



Three secures cooling energy savings across four sites of 200 kW against an initial 196 kW projection, representing a 12.5% data center cooling energy saving in just ten weeks

EkkoSense helps Three's data center operations team to deliver against its corporate energy reduction target for legacy facilities.



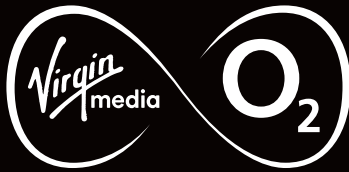
How EkkoSense helped Telehouse to unlock a carbon reduction of almost 750 tonnes of CO₂ emissions across its London Docklands data centers

Deploying EkkoSense AI data center optimization software results in a reduction of 15% cooling energy usage at the Telehouse North facility.



How Africa Data Centres has deployed next-generation DCIM to gain real-time visibility over its data center operations

EkkoSense, Assetspire and TechAccess working together to deploy 3DCIM.



Securing over £1m data center cooling energy saving for Virgin Media O2

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The EkkoSense® Effect

15%

Energy saving across 20 sites

£1M+

Annualized Saving

760 tonnes

Equivalent CO₂ saved per year

This case study sets out how Virgin Media O2's data center team took advantage of EkkoSense's powerful AI-powered data center cooling optimization software to secure cooling energy savings worth in excess of £1 million per year – equivalent to 760 tonnes of carbon dioxide using location-based scope 2 accounting.

Introduction

Virgin Media O2 launched on 1 June 2021, combining the UK's largest and most reliable mobile network with a fully gigabit broadband network.

Its fixed network covers more than half of the country (17.2m homes serviceable) alongside a mobile network that covers 99% of the nation's population.

As the company connects millions of customers every day and is expanding its network to more places across the country, sustainability is at the core of Virgin Media O2's operations so it minimizes its impact on the planet.

As part this, Virgin Media O2 is committed to reducing its energy usage and becoming more energy efficient, and by sourcing renewable energy. It's a key element of its sustainability strategy, the Better Connections Plan, where Virgin Media O2 is also working to achieve net zero carbon emissions across Scopes 1,2 and 3 by the end of 2040.

Innovation at the heart of Virgin Media O2's operations

Innovation sits at the heart of everything that Virgin Media O2 does, and the company is investing billions into its infrastructure expansion and upgrades as it rolls out its next generation 5G mobile and fibre networks. This invariably involves a greater workload demand on the company's network of data centers, and places an increased focus on ensuring that Virgin Media O2 data centers are operating as efficiently as possible. However, delivering increased workload throughput, while also ensuring risk reduction and improved sustainability, is often challenging.

To help address this, Virgin Media O2's Technical Site Engineering and Delivery team works consistently to optimize their data centers' energy performance and help unlock additional energy and efficiency improvements. And with electricity prices rising dramatically over the previous year, it was important to focus on securing data center energy efficiencies that could potentially help to mitigate rising data center energy costs.

"It can be difficult to unlock the kind of performance improvements that we were looking to achieve – handling greater workloads while also securing energy savings - unless you know exactly what's happening in your data center in real-time," explained Adrian Lazenby, Virgin Media O2's Head of Technical Site Engineering and Delivery. "The good news is that all the data is out there, ready to be collected – operations teams just need to capture it."



Unlike traditional, IT-led DCIM-based approaches, EkkoSense offers a distinctive, light-touch AI-enabled software-driven thermal, power and capacity optimization solution. This enables operations teams to optimize data center performance while simultaneously delivering quantifiable sustainability results.

Virgin Media O2 to make the invisible visible with EkkoSense

That's why Virgin Media O2 engaged EkkoSense, the AI-powered data center optimization software specialist, to help its operations teams gain a real-time view of their thermal, power and capacity performance across 20 key Virgin Media O2 UK data center sites. Unlike traditional, IT-led DCIM-based approaches, EkkoSense offers a distinctive, light-touch AI-enabled software-driven thermal, power and capacity optimization solution. This enables operations teams to optimize data center performance while simultaneously delivering quantifiable sustainability results.

The solution brings together an exclusive mix of technology and capabilities. Low-cost Internet of Things (IoT) sensors provide the innovative SaaS platform with valuable data and, using machine learning, provides AI analytics, gaming-class 3D visualization and Digital Twin capabilities. The technology is backed by embedded advisory support including EkkoSense's PhD-level thermal and engineering experts and deep rooted sector expertise.

Unrivalled levels of granular data center sensing provides the core machine learning data that enables true real-time visibility of cooling, power and capacity performance. From a thermal management perspective, it's a lot easier to identify potential cooling issues quickly by using comprehensive 3D digital twin visualizations that allow information to be monitored and interpreted quickly.

According to Adrian: "this lets our team see exactly what's happening in data centers across our business. The 3D visualization particularly helps in terms of highlighting potential anomalies and displaying suggested airflow and cooling improvements."

The deployment of Internet of Things-enabled sensors enables Virgin Media O2's team to see how its sites are performing in real-time. Attaching thermal sensors on all racks and cooling systems allows the capture of more granular and continuous thermal data to feed into the EkkoSense software. Unique EkkoAir Wireless cooling duty sensors also provide real-time tracking of cooling duty loads in kWc for any CRAC/AHU unit.

With the EkkoSense software collecting thousands of data points every five minutes, the millions of data points already collected contribute directly to the effectiveness of machine learning algorithms. "Having access to this volume of real-time insight allows

our operations team to see how Virgin Media O2's data centers are performing from a cooling, power and capacity perspective, while also enabling us to identify further energy optimization opportunities in terms of cooling energy usage and overall savings," added Adrian.

Doing in seconds what would have taken weeks before

Artificial intelligence and machine learning at this level scales up the optimization opportunity for Virgin Media O2, taking all those complex data center datasets and crunching the numbers, doing in seconds what people would have taken weeks before to achieve. Examples of EkkoSense optimization functionality here include:

- Identifying data center hot/cold spots, and rebalancing airflow to match loads before modifying setpoints.
- Identifying free air under-utilization to increase the free air window.
- Identifying the most efficient cooling units.
- Highlighting cooling faults that, in turn, create reliance on inefficient cooling.

"With EkkoSense's EkkoSoft Critical monitoring, visualization and analytics tool in place, Virgin Media O2 now benefits from fully correlated real-time data that's presented in a distinctive, actionable way," explained Adrian.

Unrivalled levels of granular data center sensing provides the core machine learning data that enables true real-time visibility of cooling, power and capacity performance.

Translating data into energy savings for Virgin Media O2

Virgin Media O2 was keen to get the optimization process rolling, and tasked EkkoSense with optimizing the cooling performance of 20 of its UK data centers. “We were particularly keen to secure reductions in our data center cooling energy usage, so set a demanding timeframe for the project,” recalled Adrian.

Installing sensors, deploying the EkkoSoft Critical software and optimizing thermal performance took an average two weeks per Virgin Media O2 data center site. The EkkoSense team optimized the cooling performance of the 20 Virgin Media O2 sites in just six months, helping accelerate the time to savings.

Key benefits for the project to date have included securing an initial cooling energy saving across the 20 sites that’s equivalent to annual savings in excess of £1 million per year. This represents an average 15% saving in data center cooling energy across the target sites. The Virgin Media O2 data center operations team’s energy saving is equivalent to 760 tonnes of carbon dioxide using location-based scope 2 accounting.

At the same time, the project has also resulted in improved performance for Virgin Media O2’s significant investment in free air cooling devices by maximizing free air capacity. Where possible, reducing maximum rack temperatures has also helped to resolve potential thermal risks associated with hot spots – indeed thermal optimization across the 20 sites has increased thermal resilience and improved cooling capacity.

EkkoSense’s EkkoSoft Critical optimization is also unique in that it provides organizations such as Virgin Media O2 with an embedded AI-powered Cooling Advisory tool that not only provides real-time insight and optimization advice, but also helps operations teams to ensure that their data center estate remains fully optimized.

Next steps for Virgin Media O2

Virgin Media O2 can take advantage of the powerful ESG Reporting capabilities now available within the latest EkkoSoft Critical software release. The company’s data center operations team can also access comprehensive global estate dashboard visualization that provide a clear consistent view of Virgin Media O2’s digitised data center estate – offering a consolidated view of capacity, power and thermal performance management across monitored sites.

“The good news for Virgin Media O2 is that EkkoSense continues to add value to its AI-powered 3D visualization and analytics software solution,” said Adrian. “That’s continuing with innovations such as Cooling Anomaly Detection that will help us to identify machinal and electrical equipment performance anomalies before potential failures – and we’re looking forward to further functionality as the software continues its development.”

EkkoSense Deployment

- Deployed across 20 Virgin Media O2 UK data center sites
- Demanding timeframe as Virgin Media O2 keen to secure reductions in cooling energy usage

EkkoSense Deliverables

- EkkoSensor wireless sensors across target Virgin Media O2 sites
- EkkoSoft Critical AI-powered 3D visualization and analytics software
- EkkoAir wireless cooling duty sensors
- Data Centre Performance Optimization Managed Service

Benefits Achieved

- Cooling energy savings secured
- Reduction in carbon emissions
- Removal of thermal risk
- Platform now in place for roll-out to further Virgin Media O2 data center sites

ROI

- EkkoSense cooling optimization delivered in just six months – accelerating time to savings
- Cooling energy annual savings in excess of £1 million per year, equivalent to 760 tonnes of carbon dioxide using location-based scope 2 accounting
- Average 15% saving in data center cooling across target sites





How EkkoSense helped Telehouse to unlock a carbon reduction of almost 750 tonnes of CO₂ emissions across its London Docklands data centers

Deploying EkkoSense AI data center optimization software results in a reduction of 15% cooling energy usage at the Telehouse North facility.



The EkkoSense[®] Effect

100%

Thermal Compliance

750 tonnes

CO₂ Saved

15%

Cooling Energy Saved

Today's data center service providers are under increasing pressure to support rising digital and AI workloads. At the same time they are also tasked with delivering carbon savings to help meet corporate net zero targets.

By pursuing a software-enabled, AI-powered approach to performance optimization, Telehouse, EkkoSense and CBRE have delivered real-time operational visibility to help Telehouse secure a carbon reduction of almost 750 tonnes of CO₂ across its London Docklands data centers.

Leading colocation data center provider

Telehouse is a world-leading secure, resilient and carrier-neutral data center operator and co-location provider with over 45 sites in countries around the world, each strategically placed to offer customers maximum data center connectivity potential.

Owned by KDDI, a Japanese Fortune 500 company and one of the top 10 telecommunications companies in the world, Telehouse has over 3,000 customers worldwide to which it upholds a 99.999% uptime service level agreement. One of Telehouse's key USPs is its unrivalled experience and expertise having first established itself in the industry since 1988.

The Telehouse Europe London Docklands campus is home to Europe's most carrier-dense data center ecosystem, including leading internet exchanges, cloud service providers, ISPs, ASPs and much more. Telehouse North opened in 1990 and was the first purpose-built colocation data center in Europe. Since then, the London Docklands campus has expanded to include Telehouse West, East, North Two and South.



Sustainability at the heart of Telehouse

As an environmentally responsible business, Telehouse puts sustainability at its heart. 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. 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. 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 corporate carbon reduction goals.

CBRE advised that Telehouse deploy the EkkoSoft Critical AI-powered data center optimization solution. Backed by EkkoSense's specialist cooling optimization skills, EkkoSoft Critical was considered a smart solution to help Telehouse accelerate cooling and airflow optimization across its UK data centers.



Working with EkkoSense we have already cumulatively secured almost 750 tonnes of CO₂ savings across the four initial Telehouse sites - contributing directly to our broader corporate sustainability and net zero goals."

Single pane-of-glass operational visibility across Telehouse London estate

The powerful machine learning and AI-powered software works by monitoring, visualizing and analyzing the cooling, capacity and power performance of data center facilities. It analyzes thousands of temperature and cooling points across sites in real-time to identify exactly where levels of cooling can be fine-tuned, and dramatically increases the level of insightful data available to operations team in order to remove thermal risk and improve resilience.

"At Telehouse we constantly strive to ensure best practice data center operations, and we find that the granular insights we get from EkkoSoft Critical helps us to gain a much clearer picture of what's going on from a thermal perspective," explained Paul Lewis, Senior Vice President Technical Service at Telehouse Europe. "With EkkoSoft Critical now deployed across four of our Docklands sites, our operations teams now benefit from true real-time visibility into our cooling and capacity performance – giving them the insight they need to make informed decisions when potential issues arise."

Unrivalled levels of sensing bring new levels of accuracy and granularity to Telehouse's data center operations, with the EkkoSoft Critical 3D visualization and analytics platform continuously providing advice to the operations team about adjusting cooling settings such as fan speed adjustments, cooling set points, and floor grille placements. EkkoSense's 3D digital visualizations allow cooling and thermal performance information to be monitored and interpreted quickly – letting operations teams see exactly what's happening across the Telehouse estate. This AI-driven visualization helps in terms of highlighting potential anomalies and displaying suggested airflow and cooling improvements.

"With EkkoSoft Critical in place across our London Docklands estate we can track any changes in our environment in real-time, helping us to ensure continuous optimization and the constant rightsizing of our cooling," added Paul Lewis. "Critically, the fact that we're optimizing our data center performance also contributes directly to the more efficient use of our data center power."

With EkkoSoft Critical in place across our London Docklands estate we can track any changes in our environment in real-time, helping us to ensure continuous optimization and the constant rightsizing of our cooling.

Unlocking significant carbon emission reductions for Telehouse

Telehouse uses 100% clean and renewable energy across all its operations. The energy is procured from certified renewable source generators such as wind, solar, biomass and hydro and the company holds the Renewable Guarantees of Origin (REGO) certificates and Guarantees of Origin (GoOs).

“We have a robust environmental, social and governance (ESG) strategy and are focused on embedding ESG best practices across our operations,” added Paul Lewis “Having EkkoSoft Critical in place clearly supports our corporate net zero goals and, since first deploying EkkoSoft Critical in Telehouse North where EkkoSense helped us to secure a 15% reduction in cooling energy usage, we have been very successful in identifying further savings and securing quantifiable carbon emission reductions.”

Following deployments in the Telehouse North, West, East and North Two data centers, EkkoSoft Critical’s optimization recommendations have resulted in cooling energy savings and significant carbon emission reductions. “Working with EkkoSense we have already cumulatively secured almost 750 tonnes of CO₂ savings across the four initial Telehouse sites - contributing directly to our broader corporate sustainability and net zero goals,” said Paul. “We’re now extending the EkkoSense deployment to our state-of-the-art Telehouse South building, and look forward to securing further carbon savings as we continue our optimization programme using EkkoSense’s AI-powered data center optimization platform.”

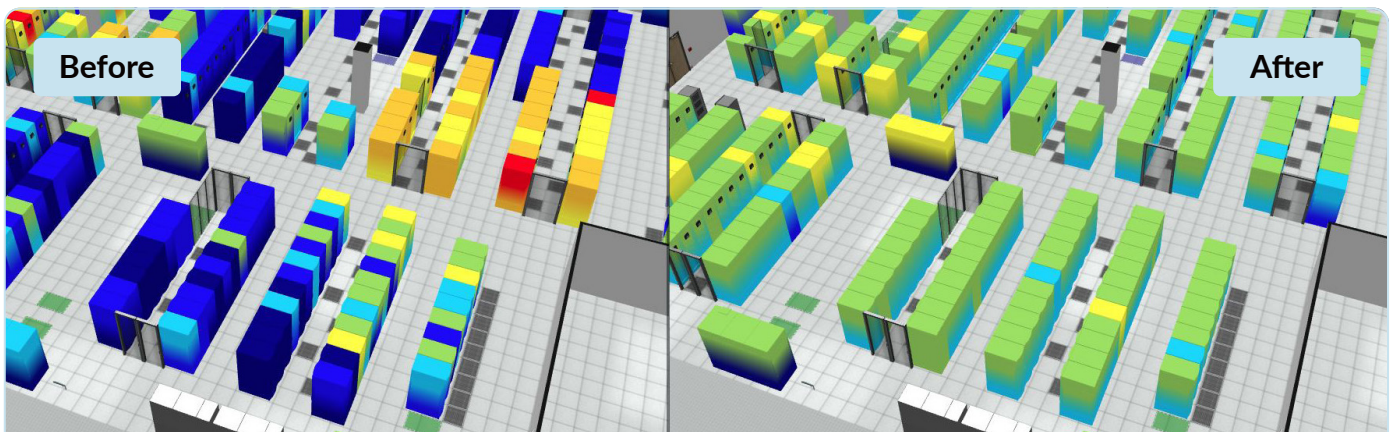
Next steps

Optimizing data center cooling performance and realising quantifiable carbon savings with EkkoSense has been a great result for Telehouse, with continued optimization additionally supporting the company in its ongoing net zero programme.

However, a key benefit for the Telehouse operations team has been how the EkkoSense AI-powered platform not only improves visibility into cooling and capacity performance, but also helps reduce much of the administrative burden for already busy team members.

EkkoSense has continued to update and enhance its EkkoSoft Critical platform, with key innovations including estate-wide thermal and capacity reporting and a powerful embedded ESG reporting capability that automates reporting for the EU’s CSRD and the EC’s EED directives. In addition to PUE, key ISO/IEC 30134 metrics supported include CUE (carbon usage), CER (cooling efficiency), and WUE (water usage) if water usage is being monitored on site.

“Whether it’s the introduction of new consolidated estate views that enable operations teams to navigate quickly from estate to site to floor to room, or automated ESG reporting that will allow us to deliver regular ESG and sustainability reports to thousands of customers, EkkoSense continues to add value to its data center performance optimization proposition,” said Paul Lewis. “And with upcoming features such as Cooling Anomaly Detection allowing us to identify M&E equipment performance anomalies before potential failure, it’s clear that EkkoSoft Critical has become a valuable part of Telehouse’s data center management portfolio.”



EkkoSense Deployment	EkkoSense Deliverables	Benefits Achieved	ROI
<ul style="list-style-type: none"> Deployed across Telehouse North, West, East, North Two, with South soon to start deployment Entire Telehouse London estate, presenting some 7,000 racks across North, West, East and North Two are now supported by EkkoSense under EkkoSoft Critical management 	<ul style="list-style-type: none"> EkkoSensor wireless sensors across Telehouse Docklands site EkkoSoft Critical AI-powered 3D visualization and analytics software EkkoAir wireless cooling duty sensors Data Center Performance Optimisation Managed Service 	<ul style="list-style-type: none"> Energy savings delivered Reduction in carbon emissions Removal of thermal risk Platform in place for further capacity release 	<ul style="list-style-type: none"> c. 750 tonne reduction in CO₂ carbon emissions 15% reduction in cooling energy usage across Telehouse North



Three secures cooling energy savings across four sites of 200 kW against an initial 196 kW projection, representing a 12.5% data center cooling energy saving in just ten weeks

EkkoSense helps Three's data center operations team to deliver against its corporate energy reduction target for legacy facilities.



The EkkoSense® Effect

100%

Thermal Compliance

<12 month

Return on Investment

200kW

Cooling Energy Saved

Three was confident that the distinctive mix of monitoring hardware, 3D real-time visualization software, and artificial intelligence could give the insight needed to secure improvements across key project objectives.

Three UK – the connectivity company that has 9.9 million customers, a network that covers 99% of the UK population, and handles some 28% of the UK's mobile data traffic – is part of the CK Hutchison Holdings Ltd group of companies which has mobile operations in 11 countries. The company employs more than 4,800 people across its offices in Glasgow and Reading, as well as its 297 retail stores.

Setting a carbon reduction strategy to reduce emissions

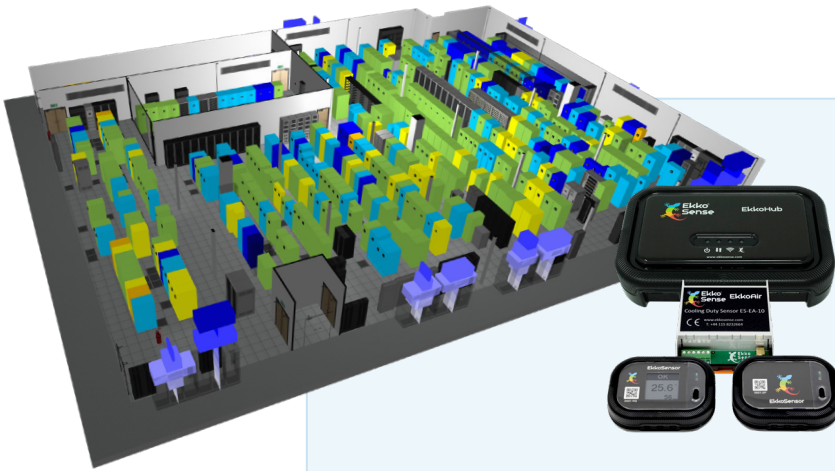
Three is committed to building a better-connected world to enable a more sustainable and inclusive future. This includes taking action on climate change and involves measuring carbon emissions and setting a carbon reduction strategy to reduce them. The company also operates its own sustainability group – the Green Team – operating as an employee forum with champions across all its business areas and locations. Green Team members help to shape green initiatives and establish best practices.

Three recognises that its critical data center facilities are an important part of this initiative, and is consistently working to optimise energy performance and reduce footprint. Three already operates a renewable energy policy across Great Britain, and is now focused on unlocking further ways of optimising its data center performance to help achieve additional energy and efficiency improvements.

Working to mitigate data center energy costs

The last year has seen energy and efficiency improvements come under increased focus for Three, particularly with electricity costs rising dramatically. In order to help mitigate data center energy costs, Three required its data centre operations teams to secure a 5% energy consumption reduction across its legacy data center facilities.

These facilities were all over 20 years' old, and were already part of a programme of business transformation. However, the Three team also needed to make sure that the sites were able to run as cost-efficiently as possible. Before identifying the best way to achieve this target, Three's data center operations team established a number of key objectives for the project. These included working to secure a 5% reduction in energy consumption across the four legacy data centers; helping to mitigate energy prices increases, improving operational insights at a much more granular level in order to help identify and reduce potential operational deficiencies and risks; and also applying any insights gained to help accelerate the sun-setting of its legacy data centers.



Three's data center operations team established a number of key objectives for the project. These included working to secure a 5% reduction in energy consumption across the four legacy data centers.

Optimizing data center performance with EkkoSense



Following discussions with its master partner CBRE, Three identified that improving cooling efficiency was one of the most effective ways to help optimize its data center energy performance and secure environmental improvements. CBRE recommended that Three engage with data center performance optimization specialist EkkoSense, and worked closely with the Three team to enable the deployment of EkkoSense's AI-powered EkkoSoft Critical 3D monitoring, visualization and analytics platform.

According to Three's Data Centre Operations and Service Readiness Manager, Shamim Mohamed: "operating temperature is clearly a key consideration for our data centers to make sure that our IT equipment isn't overheating – but it's also an area where there's the potential for energy wastage if it isn't optimized effectively. Having discussed the issue with the EkkoSense team, we were confident that the company's distinctive mix of monitoring hardware, 3D real-time visualization software, and artificial intelligence could give us the insight we needed to secure improvements across our key project objectives."

"Before beginning the optimization phase, the EkkoSense team conducted a comprehensive physical survey across our four legacy sites," added Shamim. "EkkoSense's Internet of Things-enabled sensors were easy to deploy, and quickly gave us the granular insights we needed to take the project forward. This initial survey suggested that we could initially unlock a combined 196-kW cooling energy saving – equating to an annual energy saving of 1,716,960 kWh."

Moving quickly to secure cooling energy savings

The deployment of EkkoSense's Internet of Things-enabled sensors enables Three's team to see how its legacy data center sites are performing in real-time. Attaching thermal sensors on all racks and cooling systems allows the capture of accurate and continuous thermal data to feed into the EkkoSense software. Unique EkkoAir Wireless cooling duty sensors also provide real-time tracking of cooling duty loads in kWc for any CRAC/AHU unit.

With the EkkoSense real-time optimization software now collecting thousands of data points every five minutes, the depth of temperature and humidity information collected contributes directly to the effectiveness of EkkoSoft Critical's machine learning algorithms. This allows Three's operations team not just to see how their four legacy data centers are performing, but also to identify energy optimization opportunities in terms of cooling energy usage and overall energy savings.

"After EkkoSense's thorough physical survey of our four sites we were confident that our 196-kW cooling energy saving was achievable," said Shamim Mohamed. "We were also looking forward to seeing how EkkoSense's ability to present all its complex machine learning data in a comprehensive 3D view could make it much easier for our operations team to visualize our thermal performance across the legacy data centers."

With EkkoSoft Critical software fully deployed, the optimization project has performed above and beyond the Three data center team's initial goals.



Securing quantifiable cooling efficiency improvements for Three

Three's data center operations team wanted the EkkoSense project to move forward at pace so that potential cooling energy savings could be secured before its electricity costs rose. "We set a 10-week timeframe for the project, and were pleased that EkkoSense was able to deliver the initial optimization phase within six weeks. However, we were also keen to see how we could take advantage of EkkoSoft Critical's optimisation capabilities going forward, with our sites continuing to be monitored and analyzed by the EkkoSense system to identify further energy savings," explained Shamim.

With EkkoSoft Critical software fully deployed, the optimization project has performed above and beyond the Three data center team's initial goals, resulting in the following performance improvements:

- Cooling energy savings across four sites of 200 kW achieved against 196 kW projection, representing a 12.5% data center cooling energy saving in under ten weeks
- The EkkoSense cooling optimization project alone has resulted in Three's data centre operations teams already being able to deliver against its corporate energy reduction target across its legacy data centers. Over 4% savings have already been achieved through the EkkoSense project alone, with additional optimization expected to deliver the full 5% target shortly
- OPEX cost reductions achieved, with target annual energy savings of c.£233,000 achieved based on contracted power rates at the time of initial proposal. This is expected to double as the contracted power rate is more than doubling for the coming year
- Thanks to the speed and light-touch nature of the EkkoSense solution and its rapid deployment within just eight weeks, Three has been able to unlock these benefits while securing an overall project ROI of under 12 months
- Operational risk reduced as all data center racks now performing within ASHRAE's TC9.9 compliance bands

In addition to these benefits, EkkoSoft Critical has proved itself a valuable tool in supporting the Three operations team as it works to accelerate the sun-setting of its legacy data center sites. According to Shamim: "having a much more granular insight into our cooling and thermal performance will give us much greater control over how we manage our four legacy sites over the next few years. The increased visibility that EkkoSoft Critical's 3D visualization and analytics platform provides means we can be much smarter about where any adjustments or investments need to be made."

Moving towards continuous energy efficiency optimization with Cooling Advisor

For Shamim Mohamed it was essential that the EkkoSense optimization project wasn't just a one-off exercise. "The EkkoSense software also features Cooling Advisor - a powerful AI-driven embedded cooling advisory tool that can provide our operations team with clear recommendations into the next best actions we need to undertake to ensure we keep our optimization on track," he explained. "As part of our project with EkkoSense we have committed to training so we can onboard users, and we expect the software also to be valuable for our CBRE partners. We could also train our Finance and ESG colleagues, so they all have full visibility of our energy-saving progress."

Next steps

The Three data center operations team's success in delivering against its 5% corporate energy savings target with this project has also gained significant interest from the broader Three business. The EkkoSense software-based approach to optimization has already been demonstrated to the company's Technology Services team, with the focus on showing how it's possible to secure significant improvements in the energy consumption of legacy environments.

Like their data center colleagues across the industry, operations teams are under continuous pressure to deliver energy savings to help meet corporate efficiency targets. By pursuing a software-enabled, AI-powered approach to performance optimization, data center teams can gather the real-time performance insights they need to ensure optimum performance - while also securing quantifiable energy savings from their operations.

That's what Three, EkkoSense and CBRE have achieved at Three's four UK legacy facilities, helping to not only optimize cooling and thermal performance but also to provide the real-time operational visibility needed to secure further energy savings going forward.

EkkoSense Deliverables

- EkkoSoft Critical AI-enabled SaaS visualization and analytics software
- Cooling Advisor embedded advisory tool
- Performance Optimization Managed Service
- EkkoSensor wireless sensors
- EkkoAir wireless cooling duty sensors

Benefits Achieved

- Rapid thermal optimization of Three's legacy data center sites
- Identified exactly where specific cooling optimization actions were needed
- Helping Three's data center team to uncover areas of thermal risk that weren't being picked up by BMS systems
- Cooling Advisor platform in place to help unlock further cooling capacity

ROI

- Initial cooling energy savings of 200 kW against 196 kW projection
- 12.5% data center cooling energy reduction in under ten weeks
- Helped Three's data center team to meet corporate demand for 5% total energy savings across its legacy sites

Africa

DataCentres

How Africa Data Centres has deployed next-generation DCIM to gain real-time visibility over its data center operations

EkkoSense, Assetspire and TechAccess working together to deploy 3DCIM.



The 3DCIM Effect

assetspire



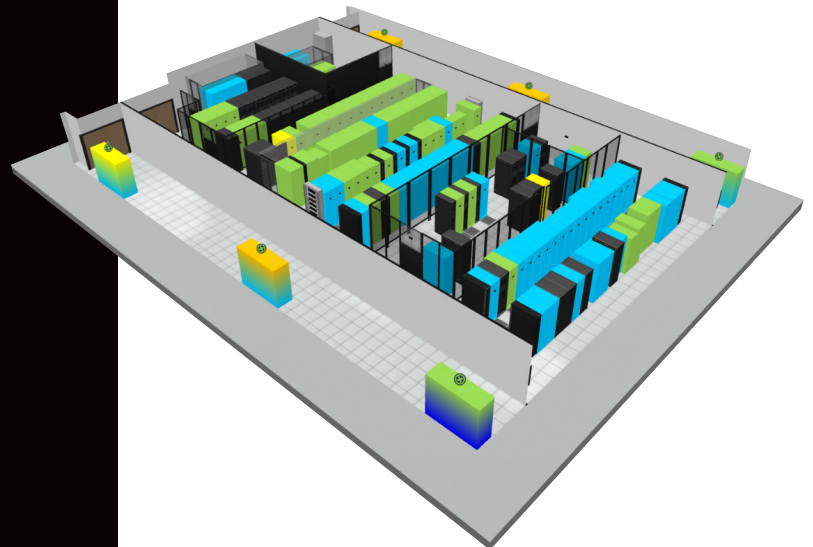
Operating Africa's largest network of interconnected, carrier, and cloud-neutral data center facilities means that Africa Data Centres increasingly compete with many of the world's leading hyperscale players.

To strengthen its operational competitiveness, the company worked with TechAccess, EkkoSense, and Assetspire to deploy 3DCIM – a next-generation Data Center Infrastructure Management (DCIM) solution that equips the company with true real-time visibility over its extended data center operations.

Dr. Angus Hay, Regional Executive for South Africa at Africa Data Centres, indicated that the 3DCIM solution provides comprehensive asset management and granular monitoring of rack space, data, power, and environmental data. Additionally, the solution offers relevant dashboards and reporting, equipping the company with the operational control necessary to compete with hyperscale competitors. He further noted that the solution also equips the team with tools and insights to improve the data center experience for customers.

Africa Data Centres operates Africa's largest network of interconnected, carrier and cloud-neutral data center facilities.

Africa Data Centres is a major hyperscale partner for the pan-African market. With facilities strategically located across South Africa, Kenya, and Nigeria, the business is a trusted partner for the provision of rapid and secure data center services and interconnections across the African continent. Africa Data Centres is part of the pan-African technology leader, Cassava Technologies, which has a presence across 40 countries in Africa, the Middle East, Latin America, and the USA. Through its subsidiaries – Liquid, Liquid C2, Africa Data Centres, Sasai Fintech, and Vaya Technologies – the company drives its vision of a digitally-connected future that leaves no African behind.



Requirement for much greater levels of data center management and control

Dr. Hay explained that as a data center provider, Africa Data Centres is growing rapidly from a small base, but also has to compete head-to-head with global players. He pointed out that for the company to deliver its services efficiently, it is essential to collect and manage the latest information about data center IT and facility assets, resource use, and operational status across its network of sites in Johannesburg, Cape Town, Nairobi, and Lagos.

Dr. Hay further elaborated that the company's goal is to become the infrastructure for the cloud across every market it touches and expressed pride in meeting global ISO standards for security, quality, health & safety, business continuity, and environmental management. However, to secure these certifications, it is imperative to have well-defined and repeatable processes. He acknowledged that they had been doing too much manual work to achieve those processes and needed a different approach, leading them to explore how DCIM could help.

DCIM software is used to measure, monitor, and manage all the IT equipment and supporting infrastructure positioned within data centers

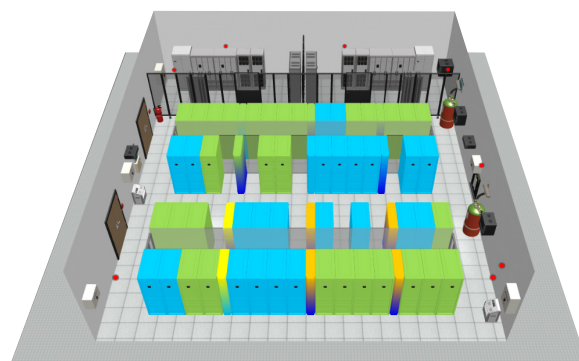
The Africa Data Centres team engaged its solutions integration partner, TechAccess, to investigate a solution. Dr. Hay mentioned that global hyperscalers have large in-house development teams, but Africa Data Centres did not. As a result, they needed a flexible, easy-to-use software solution that could integrate with other systems. When TechAccess recommended the innovative 3DCIM solution from EkkoSense and Assetspire, Africa Data Centres recognized that this approach offered enterprise-class DCIM at a fraction of the cost of traditional and more complex DCIM alternatives.



3DCIM - AI-powered data center optimization and customizable asset control

3DCIM combines two intuitive, best-in-class SaaS-based data center infrastructure optimization and management solutions. Assetspire's highly-configurable SPIRE asset management platform enables the fast and accurate capture of any data center asset, while EkkoSense's award-winning EkkoSoft Critical 3D visualization and analysis software simplifies the process of collecting granular, real-time thermal, power, and capacity information for the operations teams. Both solutions are fully integrated within the 3DCIM solution.

As the solutions integrator for the project, TechAccess was responsible for the software, hardware, integrations, project management, professional services, and other project deliverables that comprise the DCIM platform. Dr. Hay stated that Africa Data Centres chose the 3DCIM approach because it combined two critical benefits: immediate visibility into all the data center assets across the database and real-time information on capacity, power, and cooling.



Dr. Hay also explained that in selecting a DCIM solution, they knew they needed to start with a strong database of assets. This database would provide the central overlay allowing them to manage planning across all environments. They could then build on that with real-time monitoring and live optimization. Africa Data Centres worked with TechAccess to find the best solution for their data centers, requiring a system capable of showing all their equipment and how it functions. 3DCIM was identified as the best option.

assetspire

Assetspire - the essential assets database

Africa Data Centres made it clear from the beginning that there would only ever be one database for asset management. Dr. Hay noted that in many organisations, the Finance team often builds its own asset register, which still looks different from the operations environment. To avoid this, the company worked hard to standardize critical components so that Assetspire could serve as the master source for both financial and operational assets. During deployment, the team thoroughly reviewed and ensured that everything was integrated with financial, maintenance, and task management systems. Dr. Hay mentioned that there were around 5,000 logged assets in the system, from generators to chairs, making Assetspire their essential assets database.



Optimizing data center performance with EkkoSense

EkkoSoft Critical's distinctive 3D visualization and analysis software allows for simpler collection of granular, real-time thermal, power, and capacity data intended for the Africa Data Centres operations team. Dr. Hay explained that, because EkkoSense captures monitoring data in real-time, Africa Data Centres now has much greater data granularity. The team is able to monitor every single rack and every cooling unit, accurately determining the current status of the assets.

Dr. Hay mentioned that they were using machine learning across the environment to monitor conditions such as temperature in an aisle, track measured humidity, and see where the control systems are. Previously, Africa Data Centres had Building Management System (BMS) readings stored in a database, but they had no way of using them. EkkoSoft Critical now allows them to track data center performance across all their sites via digital twin visualizations, optimizing performance with the software's AI analytics. Dr. Hay highlighted that the accessible nature of the solution means they can continuously optimize, whether it involves releasing cooling capacity, identifying thermal or power risks, or cutting cooling energy to unlock carbon savings.

Bringing it together with TechAccess

Africa Data Centres worked closely with its systems integration partner, TechAccess, to initially specify and deploy the 3DCIM solution. TechAccess brought the critical expertise that allowed the DCIM project to be delivered at scale – initially across six data centers in South Africa, Nigeria, and Kenya. The integration partner provided the necessary skills to deploy, implement, and manage the project, while also coordinating with Assetspire and EkkoSense teams.

A key requirement for the project was to choose a cloud-based solution that was highly customizable. Dr. Hay explained that Africa Data Centres had opted against a major commercial, off-the-shelf solution because they wanted to evolve the DCIM deployment to match their specific needs. The DCIM solution was integrated with various systems, including BMS, energy management, task management, and problem management systems. Both the Assetspire and EkkoSense systems proved customizable, and Dr. Hay anticipated further integration as they continue to leverage the full advantages of 3DCIM.

Unlocking key benefits for Africa Data Centres

Following the initial deployment of 3DCIM across Africa Data Centres, the team has identified a number of key benefits, including:

- Raising operations staff productivity levels:** The deployment of 3DCIM has helped Africa Data Centres grow its operations engineering capability. Because 3DCIM is cloud-based and visible across the continent, each site has access to a centralized team and a senior mechanical engineer, effectively creating and optimizing a network of interconnected data centers across Africa. Operations team members can transition from reactive maintenance to a more proactive role, analyzing the Africa Data Centres environment and focusing on optimizing specific performance aspects.
- Identifying cooling energy reduction opportunities:** Identifying cooling energy reduction opportunities: Initial data center optimization has identified early opportunities to reduce data center cooling costs and deliver carbon reduction savings.
- Digital twin accessibility:** Early results suggest that operations staff have been able to interact far more productively with EkkoSoft Critical's digital twin 3D visualizations, eliminating the need for spreadsheet navigation. The process of adding a rack has been simplified, involving selecting, positioning, and configuring the rack within the 3D software, providing immediate visualization of its compatibility.
- Tracking capacity planning in colocation data centres:** Through collaboration with TechAccess, Assetspire, and EkkoSense, Africa Data Centres has significantly enhanced the 3DCIM tool's capacity for managing colocation space allocation, accelerating its ability to compete effectively with larger global competitors.

Next steps

In the first phase of the project, Africa Data Centres has worked with TechAccess, Assetspire and EkkoSense to deploy 3DCIM – a single DCIM cloud-based asset management and data center optimization tool that is now deployed in multiple sites across Africa. In a short space of time, they have leveraged this cloud-based solution to effectively embark on what competitors have taken years to achieve with legacy DCIM tools. The solution gives Africa Data Centres complete visibility of each of their sites in a single view based on a core, centralized platform. “The result is a solution that means any user on the continent, has the ability to log onto the 3DCIM and instantly monitor live conditions.” said Dr. Angus Hay. “For Africa Data Centres this will be a powerful differentiator, and one that we can transition into a compelling 3DCIM-as-a-service offering for our colocation customers, giving them new levels of insight into their multiple colocation deployments.”

3DCIM Deployment

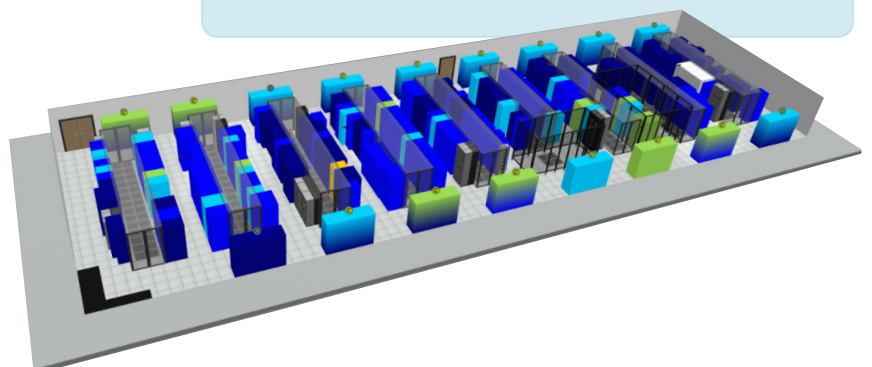
- Deployed across Africa Data Centre sites in Cape Town, Johannesburg, Lagos and Nairobi
- 3DCIM project supported by TechAccess
- EkkoSoft Critical management

3DCIM Deliverables

- EkkoSensor wireless sensors
- EkkoSoft Critical AI-powered 3D visualization and analytics software
- EkkoAir wireless cooling duty sensors
- EkkoSense Data Center Performance Optimisation Managed Service
- Assetspire SPIRE asset management platform

Target Benefits

- Control all your enterprise assets in one place
- Reductions in data center cooling energy costs
- Release stranded cooling capacity
- Quantifiable carbon savings
- Remove thermal and power risk
- Automated ESG Reporting
- Unlock added value benefits for colocation customers
- Complete operational visibility across all data centers





**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 Three 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



Integrating the best M&E platform with the best asset management platform for DCIM done right.

- **Next generation 3DCIM data center optimization and infrastructure management** enables asset management, real-time thermal optimization and M&E capacity management integration in one single, intuitive solution.
- **Reduce cooling energy costs by up to 30%** – with clear recommendations that unlock energy savings and help reduce unnecessary spending on additional cooling systems.
- **Remove thermal and power risk** – ensure 100% ASHRAE thermal compliance, with comprehensive monitoring to prevent minor issues developing into serious outages.
- **Run your data centers much leaner** – manage allocated/reserved capacity, cooling and power enables teams to release previously unavailable stranded capacity.
- **Manage all your enterprise assets** – with the ability to control all your enterprise assets across all asset classes, wherever they are across your organization.
- **Intuitive visual management** – 3DCIM features intuitive visualizations to provide teams with a single real-time overview of all their data center assets and performance.
- **Provide a Digital Twin of your critical environments**, enabling remote management and minimizing site visits with accurate, trusted data.
- **Support for unlimited locations** – per user pricing gives you full cost control, no matter how many locations, how many asset classes, or how many assets you need to control.

Makes enterprise-class DCIM available at a fraction of the cost of traditional, outdated, overpriced and difficult to manage alternatives, with a genuine ROI of less than 12 months.

- **Full Remote Access and Visibility**
3DCIM brings real-time visibility of both data center cooling, power and capacity performance as well as comprehensive asset management, with full remote access via mobile devices for 24x7x365 peace of mind and reduced risk.
- **Enabling new levels of accuracy and granularity**
3DCIM enables new levels of accuracy and granularity, with SPIRE's ease-of-use supporting 100% asset accuracy and EkkoSoft Critical's comprehensive sensing unlocking significantly greater granularity than legacy DCIM approaches.
- **Flexible SaaS architecture with full API integration**
Both EkkoSoft Critical and SPIRE feature a SaaS delivery model, flexible architecture and API integration, ensuring a future-proof platform for 3DCIM integrations.
- **Highly Customizable Asset Control Platform**
Assetspire's SPIRE customizable asset control platform enables the fast and accurate capture of any data center asset, serving as a centralized data management solution across DCIM, CAFM and CMDB environments – all your assets in one place.
- **Facilities Management support**
3DCIM's next generation infrastructure management offering extends beyond data center white space to embrace key CAFM, CMDB, BMS and Mini-BMS environments – with full real-time visualization making 3DCIM a perfect go-to optimization and asset management solution for operations teams.



Bring the power of EkkoSense AI to your critical facilities

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

Watch our video



Book a demo



Used and trusted by the largest global operators.



Part of the



We're recognised as one "of the world's most advanced liquid cooling technology providers"

Ranked in the top 3 for DCIM



Ranked 3rd by Data Centre Magazine for leading providers of DCIM solutions

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