Case Study:
WMCA
New CCTV Data Centre

West Midlands Combined Authority

Background

Commonwealth Games 2022

Over 1 million attendees joined the successful 2022 Commonwealth Games in Birmingham and the West Midlands. Local residents enjoyed the event, while many visitors travelled from various parts of the country and the world. Transport played a crucial role in ensuring the Games' success.

To improve transportation for both the Games and the region's future, West Midlands Combined Authority (WMCA), along with 10 Highways Authorities and National Highways, collaborated on a transport improvement program.

Recognizing the limitations of the existing CCTV data centre, which was vital for traffic management and control, WMCA sought a specialist contractor to relocate and expand their CCTV and ICT data centres. This initiative aimed to support the growth of new CCTV digital infrastructure.

Sustainable Solution

Data Centre Solutions

To align with WMCA's Circular Economy Strategy, a sustainable data centre solution was sought. This approach embraces a regenerative model, restoring and revitalizing infrastructure, energy, and materials while minimising waste. The solution involved deploying advanced cooling and electrical technology for high efficiency, futureproofing with extra capacity, repurposing existing space, and reusing equipment.

The Space

As the re-use of existing assets is a key pillar of WMCA sustainable, economical, and environmental strategy, a room within the WMCA's estate was identified for repurposing as the new data centre space.

Repurposing of a space previously designed for a different application can be problematic, especially when converting into a facility containing sophisticated mechanical, electrical and I.T systems, However, Workspace Technology are experienced space planners and were able to design a data centre space that not only contained the day one requirement of 46 racks and associated power and cooling infrastructure but also had 'future proofing' baked into the design.

Cooling

To align with WMCA's Natural Environment Plan for carbon emission and energy reduction, the deployment of Ultra-Efficient Multi-Denco DMA065 perimeter DX cooling modules was carried out. These modules are coupled with individual external condensers in an N+1 arrangement. The CRAC units employed in this setup incorporate various energyefficient features, including Inverter Driven Compressors, EC Fans, Large Filter Surface Area, and Load Sharing Modes.

Additional Efficiency Measures included:

- Workspace Technology's Dynamic Cooling Control system enables immediate response to changing I.T load by comparing return air with inlet temperatures. This allows the AC units to dynamically adjust settings for more energyefficient cooling.
- A "Cold Aisle" containment system is installed as part of the cooling system to prevent the mixing of hot and cold air streams. This containment system maximizes airflow efficiency.

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Fire Suppression System

An environmentally friendly fire protection system is implemented in the Data Centre, comprising an IG55 Gas Fire Suppression System, a Gas Extraction System, and VESDA for early smoke detection. IG55 was chosen due to its natural composition, resulting in zero ozone depletion and global warming potential.

Technical Equipment

46 x UK Manufactured 42U Server Racks were provided.

92 x UK Manufactured PDU's - Metered, ZeroU, 16A, 230V - 24 IEX C13/C19 Combo Sockets.

Electrical Design

Workspace Technology utilised AMTECH's ProDesign electrical design tool during the pre-construction phase to ensure proper cable sizing, discrimination, breaker ratings, and settings. Schneider Electric Switchgear was employed for both primary and secondary power distribution within the facility.

Uninterruptable Power Supply

Workspace Technology employed a "Distributed" UPS N+1 architecture, incorporating energy-efficient modular UPS technologies such as Riello Multi Power ER and Schneider Electric PX Symmetra.

This approach provided WMCA with key advantages:

- Reduced risk of complete I.T service outage by distributing the UPS load instead of relying on a single UPS.
- Alignment with WMCA's Circular Economy Strategy, as it allowed for the reuse of existing UPS infrastructure, promoting sustainability and cost-effectiveness.

Data Centre Infrastructure Management

Schneider Electric's vendor neutral StruxureWare, Data Centre Expert, provided scalable monitoring throughout the facility including, UPS, PDUs CRAC Units and other critical 3rd party infrastructure services.

Project Success Overview

The project was delivered within schedule and budget, despite global component shortages that affected delivery and sequencing. The successful delivery of the data centre project was made possible by WMCA's clear vision for its functionality and appearance, as well as the strong collaboration between Workspace Technology's and WMCA's project teams.

Mark Corbin, Transport for West Midlands' Director of Network Resilience, part of the West Midlands Combined Authority said; **"Our new Data Centre project is an excellent, tangible example of our strategic ambition to reduce our carbon footprint for the region. In addition, the project allows for further growth of CCTV monitoring and other communications services provided by the Combined Authority. Thank you to the team at Workspace Technology. It was good to work with a West Midlands based company on an important and hugely successful project."**

Interested in finding out more?

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