Nominee: Workspace Technology Ltd

Nomination title: Carbon Neutral Cooled Data Centre for Leicester City Council

- What are your product's/solution's key distinguishing features and/or USP?

Workspace Technology has successfully completed the design and build of the Multi Award Winning Carbon Neutral Cooled Tier 3 Data Centre for Leicester City Council. The 250kW N+1 facility supports 66 equipment racks with a further 66 racks planned for this year.

Awards Won

- Leadership in the Public Sector 2014 - DataCenterDynamics EMEA Awards
- Innovation in the Medium Data Centre 2014 – DataCenterDynamics EMEA Awards
- Best IT/Ecommerce Project 2014 – Public Sector Sustainability Awards

Award Finalist

- Public Sector Project of the Year - Network Computing Awards 2015 (winner announced 19th March)

True Carbon Neutral Cooling – Workspace Technology have engineered a turnkey cooling solution combining Workspace Technology's award winning Freecool® Evaporative Fresh Air Cooling Systems with Photovoltaic Technology. The PV based kWh power contribution, which delivers 35kW of power, exceeds that of the Freecool® kWh power consumption. As a direct result, the Council's data centre facility can truly describe it's cooling as carbon neutral. This is one of the first of its kind and it is hoped that this model will act as the template for future data centre deployments.

Waste Heat Recovery - Workspace Technology's team took every opportunity to further reduce energy consumption by minimising energy loss and by also reusing waste energy (normally in the form of heat) in other areas. The use of free air cooling for the UPS equipment is standard design for many plant rooms today and this was no exception for the councils new data centre, but Workspace Technology took this one step further by using waste heat from

the UPS room to maintain temperature for the battery room during cooler periods thus eliminating the need for mechanical heating. The use of heat recovery will reduce the energy costs associated with maintaining UPS battery temperatures by us much as 80%.

Freecool® Evaporative Cooling – Workspace Technology is an established industry leader in data centre direct fresh air cooling deployments. Freecool® was the technology of choice and the only technology on the market that could fulfil the PUE design requirements of the council. Freecool® Evaporative Free Air Cooling by Workspace Technology delivers innovative low energy cooling for a range of applications including data centre environments.

Freecool® Design Features for Leicester City Council:

- Double Filtration - delivered through a combination of G3 and G4 air intake filtration systems eliminate data centre contamination.

- Atemperation™ - accurately mixes the percentage of hot exit air with cold intake air to produce a stable equipment intake temperature irrespective of external ambient conditions.

- Dynamic Mode Temperature Control - allows cold aisle temperatures of 18°C for the vast majority of the operating period without any compromise in energy efficiency.

- Reduced Fan Power - utilising energy efficient EC fans that use significantly less energy than conventional fan technology.

Exceptional PUE Performance - Workspace Technology was able to deliver Leicester City Council a Sub 1.1 PUE3 data centre facility by installing Freecool® Evaporative Fresh Air Cooling as the primary data centre cooling method. The addition of the 'Cool Wall' module delivers mechanical backup or top up cooling for all modes of system operation.

Cool Wall - As part of the deployment, Workspace Technology implemented the Cool Wall module which consists of a series of high efficiency chilled water coils, positioned within the Freecool® Mixing Box, combined with an external mechanical cooler and buffer tank. The Cool Wall module is designed to deliver the council's data centre with an independent back up cooling circuit and activation is based on a range of configurable environmental conditions including fire, air quality, temperature and humidity.

FlexAisle® Aisle Containment - As part of the managed airflow architecture and to help maximise temperature control and minimise fan energy consumption Workspace Technology deployed FlexAisle® aisle containment system, as part of the data centre solution. A combined cold and hot aisle return plenum (HARP) was deployed for the Council. The complete arrangement was self-supporting allowing the simple installation and removal of equipment racks without the need to dismantle aisle containment systems.

Power and Electrical Infrastructure - Workspace Technology's in house Data Centre Solutions Division designed and installed a complete end to end electrical installation including HV power feeds, transformers, LV Switchgear, critical and mechanical power distribution.

Workspace Technology's deployment of their innovative rack based In-Row Critical Power Distribution Units provided the perfect configuration for overhead power distribution. As with conventional perimeter PDU breakers, these are pre-wired to a terminal field to allow for safe and easy connectivity of distribution cabling.

Power Monitoring Meters were deployed throughout enabling power monitoring through the DCIM energy management software.

Workspace Technology's Power Generation Division relocated and refurbished an existing generator which was formally situated at the old data centre location. Works included installation of a new BS compliant fuel storage and distribution system, and a full engine overhaul.

- What tangible impact has your product/solution had on the market and your customers?

The design and build of this data centre for Leicester City Council has demonstrated the unique ability to combined different energy efficiency technologies to result in a complete carbon neutral cooled data centre. This has resulted in our client and ourselves receiving multiple industry awards for energy efficiency and innovation. The data centre has also been used as a key demonstration site for the public sector resulting in increased funding for Leicester City Council (in the form of government carbon reduction grants) as well as increased business for Workspace Technology from clients that what a replicated solution.

- What are the major differentiators between your product/solution and those of your primary competitors?

The complete turnkey solution provided by Workspace Technology is the first Carbon Neutral Cooled Data Centre in the UK and is the first data centre to combine Photovoltaic Technology with Data Centre Cooling. With the addition of all the other specialist energy efficient technologies installed (Freecool, Flexaisle, PV Panels, DCIM, Cool Wall, Waste Heat Recover, etc.), this is a solution that results in a sub 1.1 PUE level which none of our competitor have or can provide.

Why nominee should win

- Carbon Neutral Cooled Data Centre – the first data centre to combine the use of Evaporative Cooling and Photovoltaic Technology.

- Recovery and Reuse of Waste Heat - increases energy efficiency and minimises energy consumption.

- Modular Data Centre Architecture – allowing growth of the data centre as IT demands increase.

- Industry Leading PUE – sub 1.1 PUE3 which qualified Leicester City Council to receiving future Carbon Reduction Grants.

- Innovative Energy Efficiency Technologies – the combination of all the specialist technologies installed demonstrates the innovation deployed by Workspace Technology for Leicester City to achieve the highest level of energy efficiency possible.