

# The story behind Merlin

## How the rising importance of environmental responsibility inspired the world's most sustainable data centre

The UK Government – both through the adoption of sustainable business practices within its own departments and the introduction of legislation such as the CRC Carbon Efficiency legislation – has embraced sustainability and is driving organisations from the private and public sector to do the same.

For consumers of IT services, sustainability has assumed a position alongside traditional procurement criteria such as cost, business agility and risk management. As legislation becomes wider reaching and the importance of sustainability credentials to winning new business increases, this trend will intensify. IT suppliers, in turn, will increasingly be required to demonstrate their environmental credentials. However, as the notion of environmental responsibility and buying criteria mature, the emphasis will be not only on how suppliers manage their own carbon footprints, but more importantly, on how the products and services they provide can be

deployed to help clients improve their own carbon footprints.

Understanding these evolving requirements and driven by our own desire to operate in a manner that is environmentally responsible, Capgemini is at the forefront of providing sustainable IT services.

Committed to maximising the resource efficiency of our existing facilities, Capgemini has, for some time, been investing heavily in improving the power efficiency of our UK data centres, including:

- Sourcing 100% renewable energy
- Converting AC mains power supply to DC
- Installing energy-efficient lighting and moving to lights-out operation
- Monitoring temperature set points and making adjustments as required to maintain an optimal power-to-processing ratio.



## The new challenge

However, rising demand for IT services, combined with the increasing importance of sustainability, prompted Capgemini to embark on a new challenge – to build a data centre that fulfilled traditional requirements, such as security and cost-effectiveness, while ingraining sustainability principles into the heart of the project from the design stage, all the way through to construction and operation.

The sustainability requirements that formed the core component of the business case for investing in a new data centre were:

- Fresh air cooling and free cooling – energy-efficient computer halls with many energy-reduction features
- LEED building specification
- Re-use of a brownfield site and building
- Modular flexible sized rooms and an expansion area
- Monitor and manage energy consumption at the rack & Power Distribution Unit (PDU) level
- Power Usage Effectiveness (PUE) of 1.2 or lower.

## More than just energy efficiency

Capgemini took a 360-degree view of the efficiency and green imperatives for the new facility, including the desire to select a sustainable, brownfield site, thereby avoiding unnecessary construction activity, and the additional pollution and environmental damage implied by such activity. The Swindon site was selected from a large number of candidates based on a wide range of criteria including:

- Re-use of an existing building
- Provision of renewable power
- Availability of appropriate telecommunications infrastructure
- Climate factors (e.g. wind patterns)
- Proximity to an existing Capgemini data centre (for synchronous replication)
- Natural security, flood safety and other location attributes.

The infrastructure design was strongly influenced by resource efficiency objectives such as the need to minimise water use, optimise energy performance and heat management, and, wherever possible, to make use of reusable, recyclable and renewable materials and resources. For example, no lead acid batteries are used for short-term power within Merlin's UPS (uninterruptible power supply) configuration. By using flywheel UPS

technology, which uses stored kinetic energy, to replace the role of batteries, Capgemini has delivered an innovative solution built on recyclable components.

Given Merlin's sustainability credentials, Capgemini will apply for the data centre to be accredited as a green building by Leadership in Energy and Environmental Design (LEED).

## What does Merlin mean for Capgemini clients?

Merlin represents a decisive leap forward in data centre design and operation principles. Thanks to this breakthrough, Capgemini clients are able to benefit from IT services that are cost efficient, flexible and secure, while at the same time, deriving real carbon footprint benefits.

As sustainability continues to increase in importance, facilities like Merlin and service providers like Capgemini will represent the most attractive option for clients seeking to make their IT operations more sustainable without compromising business objectives.



## About Capgemini and the Collaborative Business Experience™

Capgemini, one of the world's foremost providers of consulting, technology and outsourcing services, enables its clients to transform and perform through technologies. Capgemini provides its clients with insights and capabilities that boost their freedom to achieve superior results through a unique way of working, the Collaborative Business Experience™. The Group relies on its global delivery model called Rightshore®, which aims to get the right balance of the best talent from multiple locations, working as one team to create and deliver the optimum solution for clients. Present in more than

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30 countries, Capgemini reported 2009 global revenues of EUR 8.4 billion and employs 95,000 people worldwide.

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For more information:  
[www.capgemini.com](http://www.capgemini.com)

**Kevin Read**  
kevin.read@capgemini.com  
+44 (0) 870 904 5966