Sustainability as it relates to data and data infrastructure

Tech London Advocates,
Gigamon & Digital Realty

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INTRODUCTION

Technological advances dominated news headlines in 2023, with high profile leaps forward in areas such as Generative AI attracting global attention from some of the most influential companies and individuals on the planet.

With this increased visibility, the sustainability of technological innovations has also come under scrutiny. The storage of data forms a large part of this growing focus and - from a look at the statistics - it's not hard to see why.

Indeed, one study from Loughborough university found that data centres may have a greater carbon footprint than the aviation industry.

Yet, while Virgin Atlantic oversaw the first ever transatlantic flight using 100% sustainable aviation fuel in 2023, headline grabbing initiatives to offset the carbon impact of the cloud were in comparatively short supply.

Dark - or 'single-use' - data remains a major problem, with many completely unaware of the impact their digital usage has on the climate. According to estimates from EY, digitisation is responsible for 4% of global greenhouse gas emissions.

PURPOSE

In December 2023, Tech London Advocates and Digital Realty convened a roundtable to discuss data storage and infrastructure, with a particular focus on sustainability in this area.

The roundtable comprised representatives from the UK and international organisations across a variety of sectors to openly discuss how their businesses and the wider industry were tackling the issue of integrating sustainability into data infrastructure.

Speakers shared insights around what modern data storage physically looks like, the types of data organisations store, the state of regulation and strategies for repurposing the energy and heat which data centres produce.

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KEY FINDINGS

As demand for data continues to increase, the use of data, the plethora of tools and the data centre industry are all experiencing rapid expansion.

Figures from McKinsey & Company estimate that in the US alone, data centre demand is set to grow by 10% every year this decade. But with businesses under significant pressure to balance the need to embrace emerging technologies with carbon reduction targets, data centres and the vast amounts of energy and infrastructure needed to maintain them feel somewhat stuck in the middle.

Indeed, panellists at the roundtable agreed that rising energy costs and demand for reduced carbon emissions have meant that many CIOs at large companies are now taking a much closer interest in sustainability.

And while it was broadly accepted that the days of cathedral-style racks of data were a thing of the past, there were still several examples within the group of the sheer logistical challenge storing and transporting data presents, including cases of companies physically shipping data by truck across Europe.

AI was a tool identified as an emerging enabler of data centre management, helping to more efficiently design rack layouts to ensure idle servers are separated from more intense computers, as well as optimising air flow.

However, it was also agreed that, as well as being a technological matter, data storage and sustainability ties into a wider culture of wasteful business practice. AI can certainly help, but the culture of organisations' "greedy" storage of data - retaining information simply because they can, and it being out of date by the time they get around to using it - also needs to be addressed.

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KEY FINDINGS

Necessity, as ever, is the mother of innovation. As such, the panel discussed ways in which, rather than being a waste product, the heat and energy data centres produce could be repurposed and transferred to places where it is needed, like schools and swimming pools.

Indeed, the panel heard about entire cities in Scandanavia where waste heat from data centres is used by district heat networks as a source of carbon neural energy.

The conversation then turned to the current regulatory environment which - it was agreed - was insufficient, fast-moving and often in conflict with itself.

Signed in 2021, the Climate Neutral Data Centre Pact did aim to commit cloud infrastructure services and data centres in Europe to achieve climate neutrality by 2030.

However, it was agreed that for the industry to move forwards, the next step will be the introduction of Ofcom-esque guidelines to provide standardised solutions so that companies can work together towards collective net zero goals.

SOLUTIONS

Below are some practical tips shared by the group to aid sustainability efforts when it comes to data storage:

01

Purge old data – set a fixed time after the relationship with a customer has come to an end to purge associated data, including powerpoint files versions and production data.

02

Establish a baseline for measuring emissions - standardised metrics are vital to know where action is needed to make practices more sustainable.

03

Ensure data is categorised - distinguish between data which is being stored for regulatory processes and other forms of data.

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KEY QUOTES

MARK JOW, EMEA TECHNICAL EVANGELIST AT GIGAMON

"Organisations need to be less wasteful – this doesn't necessarily require AI, just intelligent business practice. Many businesses store data greedily, keeping it simply because they can.""

HOWARD PEARSON, ENERGY & SUSTAINABILITY MANAGER, DATA CENTRE OPERATIONS AT DIGITAL REALTY

"It's important to look at technology like dry air coolers or free cooling systems which can make data centres as efficient as possible."

DAVID J SMITH, DIRECTOR SUSTAINABILITY AND OPERATIONAL RISK AT DIGITAL REALTY

"The chips being developed now have a much higher heat flux. This means more heat energy to dissipate, which in turn leads to faster degradation of the efficiency of IT equipment, unless enhanced cooling is utilised."

TSVETELIN ANASTASOV, FOUNDER AND MANAGING DIRECTOR AT SCAPEBRIDGE

"AI has real potential to transform the design of data centres. From more natural flow of air and arranging racks to separating idle servers from more intense computers and better directing water for water cooling systems, AI can help to more sustainably design these systems."

SARWAR KHAN, GLOBAL HEAD OF SUSTAINABILITY, BUSINESS AT BT

"There is a lack of standardisation around setting baselines and measurement. Ultimately, unless you put numbers behind it, no one's going to listen to you."

DANNY KEATING, SENIOR DIRECTOR OF BUSINESS DEVELOPMENT AT CIRATA

"The key is to ask ourselves: What is the data we are keeping? And how do we be more efficient with it? Currently, there are sizeable organisations collecting and stacking data exponentially, 50% of which is likely to be useless."

TRACEY ROB PERERA, HEAD OF CORPORATE DEVELOPMENT & COMMUNITY AT TLA & GTA

"In the startup world, it's also important to consider how to build sustainability and usage models into emerging technologies without stifling innovation".

VICTOR ZASADZKI, STRATEGY INNOVATION LEAD AT VORBOSS

"In terms of running a network, the days of cathedral-style, Tesco-esque racks of data have gone – there are better ways of designing those systems now."

MOLLY STRAUSS, HEAD OF INFRASTRUCTURE AT GREATER LONDON AUTHORITY

"We're looking at wider energy planning work, the energy needs of sub regions and determining where district heating networks would be most appropriate."

DANIEL HURN, TECHNOLOGY UNDERWRITER AT HISCOX

"Regulations imposed by GDPR have raised standards for data storage. Five years ago, customers would not know how much data they have, whereas now they are able to tell you."

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