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What's next

MEETING NET ZERO TARGETS FOR IT

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Discussion Documents

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This article was written by Roger Camrass, Director of Research for CIONET International, and is based on the conversations held during an event on 28th April sponsored by ATOS and Hitachi Vantara entitled 'Meeting Net Zero targets for IT'

CEOs are committing their organisations to a Net Zero outcome as part of broader ESG strategies. To deliver such a transformation, IT must play its part by measuring and optimising its own carbon footprint, both internally and across a wide range of business partners. Just how feasible is this? The reality appears complex with a growing landscape of carbon sources, ranging from data centres and private clouds to public infrastructures and software services. IT will need to identify and measure all carbon sources to establish a baseline, and then plan remedial actions to offset omissions.

How big is the problem today?

IT itself represents around 4% of global carbon emissions. Sources include corporate data centres and associated networks, end user computing such as laptops and smart phones, and public services. The rapid increase in processing power within end user devices suggests that that some 50% of emissions comes from this source alone. The most alarming feature however is the explosion in data, be this emails or documents, that needs to be stored somewhere.

Public cloud might help to offset the effects of global warming given the economies of scale of such centres, especially in use of power and air conditioning plant. However, transition to public cloud services has been slow due to the investment in private facilities and legacy applications. Our CIONET members confirm that only 10% of compute power and storage is resident in such public facilities today, rising to around 50% by the end of the decade. Meanwhile, demand for storage and compute power is rising exponentially and may dwarf efforts to contain carbon emissions.

Marc Mosthav from ATOS supported Tom's argument about data centre efficiencies but stressed that enterprises needed to look at the entire IT estate and its direction of travel. From his own experience as a CIO, Marc recognises that organisations are heading towards a hybrid situation with a mix of public and private cloud, complemented by proprietary data centres. The ability to bench mark, monitor and control such a hybrid environment can be complex if not near impossible. ATOS has helped its clients develop measurement tools and services to undertake this complex task.

Learning from experience

The first speaker for this event Tom Christensen of Hitachi Vantara described the progress being made within the Hitachi Group itself (a sponsor of COP 26). The CEO has committed the business to becoming carbon neutral by 2030 – a tough act given the diversity of group activities from transport and energy to technology and finance. In Tom's view, IT has a central role to play here given that IT accounts for 4% of all carbon emissions worldwide.

Tom used storage as an example of how to reduce carbon emissions within the data centre environment. Each new generation of Hitachi storage products delivers a 30-40% carbon reduction by optimising choice of raw materials and supply chain. Once in service these products contribute to further power and environmental savings that have been demonstrated in the USA where a client was able to reduce running costs and associated carbon emissions from $2.4 million annual spend to just $1.4 million.

Escaping from legacy systems

According to delegates, the biggest hurdle for IT organisations seeking to decarbonise their IT estates is the investment in legacy systems that pervade information intensive sectors such as financial services and government. According to a banking delegate, the majority of its 10,000 corporate applications will never be suited to public cloud. Instead, the bank is committed to rebuilding such applications using agile techniques so that they can be transferred to a cloud-native environment.

One example of the scale of investment required is UK government. The Treasury has ear-marked seven billion pounds to undertake this task in 2022 alone. Delegates agreed that the only way forward is to modernise legacy applications and related workloads. In doing so, one delegate pointed to a 50% saving in server capacity alone. This suggests a transformational opportunity across the IT estate if 60-80% of current applications can be converted to cloud native formats.

Tackling the data explosion

Delegates from all sectors spoke about the exponential increase in data volumes from internal and external interactions. According to IBM, 90% of all data resident in current systems is less than two years old. The implication here is that organisations must find more efficient ways of storing data. A delegate from the insurance sector has developed a plan to consolidate data from multiple applications into a common data pool. By reducing data silos, less processing power is needed to access information. A by-product is that more efficiency mechanisms can be applied to storing data such as data reduction and virtualisation techniques (as offered by Hitachi Vantara).

The impact of data reduction can be substantial. A Japanese banking delegate mentioned that such techniques have reduced running costs such as electricity consumption by up to 65% in the bank's new data centres. Other delegates agreed that contemporary technical standards need to be adopted when consolidating data centres. A university

CIO is keen that all such educational institutions across the UK adopt common standards and carbon emission targets. He called on central government to be more proactive ins setting such targets.

Offices and factories

Amongst the many sectors represented around the table, NHS proved to have the most immediate case to tackle carbon emissions. With 65 million patients and 1.3 million staff, the NHS has one of the largest physical footprints in the UK. Its hospitals, surgeries and logistics networks produce the largest carbon footprint of any sector. Just replacing traditional lighting with LCD bulbs could save £65 million per annum with associated reduction in energy consumption and carbon emissions. The NHS has issued a recent document committing itself to be the first carbon neutral health authority in the world.

Steps that delegates are taking to reduce carbon emissions across their physical estates include:

- Equipping buildings with modern air conditioning techniques and thermal monitors. The latest UK hospital projects are aiming for zero carbon footprint by 2030.
- Reducing the percentage of face-to-face consultations with medical staff by up to 50%. With over one million consultations each day, this would deliver significant savings in fuel consumption
- Encouraging staff to use energy efficient devices such as thin client terminals. Important here is the need to eliminate multiple copies of emails and documents by introducing efficient storage methods.

Choosing the right eco-system partners

Sectors such as finance and insurance rely heavily on their strategic IT vendors for both hardware and support services. Most of the business here is focused on modernising data centres given the slow progress into public cloud. As Tom mentioned, dramatic improvements can be made in cost and energy efficiency by adopting modern storage and processing hardware and virtualisation techniques.

Other delegates such as government appeared to be making more progress towards public cloud adoption. Hyper scalers such as Microsoft and AWS are promoting their ESG credentials although hard data is difficult to substantiate. One bank includes carbon emission targets in all its RFPs but is uncertain as to whether it can trust the vendor claims. The consensus is that the IT sector has much further to go in proving its ESG credentials. Responsibility continues to rest on the CIO's shoulders.

What are the take aways?

The view from the delegates is that sustainability continues to be low on the IT agenda give pressures elsewhere such as Cyber and Cloud migration. However, all recognised that it would move from 'important' to 'urgent' as CEOs and Boards declare aggressive ESG targets. Actions to be taken include:

- Adopting appropriate measurement techniques to establish a carbon emissions baseline and a road map towards carbon neutrality – both within IT and elsewhere
- Re-equipping data centres with modern hardware to reduce power and air conditioning requirements. Hitachi Vantara can support such efforts
- Tackling legacy by modernising applications to suit a cloud native environment

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A pioneer of today's Internet as an ARPA research fellow at MIT in the seventies, Roger has spent over forty five years helping corporations harness the power of new technologies such as cloud, mobile communications, e-commerce, voice recognition and satellite. He was a partner at EY responsible for e-commerce during the dot.com boom. He is a graduate of Cambridge University and MIT, and a visiting professor at the University of Surrey.

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