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Accelerate Sustainability through Cloud Innovation: The CXO Imperative

Google Cloud



Enterprise computing has long been an inadvertent contributor to the world's carbon emissions thanks to the energy it consumes. However, the emergence of cloud computing not only provides a low-carbon alternative, but it also offers the computational grunt to solve many of today's complex sustainability problems.

How to maximise the benefits of the cloud for environmental benefit was a key topic at a recent roundtable discussion hosted by 6 Degrees Media and sponsored by Google Cloud and Deloitte.



Lendlease's Group Co-Chief Information Officer **Harvey Worton** joined with Google Cloud Technologist **Natalie Piucco** and Deloitte Consulting Partner **Dr. Charlotte Marra** and numerous sustainability focused CXOs to discuss the surprising ways in which the cloud is supporting environmentally beneficial initiatives.



Sustainability is one of the key challenges for organisations in the 2020s, with customers, employees, and investors all willing to hold polluters to account.

The need to provide real action in response to sustainability concerns has been clearly recognised by the world's enterprise technology providers, who have taken prominent steps to reduce or eliminate their own environmental impact.

This thinking is exemplified by Google, which is matching 100% of its annual electricity consumption with purchases of renewable energy, achieving carbon neutrality across its operations.

However, a green cloud infrastructure platform is only part of the solution. As the world faces increasing challenges from a changing climate, more and more organisations are calling on the vast computational power of the cloud to solve complex environmental problems and to find new opportunities for sustainable growth.

According to Deloitte Consulting Partner Dr. Charlotte Marra, in Australia today around 70 per cent of businesses report they are aiming to reduce their emissions within the next three years.

"Unsurprisingly, given Australia's large reliance on coal and fossil fuels, we actually rank 59th out of 64 in the latest climate change performance index," Dr. Marra said. "But on the other side of the coin, we are excellent global innovators and have a lot to offer around sustainability. Australia is 25th out of 131 in terms of innovation economies, and in APAC, we're sixth out of 17.

"In addition to that, no other country other than Australia has the same opportunity to utilise green tech. Our sun and wind can generate 500 times greater capacity than the current process."



The Cloud in Action

One organisation that is innovating for sustainability outcomes is the global property company Lendlease, which has become a prominent user of Google Cloud.

Lendlease's Group Co-Chief Information Officer Harvey Worton described for this group how his decisions were always made in consideration of his company's adherence to its triple bottom line, which incorporated economic, social, and environmental goals.

For the latter of these, Worton said Lendlease had committed to achieving net zero carbon by 2025, and he saw the cloud as playing an important part in how it would reach this goal.

"Like many technology teams, we are seeking to use the benefits of cloud for infrastructure, scalability, and innovation," Worton said. "As we're progressing through our cloud journey, we're also seeing that the cloud is helping to connect the work that we do in technology with the broader business objectives of the organisation. It's enabling our people in technology to play a key role in contributing to and achieving the objectives across that triple bottom line."

Worton said Lendlease's decision to move its data to Google Cloud service would see its workloads running in an environment that already used 100 per cent renewable energy, and which would be a totally carbon-free environment by 2030.

"What we can do now in cloud is enable decision makers across our business to actually consider the environmental impacts of their technology decisions, because we're able to see data that's published on things like carbon consumption across all regions globally," Worton said.

"For the first time we can actually manage and measure this proactively, and this really links the work we do in technology with the broader objectives of the organisation."

Changing the Pitch

However, the power of the cloud as a tool for supporting sustainability went much further than just providing a green platform for computing.

According to Dr. Marra, more and more organisations are harnessing the vast computational power of the cloud to create solutions for existing and emerging environmental challenges.

She cited a range of examples, from the use of drones to inspect infrastructure (wind farms, transmission lines) using AI; through to modelling climate-related risk scenarios in banking and insurance.

"There are billions of data points, and the processing power that's needed is dependent on cloud," Dr. Marra said. "And what we're seeing is about 50 per cent of Australia and NZ companies are going to adopt these types of use cases by 2025."

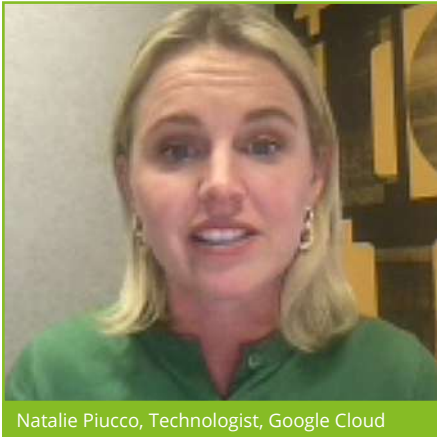
Helping organisations utilise the cloud in this way is a key task for Natalie Piucco, who works in the Chief Technology Officer's team at Google Cloud.



Harvey Worton, Co-Chief Information Officer,
Lendlease

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– Harvey Worton, Lendlease



Natalie Piucco, Technologist, Google Cloud

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– Natalie Piucco, Google Cloud

“When I think of how cloud can solve sustainability, I think about it from two perspectives,” she said. “It’s the ‘greening of’ IT, and the ‘greening through’ IT.

“‘Greening of’ IT is adapting your technology to reduce the immediate impact of your IT operations to lower your emissions. It’s asking questions like, what kind of emissions am I contributing through my computing infrastructure?

“‘Greening through’ IT means using sustainable technology to reimagine your business solutions and any new products that you’re developing and business models, such as helping your customers make more informed sustainability choices.”

Piucco described one example where Google was using its mapping technology to help a large Australian transport company redesign its vehicle routing to reduce carbon emissions.

Another partnership saw Google Australia working with the CSIRO to build and develop an AI solution to analyse underwater images of the crown-of thorns-starfish, as part of a broader \$1 billion Digital Futures Investment that Google has made into Australia.

Also prominent amongst these activities was Google Cloud’s partnership with Lendlease. Worton said his company had worked closely with Google Cloud in the creation of Lendlease’s property lifecycle platform, dubbed Lendlease Podium, and this cloud-based building management program had now been trialled at five sites across Australia.

“What that has allowed us to show is that through better management we can reduce gas and electricity usage by over 30 per cent,” Worton said. “That was our foot in the water, but in terms of our ongoing investment, we’re now starting to see if we can do more predictive maintenance interventions in those buildings.

“We will continue to invest and evolve our Podium platform with Google Cloud, to make the results that we see become even more meaningful.”

Worton said another utilisation of the green cloud at Lendlease was for the creation of ‘digital twins’ for its new buildings, which used software to model their properties as well as their control systems. Worton said this technology enabled Lendlease to test out many more options for improving sustainability than would be possible in a physical environment.

“Digital twins give us the ability to input all of the components and materials into our models,” Worton said.

“We can select the most sustainable models, and we can run analyses and scenarios like we could never do before. Once we start to link the digital twins with the work that we’re doing around generative design, we can actually start to simulate how these the more sustainable materials will react in the real world.

“If we can then link that to a construction manager, and have that linked to our supply chains, we can manage the delivery of materials to take the greenest routes. Then we’re really getting somewhere as an industry, and that’s really what excites us all.”

Bridging the Gap

Examples such as those highlighted by the partnership between Google Cloud and Lendlease point the way to what is possible using green cloud technology. According to Dr. Marra, stories such as these would leave many executives with no choice other than to turn to the cloud for their computing requirements. “Using cloud to accelerate sustainability initiatives is imperative as internet traffic and data workloads will keep rising exponentially – which require energy,” Dr. Marra said. “Cloud can help.”

According to Piucco, that pressure to look for greener computing solutions would be further heightened by the fiduciary responsibilities that company directors now faced in the form of needing to articulate their sustainability goals. However, she said more education was needed to ensure non-technology focused leaders could see the role that the cloud would play.

“Data Centre Transformation has driven critical innovation, but leaders don’t always know that cloud can be an obvious answer for achieving sustainability goals, but ‘greening through’ and ‘greening of IT’ are two really critical strategies for you to start your suitable technology journey,” Piucco said.

In many instances she said it was up to the technology teams themselves to play a role in educating other senior leaders. “If sustainability is new to you in your business, start the conversation within your tech teams, around what data you have access to today,” Piucco said. “If you are a Google Cloud customer, get your developers to run a carbon report and see what data it shows. Then use sustainability to drive forward your transformation mission because it’s such a critical, timely conversation to help you make change in your business.”

Worton agreed it was up to CIOs to take these concepts on board and show leadership – not just regarding their use of technology, but how technology could lead their organisation forward. “As CIOs or technology leaders, we talk about a lot about the environmental targets we’ve got, but I think a big part of our role is to actually identify technology and solutions that can help us and our businesses overachieve those,” Worton said. “We have to be mindful that the rate at which technology is developing gives us the opportunity to overreach those targets.”

A Better Purpose

However, to truly maximise the potential of the cloud, Worton said it was vital that executives and their staff did not allow themselves to be constrained by traditional thinking. “In terms of being a CIO or a technology leader, we’ve got a once in career opportunity to make a difference through the technology that we’ve got,” Worton said. “If we talk about measuring energy consumption, we’re going to be faced with questions like how much energy does our industry deserve to consume? This goes back to Lendlease’s roots. You’re going to have to see companies justify their worth to society.

“For myself, making sure we’ve got the ability through technology to make Lendlease industry-leading, and to only use the power that’s responsible – that’s a huge sort of opportunity for us. So just don’t be constrained by traditional thinking.”



Dr. Charlotte Marra, Consulting Partner, Deloitte

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– Dr. Charlotte Marra, Deloitte

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