## Sustainability in the Cloud: How to Leverage AWS to Grow Into a Greener Business



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## Introduction

Modern life is complex and has a big footprint—one that continues to grow and desperately needs to be curbed.

As consumers look to be more sustainable, the pressure on enterprises to do more in the space of sustainability continues to build.

Amazon co-founded <u>The Climate Pledge</u> in 2019—a commitment to reach net-zero carbon emissions by 2040. As part of this goal, Amazon is on the way to powering its operations with 100% renewable energy by 2025.

#### Sustainability in the Cloud

The cloud is a key enabler for sustainability. Amazon Web Services (AWS) designs <u>efficient and resilient data centres</u> that support not only Amazon's environmental goals, but those of its customers' too.

In this eBook we're going to take a look at how to harness the power of the cloud, specifically through AWS, to accelerate your sustainability goals.



## What Does Sustainability Mean to Contino and Cognizant?

All of us have a responsibility to minimise our impact on the planet. While individual actions are important, we know that businesses like ours must lead the way.

At Contino, a Cognizant company, we are committed to reducing our own carbon footprint, and using our expertise to enable our customers to do the same.

#### But what does sustainability mean to us?

Cognizant has the expertise and resources that empower our clients to tackle sustainability on the cloud. Because just moving to the cloud is not enough—it has to come with expertise in how to leverage data to drive accountability of your sustainability efforts. In collaboration with our hyperscaler partners, such as AWS, we are leading the way in implementing sustainability-focused, cloudbased solutions for our clients.

**Sophia Leonora Mendelsohn** Chief Sustainability Officer and Global Head of ESG at Cognizant Environmental sustainability is no longer just an important issue—it's an urgent one. <u>At</u> <u>Contino we're passionate about</u> <u>supporting customers who are</u> <u>taking sustainability seriously.</u> We believe that technological innovation is a key driver in allowing organisations to measure, manage and reduce their carbon footprints, so we can each play our part in a global mission.

Mark Faiers AWS Practice Lead at Contino



#### Our Approach

The cloud is a key enabler for sustainability—especially when it comes to business practices. That's why we believe it's important to utilise our expertise in digital transformation to help our customers reduce emissions and lower their carbon footprints to build a more sustainable future.

### We can help you prepare for climate change and decarbonisation, measure emissions and exceed your sustainability goals.

As part of Cognizant, we offer a range of services including strategy and roadmap development, benchmarking, goal-setting, and data and analytics support for KPIs. As always, our approach is data-driven and focused on creating sustainable change across people, processes and technology.







## Why You Should Be Investing in a Sustainability Strategy

So, why should the modern enterprise look at becoming more sustainable? Let's look at four key drivers that are making sustainability so important.

#### Employee Satisfaction & Retention

Many companies are finding it a serious challenge to recruit and retain the right employees for the job. People are faced with more choices than ever before, so ensuring your enterprise has the edge over others is vital.

Working for a company that has a positive impact on the planet or a clear direction with their sustainability strategy is a big driver for many people making career choices. <u>40% of millennials</u> stated they would take a pay cut to work at a sustainable company and that figure is only going to be growing in the years to come.

#### Cost Reduction

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A key principle of sustainability in the cloud is to design and implement energy-efficient workloads, which use minimal resources to achieve the business outcome and maintain high utilisation across those resources. Given that the cloud is usually a pay-per-use model, reducing energy consumption through reducing usage, often leads to a reduced cloud spend.

Managing your energy consumption and taking full advantage of the cloud can be complex. Contino specialises in building cloud native architectures, utilising modern engineering principles that take full advantage of AWS. Contino has strong expertise in building secure, reliable, performant platforms that leverage the full capabilities of cloud technologies. Optimising costs is a key part of this.

#### Regulatory Compliance

Compliance around renewable portfolio standards (RPS) and ESG regulations is yet another driver. It can push utility companies along with all other companies towards operations that are greener.

ESG ratings and metrics from companies such as EthicsGrade are becoming powerful tools in humanity's journey to a green future. Companies must be more transparent or else they will lose out on future investment.

#### Consumer Demands

As the impacts of climate change are becoming more and more apparent, the push for businesses to act now is bigger than ever. That push is now largely coming from consumers; people are changing their lifestyles to ensure they are helping the planet. <u>85% of consumers</u> have become 'greener' in their purchasing in recent years, and with younger consumers more actively taking steps to become greener, this number will only grow in the future. Ensuring your enterprise runs sustainably ensures you stay competitive in fast-changing, innovative markets.

Large financial enterprises have started to innovate in the sustainability space, bringing new products to the market that meet their consumer demands. As a leading financial institution, NatWest has recognised the importance of addressing the climate challenge; the organisation has recently introduced a <u>Carbon Footprint</u>. <u>Calculator</u>, allowing consumers to see, analyse and reduce their carbon footprints.



### Why the Cloud Is Key to Improving Sustainability

Sustainability in the cloud refers to taking advantage of the correct architecture patterns and implementations that allow your workloads to reduce their energy outputs and reduce their carbon footprint. The cloud also allows us to go further than this; the innovation that it drives and the possibilities it introduces enable companies to meet consumer demands quicker than ever before.

Let's take a look at five areas in which the cloud can help your business improve its sustainability posture.



### Cleaner Infrastructure

AWS's infrastructure is <u>up to five times more energy efficient</u> than the median of enterprise data centres surveyed in Europe. Research found that AWS can lower customers' workload carbon footprints by nearly 80% compared to surveyed enterprise data centres.

### **Economies of Scale**

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Cloud providers operate at colossal scale. Worldwide end-user spending on public cloud services is forecast to grow 20.4% in 2022 to total \$494.7 billion, up from \$410.9 billion in 2021, according to the latest forecast from Gartner. In 2023, enduser spending is expected to reach nearly \$600 billion.

With decades of experience running and optimising their own data centres for billions of users, cloud providers are able to invest significantly and at scale to ensure their data centres are efficient and sustainable.

#### **Enabling Innovation** 3

The cloud enables rapid innovation. It enables us to go from idea to reality extremely quickly, at any scale. This allows companies to build products centred around sustainability. For example, banks are now beginning to publish carbon footprints in your monthly statements. No longer do enterprises have to gain significant investment to order infrastructure that takes months to come and requires specialist expertise to set up, just to prove that an innovative idea is worthwhile.

#### Data & Machine Learning 4

In an effort to become more environmentally sustainable, businesses are turning their attention to tech and data-driven solutions. By investing in technologies such as cloud computing and machine learning (ML) they look for innovative ways to minimise their impact.

#### **Cloud Native Architectures** 5

Architecting our applications in a cloud native manner means taking full advantage of what the cloud has to offer. One of the keys to sustainability here is leveraging the elastic nature of the cloud. Ensuring we design our applications to use only as much energy as required. This is where we can take full advantage of the serverless ecosystem, such as Lambda for compute and <u>DynamoDB</u> for databases. When working with data analytics services, using services that decouple compute and storage, such as <u>Amazon Athena</u>, allows customers to scale storage whilst sizing compute to demand.



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# **How AWS Helps** You to Achieve Your **Sustainability Goals**

### **Sharing Responsibility**

Environmental sustainability is a shared responsibility between customers and AWS. The customer is responsible for sustainability IN the cloud, while AWS is responsible for sustainability OF the cloud.



AWS is responsible for sustainability of the cloud

Sustainability is one of the six pillars of the AWS Well-Architected Framework, a framework designed to help your organisation build a robust building system that delivers on your expectations and requirements.

There are six design principles for sustainability in the cloud, which help you understand and manage your business's environmental impact. These are:



AWS's white paper on the sustainability pillar expands on these principles and outlines recommendations and strategies to use when designing sustainability-driven cloud architectures.





## How to Understand Your Impact

### Interpreting the Tools

Cost optimisation tools are commonly used to make decisions about carbon emissions, but these can be misleading without specialist knowledge to interpret them. Actions that are impactful to cost reduction may have little impact on, or even be counter productive to carbon reduction.

Here are key considerations to make when using tools and interpreting your data:

Compute, storage and network use aren't the only factors in the list price. For example, choice of a database engine of a Relational Database Service (RDS) will have significant cost implications, but lesser known environmental impact

Not all usage is charged for. For example, data transfer into <u>AWS is \$0.00 per gigabyte</u> but will have an associated energy cost

Use of different pricing and reservation models such as compute savings plans and reserved instances won't necessarily impact carbon emissions, but will reduce costs—and in some cases these can even encourage waste

### The Sustainability Engagement Model

Contino's sustainability engagement model uses open-source tooling, usage analysis and business stakeholder engagement that helps explain your carbon footprint.





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### **The Sustainability Design Sprint**

#### **Baseline your organisation's cloud carbon footprint**

Contino's Sustainability Design Sprint is an easy-to-execute first step towards sustainability, for businesses who are looking to better understand, manage and reduce carbon emissions across their cloud services.

Typically run over five or ten days, these high-level assessments of your AWS accounts can provide you with the right foundations on which to make better, sustainability-driven decisions about your technology landscape.

The sprint will help you:

- Baseline your carbon emissions across your AWS estate
- Gain insights into how technology can contribute to your company's wider sustainability strategy through educational workshops for business and IT stakeholders
- Highlight architectural and engineering recommendations for energy reduction and efficiencies
- Empower your engineering department to make their first sustainable change within as little as one week

Using both open-source third party tooling and Contino-curated queries to measure emissions, we compile an independent review of your cloud footprint. This report provides detailed analysis and recommendations on carbon emissions per account, region and service, and in clear language that makes sense to both IT and the business.





The resulting report is an invaluable outcome of the sprint, and can uncover huge opportunities for customers to optimise AWS workloads and architectures over future projects, for which we can provide estimates for CO2 emissions, utilisations, and consumption figures.

The Sustainability Design Sprint service is available via <u>AWS Marketplace.</u>











As seen on **Vaws**marketplace

### The Contino Sustainability Pyramid

The Cloud Sustainability Pyramid forms an essential part of Contino's Sustainability Design Sprint. It gives three different planes of perspective on how to enact sustainability changes within your organisation and helps tie metrics and KPIs to various levels of your IT infrastructure and workloads.







### **Business Value:**

Baseline metrics agreed and fully owned by product teams—to seek iterative ways to constantly increase energy efficiency on a sprint basis

#### **Business Value:**

Improve accountability and responsibility for efficient deployments across teams

#### **Business Value:**

Strategic visibility on most efficient location regions to deploy workloads to support decarbonisation plans

# How Can Contino Help?

#### **Architect and Enable**

We create a cross-functional team and work closely with the client, focusing on understanding the business use cases and how the right cloud architecture can improve your sustainability.

#### **Execute and Build**

We quickly prove the difference sustainable architectures have in the cloud. We conduct a rapid (e.g. three-month) project to deliver a minimum viable product (MVP) using the new sustainability focused architectures.



#### **Upskill Your Teams**

While we're architecting, building, and measuring success, we also work to empower your teams, ensuring they can learn from our experts and gain the skills to build sustainable, innovative platforms in AWS.

#### **Prove It Works**

We are experts in creating observable architectures and understand the difference good decisions have on your sustainable measurements. We utilise and provide the tools needed to show the impact we're having on the business.

#### **Create New Reference Architectures and Ways** of Working

We help you build and understand new reference architectures, focused on ensuring sustainability is one of the central pillars of your organisation. We then provide you with the know-how to implement this, enabling real change and lasting benefits within your organisation.

#### **Drive Sustainable Innovation**

With the new skills and tools your teams now possess, your organisation will be able to excel at bringing new, innovative products to market while strengthening your sustainability strategy and reducing your carbon footprint.

#### AWS Energy Sector Competency

Contino has supported global energy leaders in adopting sustainable practices, driving dual-carbon and cost efficiencies, and adopting leaner practices through revitalised operating models. Read about how we supported Origin's cloud migration journey, and how we worked with EDF to build a cloud native landing zone and operating model, while enhancing its cloud native engineering team.

Get in touch to find out more about how we can help you to get started on this journey.





# **Contino and AWS**

Contino has a proven track record of delivering success across all aspects of AWS. Our engineers operate at the highest levels of excellence, with some of the strongest credentials in the industry.

#### Partnership

Contino is a Premier Services member of the Amazon Web Services Partner Network (APN).

#### Competencies

We have been awarded AWS DevOps, AWS Financial Services, AWS Energy, AWS Data & Analytics, and AWS Migration Competencies.

#### **Certifications**

We have over 200 AWS Certifications held by our technical team across our three global regions of EMEA, USA and APAC.

#### **GTM** Initiatives

Contino participates in a number of AWS go-to-market initiatives, including the Well-Architected Partner Program, AWS Lambda Service Delivery and the Public Sector Partner Program.





## What We Do

We Support Our Customers Across Five Core Pillars



**Cloud Platform Build & Migration** 



Enterprise Transformation



DevSecOps and **Cloud Security** 

## **Contino and** Contributors

Our eBooks and thought leadership are only possible due to the expert knowledge and hard work from our Continis. Our wealth of experience in digital transformation and engineering puts Contino at the forefront of this industry.

Special thanks to all our Continis for making this possible!

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**Cloud Native** Software Development



Data Platforms & Analytics



### Want to find out more? Get in touch <u>hello@contino.io</u>



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