



The Server Labs G-Cloud 15 Service Description

G-Cloud 15 Service Definition – Sustainability
in the Cloud

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1. Introduction

The Server Labs Sustainability services are available to customers at any time in their cloud adoption journey. A point of engagement is when the organisation has already adopted and migrated to the cloud, but needs a review and posterior remediation to improve the sustainability footprint. Or, earlier in the adoption journey, when a brand new architecture needs to be designed. The Server Labs has successfully worked with organisations to optimise their cloud expenditure and sustainability impact when using the Cloud, and can offer this service in many different ways; as a consultant, as an end to end audit and optimisation project, or as part of the activities of the CCoE, or as a Managed service. How this is delivered or commercially agreed with you, our customer, is flexible, but **it will always involve helping your organisation optimise your cloud usage to reduce environmental impact while maximising efficiency.**

When designing or re-architecting a Cloud architecture, we follow the sustainability pillar included in the AWS Cloud Well architected framework, to minimise environmental impact while maximising efficiency and resource utilisation. These sustainability principles need to be considered throughout the entire lifecycle of cloud workloads, from design and deployment to operation and decommissioning.

Key considerations within the Sustainability Pillar include:

1. **Efficient Resource Consumption:** Designing architectures that optimise resource usage to minimise energy consumption and waste. This may involve rightsizing instances, implementing auto-scaling, and optimising storage and networking configurations.
2. **Renewable Energy Usage:** Encouraging the use of renewable energy sources for powering cloud workloads and data centres. We use hyperscalers offering regions and data centres powered by renewable energy to provide customers with tools and resources to track and manage their environmental footprint.
3. **Carbon Emissions Reduction:** Implementing strategies to reduce carbon emissions associated with cloud operations, such as choosing energy-efficient instance types, minimising data transfer over long distances (choosing the right regions for example) and optimising application performance.
4. **Sustainable Practices:** We promote sustainable practices for designing environmentally friendly architectures, minimising waste, and reducing environmental impact.
5. **Monitoring and Reporting:** We implement monitoring and reporting mechanisms to track environmental metrics, energy consumption, and carbon emissions associated with cloud workloads. This enables your organisation to assess their sustainability performance and identify areas for improvement.

By incorporating sustainability principles into cloud architecture design and operation, organisations can minimise their environmental footprint while maximising the benefits of cloud computing.

2. Sustainability service definition

The Server Labs focuses on these components & activities as a part of our service; many of these activities are common to the cost optimisation service (FinOps), as most of the time, a more cost effective model for the architecture and instance allocation will also result in a more sustainable model. These activities can be delivered in a one of project, or as a process throughout the lifecycle of the delivery in your organisation:

1. **Carbon Footprint Assessment:** Conducting an analysis to quantify the environmental impact of the customer's cloud usage, including energy consumption, carbon emissions, and resource utilisation. Usage isn't simply a count of the number of services a company uses, each service uses different metrics to measure usage. For example, AWS EC2 instances are charged by the second or minute, what matters is how long you run the instance. On other services these are charged by GB/month, and minutes also, so charged according to both quantity and time.
2. **Green Cloud Strategy:** Developing a customised sustainability strategy aligned with the customer's business goals, focusing on minimising carbon emissions, energy consumption, and waste generation while maximising resource efficiency.
3. **Optimization and Efficiency:** The optimization of cloud infrastructure and workloads for improved energy efficiency, is a common practice with FinOps measures, such as rightsizing instances, implementing auto-scaling, optimizing storage usage, and leveraging serverless computing.
4. **Renewable Energy Adoption:** Selecting cloud providers with strong commitments to renewable energy.
5. **Sustainable Practices Promotion:** Educating customers on sustainable cloud computing practices and promoting behaviours such as turning off unused resources, and minimising data transfer over long distances, by selecting regions that are closer, also by compressing etc.
6. **Monitoring and Reporting:** Implementing monitoring tools to track environmental metrics and providing regular reports to customers on their sustainability performance, including carbon emissions reduction and energy efficiency improvements.
7. **Compliance and Certifications:** Assisting customers in achieving relevant sustainability certifications and compliance requirements, such as ISO 14001 (Environmental Management Systems) or the Carbon Trust Standard. **The Server Labs can assist on this activity via one of our trusted partners.**

8. **Continuous Improvement:** Best way is to implement sustainability practices as part of the process, so this is not considered an afterthought, but ***mandated throughout the delivery process in any organisation. Essentially, to create a “Closed Loop”*** whereby Sustainability becomes part of the DNA of the organisation. The Server Labs (TSL) will work across all functions to build this closed loop integrating systems, people and processes. The Sustainability lifecycle we promote covers the following phases:
- The Inform phase:** Gives visibility of usage and creates shared accountability, by showing teams their usage and why. This enables individuals to view the impact of their actions on the Sustainability budget. This also impacts similarly any cost measurement service.
 - The Optimise phase:** Empower client teams to identify and measure efficiency optimisations. Goals are set upon the optimisations identified which align with each team's responsibility.
 - The Operate phase:** Defines processes which enable the goals of technology, Sustainability governance and business functions. Automation can be deployed which enables these processes to be performed in a reliable and repeatable manner.

The following FinOps techniques we have implemented that can be easily utilised for Sustainability purposes are:

- Moving to the latest instance types, storage types and reducing cluster sizes with more agreeable sustainable footprints
- Deduplication of data
- Using Graviton processors to provide additional cost and energy savings.
- Moving to Aurora Serverless in lower level environments for immediate savings both in costs and energy.
- Automating the Stop/Start of workloads in non-production environments reducing costs and energy impact by up to 60%.

For example The Server Labs helped one client save over \$400k/yr by implementing targeted, automated scheduling to stop/start environments out of hours. In addition, implementing right sizing of instance types, number of instances and storage types, provided a combined reduction in cost of over 90%. This was implemented from a baseline cost in just two months.

Example reductions in cost per month per environment - £20,071/month reduced to £908/month. The cost reduction by using less resources will directly impact the energy total bill.

3. Visibility, Devolving Responsibility, Improving Sustainability, and Securing Data

A key part of the FinOps & Sustainability methodology implemented by The Server Labs (TSL) is to provide FinOps & Sustainability 'Golden Paths' for the clients' engineers. These provide full documentation, together with example scenarios and code, so that moving forward, all platform engineering incorporated FinOps & Sustainability from the inception design. **The BI dashboard and Golden Paths, together with increasing acceptance of FinOps & Sustainability principles is designed to put in place a process of ongoing FinOps & Sustainable governance,** which hands back responsibility to individual departments. This is what we refer before as to create closed loops with the right tooling, governance and mandate in the organisations. One way to “convince” or get the teams in departments onboarded is to highlight the savings; Savings in turn are able to fund new projects and innovations for the department. Less cost and less energy enables more projects and innovation with the assigned budget ! Teams are better able to match instances to workloads using Amazon EC2 for secure, resizable compute capacity in the cloud, and using Amazon RDS to remove inefficient and time-consuming database administrative tasks. TSL will work with the client to re-architect applications, supporting a longer-term shift to microservices and alternative application architectures including more use of serverless technologies like [AWS Lambda](#) and [AWS Fargate](#).

If you wish to receive further information please contact sales@theserverlabs.com

4. The Server Labs

The Server Labs (TSL) is an End-to-End Cloud technology consultancy specialising in delivering mission-critical services and highly complex operating environments.

We help organisations to digitally transform their operations through our five core cloud services offerings:

- Cloud adoption and migration
- HPC and Big Data
- Security and DevSecOps
- Cloud-native development
- FinOps and Sustainability

Our experience working across several industries has given us a good understanding of the different requirements so we are able to provide the solution that best suits each particular business and reuse the lessons learnt in the other industry sectors when applicable. Our clients span organisations such as Bioinformatics (Genomics England & NIHR Bioresource), Central Government (Home Office, DEFRA, OFCOM, NICE), Banks (BNP Paribas, BBVA, Caja Madrid), the European Space Agency (ESA), Madrid Underground (Metro de Madrid), ICCAT, Amadeus, TRAGSA, TIBCO (a leader in Messaging and Service Bus architecture systems), O2 and Telefonica, Vodafone, ORACLE, several, Sun Microsystems, TUI and Marsans travel, etc.

We help these organisations to seize new opportunities, win in the market and create long-term sustainability.

The Server Labs was founded in 2004 by our CEO, Dolores Saiz and our CTO Paul Parsons. We're headquartered in London, with offices in Spain and Germany to support clients across Europe.