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Sustainability in Cloud Services: New Regulations Require Measurability of CO2 Effects

At a time when the environmental impact of digital technologies is increasingly coming into focus, Exoscale, a European cloud service provider, has developed an innovative approach to transparently show its customers the environmental impact of their cloud usage. This was done in collaboration with Resilio (experts in project management and the assessment of IT and digital services throughout their entire lifecycle) and Kleis (for the development and technical implementation of the tool).

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Once development is complete, the goal is to enable Exoscale customers to view their individual “cloud environmental footprint” with the help of CloudAssess. This open-source tool automatically assesses the environmental footprint of cloud services and passes this information on to customers.

The methodology behind CloudAssess is based on Life Cycle Assessment (LCA), which measures the main environmental impact of a product or service throughout its entire life cycle: from the extraction of raw materials to manufacturing, transport, use, and finally disposal. This analysis takes into account various criteria such as greenhouse gas emissions, water consumption, and the use of fossil resources. It follows ISO:14040 and ISO:14044 standards.

Creating a LCA is complex, especially without industry standards. The EU provides a framework through the Product Environmental Footprint, but specific rules for cloud services are lacking. To close this gap, the French Environment Agency ADEME has proposed Product Category Rules (PCRs), which Exoscale is currently implementing. This proactive approach prepares us for the Corporate Sustainability Reporting Directive (CSRD-2025), which will be required from 2025 onwards.

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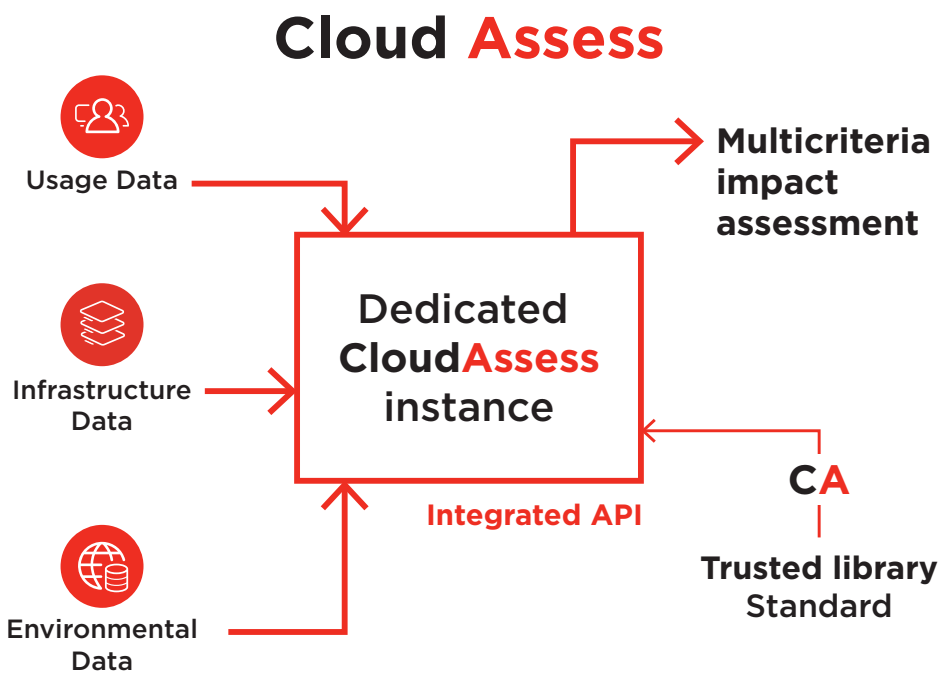

Adhering to these standards ensures that the assessments provided by CloudAssess are not only reliable but also comparable. These open and proven methods and tools mean that cloud service providers can provide their customers with accurate and transparent information about their environmental impact. This can help build customer confidence in a company's sustainability efforts and help the company itself make informed decisions about its cloud usage.

Dynamic LCA Tool

What makes CloudAssess special is its dynamic nature. Using infrastructure and usage data provided via an integrated API, the environmental footprint of a cloud service is calculated hourly, daily, or monthly and can be integrated into everything from invoices and dashboard and beyond.

This process means CloudAssess provides customers with up-to-date and accurate information about their environmental impact. Initially, this should be done monthly. However, the long-term goal is to enable customers to monitor their cloud usage in real-time and adjust it as needed to improve their environmental footprint.

To make the service as simple as possible, CloudAssess was designed as a so-called stateless server. A Docker image is available, and the code is publicly accessible on GitHub. These features make CloudAssess a flexible and easy-to-use tool that can be seamlessly integrated into existing systems – potentially even into services and offerings from other companies.

This information can also be integrated into corresponding compliance processes, which are increasingly required by law.

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Exoscale's Experience

Exoscale is currently in the process of integrating CloudAssess into its own infrastructure. Usage data is copied for billing and supplemented with environmental footprint data by CloudAssess. These reports are generated regularly and fed back into the data pool. Ideally, the sustainability data would come from the IT product manufacturers. However, this is rarely the case so far, which is why Exoscale relies on sustainability data provided by Resilio.

The integration of CloudAssess into the existing system was smooth for the most part. Since Exoscale had already been working internally on corresponding tools to collect exact and relevant data on sustainability, only some of the measurements and processes had to be adapted to take into account LCA specifications. This precise data collection then enabled the implementation of the analysis of the entire life cycle of the product or service.

One difficulty that did arise was obtaining environmental data for specific specialised devices whose specifications are not publicly available and that are not modelled in environmental databases such as ResiloDB. Real-time provision of environmental data is also not yet freely available and requires additional steps. This means that a real-time LCA is not yet feasible. Here, the measurement data must also be collected and made available for CloudAssess in shorter cycles in order to enable customers to have measurable, sustainable workflows.

Despite these challenges, Exoscale was able to successfully implement CloudAssess and provide its customers with valuable insights into their environmental impact. This shows that with the right approach, it is possible to take concrete steps – and think about measures – to act more sustainably.

Transparent and Sustainable

With CloudAssess, Exoscale offers an innovative way to understand the environmental impact of cloud usage and achieve sustainability goals. Its successful implementation demonstrates that sustainability and digital technologies can be interconnected. However, there is still room for improvement regarding the availability and accessibility of environmental data.

Overall, CloudAssess is an important step towards more transparent and sustainable cloud services and an example of how innovation and technology can be used to better manage their environmental impact. It is hoped that other cloud service providers will follow this example and use CloudAssess as an open-source tool, so that, ideally, all cloud service providers will use the same methodology for collecting data for their sustainability reporting.

OUR CONTACT DETAILS

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