EOSC Future

D8.2a

Overview of Usage of Commercial Services

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D8.2a / Overview of Usage of Commercial Services

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Public

Abstract

This document describes the current rate of consumption of commercial cloud and digital services offerings that are currently available for procurement through frameworks implemented by the OCRE project/GÈANT.

The EOSC Future WP8 Commercial Team (commercial-team@eoscfuture.eu) will procure commercial services on behalf of the other EOSC Future work packages, where necessary, and will also distribute the associated consumption funding via a series of procurement activities based on the requirement outcomes of a series of open calls. Several of the project's participants (other than GÉANT), beneficiaries and awarded institutions, are also eligible to procure commercial services via these frameworks.

This document (D8.2a) summarises the consumption by all European institutes who have procured Cloud services in 2021 using the OCRE framework call-off contracts and that of its predecessor, the GÉANT IaaS framework which is no longer operational (framework expiry).

Version History

Version	Date	Authors/Contributors	Description
V0.1	01/12/2021	David Heyns (GÉANT), Garvan McFeeley (HEAnet)	Initial draft for consultation with WP partners
V0.2	13/12/2021	David Heyns (GÉANT)	Checked before submission to internal review
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V0.5	20/12/2021	David Heyns (GÉANT)	Finalisation for circulation to Consortium
V1.0	22/12/2021	David Heyns (GÉANT), Ron Dekker (TGB), Mike Chatzopoulos (ATHENA)	Final Version submitted to EC

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Table of Contents

Table of Figures

List of Abbreviations

Acronym	Definition
DIH	Digital Innovation Hub
EBI	European Bioinformatics Institute
EC	European Commission
EMBL	European Molecular Biology Laboratory
HPC	High Performance Compute
NREN	National Research and Education Network
OCRE	Open Clouds for Research Environments

1 Executive Summary

Commercial Cloud based services are being consumed at a rapidly accelerating rate by the European research community. In order to facilitate ease of consumption in terms of procurement, the European Commission (EC) commissioned the OCRE project with the intention of constructing commercial Cloud and Earth Observation services frameworks. The business desk in T8.1 will use these where appropriate in support of commercial activities in EOSC Future, while the Digital Innovation Hub in T8.2 will engage with SMEs (small to medium commercial enterprises) with regards co-innovation opportunities identified in the various DIH calls. WP8 will track and report on consumption trends to best inform the project partners in terms of the research community's needs and preferences.

Both Tasks 1 and 2 will be exploring ways in which commercial services can be distributed to the various stakeholders in EOSC Future. For example, Task 1 has reached out to the Science Clusters regarding demand for these services, and also to the participating e-Infrastructures in terms of the pre-procurement and white-labelling of commodity storage and compute. We will continue to drive these conversations.

This first consumption reporting deliverable sets the baseline from which trends can be identified. This baseline will harness trend reporting from previous similar cloud frameworks focused on the European research community (GÉANT 2016 Cloud framework). The report includes all cloud services consumption via OCRE call-off contracts during the first nine months of 2021.

Based on the public dissemination level of this document, this reporting does not provide any comparative analysis between the various cloud platforms, due to the competitive nature of the procurement.

2 Introduction

2.1 Commercial services and the EOSC

The EC recognised the demand for commercial Cloud-based digital services within the European research community. Cloud services drive flexibility, agility, and scalability with regards to the research activities, and thus might support improved research outcomes. These services are consumable and can therefore simply be consumed as and when necessary. This allows research funding initiatives to take advantage of the operational cost models and NOT utilise the available resources for the procurement of fixed assets (capital expenditure) in terms of hardware/software licencing.

As a result, the EC initiated the OCRE project (Grant Agreement No. 82407) with the ambitions to make commercial Cloud services easily procurable for research institutes by means of Frameworks, and to drive the adoption of such services, stimulate the European digital economy, and create a portfolio of compelling case studies for the EOSC. The OCRE Open Calls for research projects in late 2020 showed significant demand from the broader European research community to consume commercial services at scale. This has not yet been indicated within the EOSC Future project and has been highlighted as a risk to the project outcomes.

These services are procurable via the OCRE framework by most of the entities participating in the EOSC Future project and would provide secure, scalable Infrastructure, Platform, and Software-as-a-Service solutions to the underpinning of bespoke services delivered to the research community via the EOSC. To this end, the EC aims to stimulate the European digital economy through the efforts of the EOSC Future Digital Innovation Hub (DIH), and the commercialisation of Cloud-based Earth Observation services consuming Copernicus data via related OCRE project activities.

WP8 is in the process of analysing opportunities presented by the Science Clusters and other EOSC Future stakeholders to use the limited available budget to simply demonstrate various distribution models for the consumption of commercial services by the European research community. The response to our outreach from within in project shows reluctance to engage with commercial services. Task 1 will repeat efforts to engage with the cluster projects and e-Infrastructures on this topic and hope to be able to provide a concrete demand before the next iteration of this consumption report. WP8 Open Calls for related funding opportunities are scheduled for publication in February/March 2022.

2.2 Description of available Cloud services.

The Cloud-based services that are currently represented within the OCRE Framework portfolio are detailed in the EOSC Future WP8 deliverable D8.1 – Overview of Available Commercial Services. Each of the suppliers of these services across 40 countries are described in the same deliverable. These suppliers represent 37 actual Cloud infrastructures and this deliverable (D8.2a) summarises current consumption by platform/country.

The extensive benefits to using commercial Cloud services are also detailed in deliverable D8.1, as are the instructions in terms of procuring by means of the Frameworks.

Suppliers (OCRE Framework contract holders) are currently made visible to the European research community by means of the OCRE Cloud Catalogue[1].

2.3 Cloud services not yet available

WP8 launched a survey in October 2021 which was distributed by EOSC Future WP10 (Communications outreach). The community's response to this survey is currently under evaluation by WP8 Task 1, in order to identify additional services that may need to be procured under the EOSC umbrella.

Once this analysis is complete, the WP8 team will publish deliverable D8.3 - Procurement Plan for Additional Services not Available through Existing Frameworks. The consumption of such services will be detailed in subsequent iterations of this report, as they become available.

[1] https://www.ocre-project.eu/services/cloud-suppliers

3 Cloud Services Consumption

3.1 Cloud consumption by distribution (First Period)

The heat map below represents the distribution of commercial cloud consumption across the region based on European institutes procuring Cloud based services using call-off contracts provided by the OCRE/GÉANT Frameworks. This representation (and total consumption figure) is based on mandatory reporting provided by the OCRE suppliers for the period January-September 2021. The OCRE Framework contracts were signed by the supplier during the first quarter, 2021.

Western Europe is considered more mature in terms of the consumption of commercial cloud services in general, however efforts by EOSC Future T8.1 and the OCRE project team to drive framework visibility across the region continues. The NRENs in each of the 40 countries represented on the OCRE Cloud Framework are engaged in the distribution of information packs explaining the benefits of procuring these services using framework contracts to all institutes.

The market (Cloud suppliers) is also heavily involved in mandatory outreach and training focused on the European research community. There are a number of institutes with contracts pending in the countries not yet showing consumption and these too should be reflected in the next six-monthly report (consumption up until end of Q1 2022).

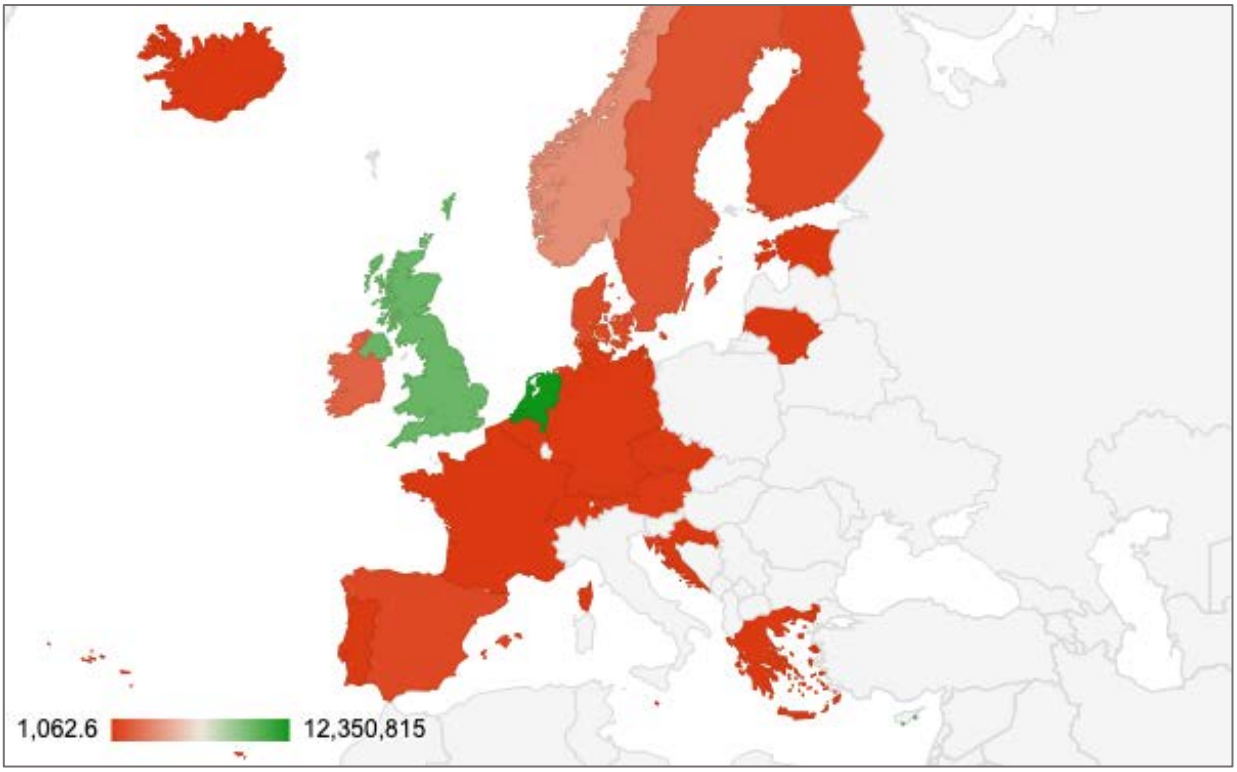
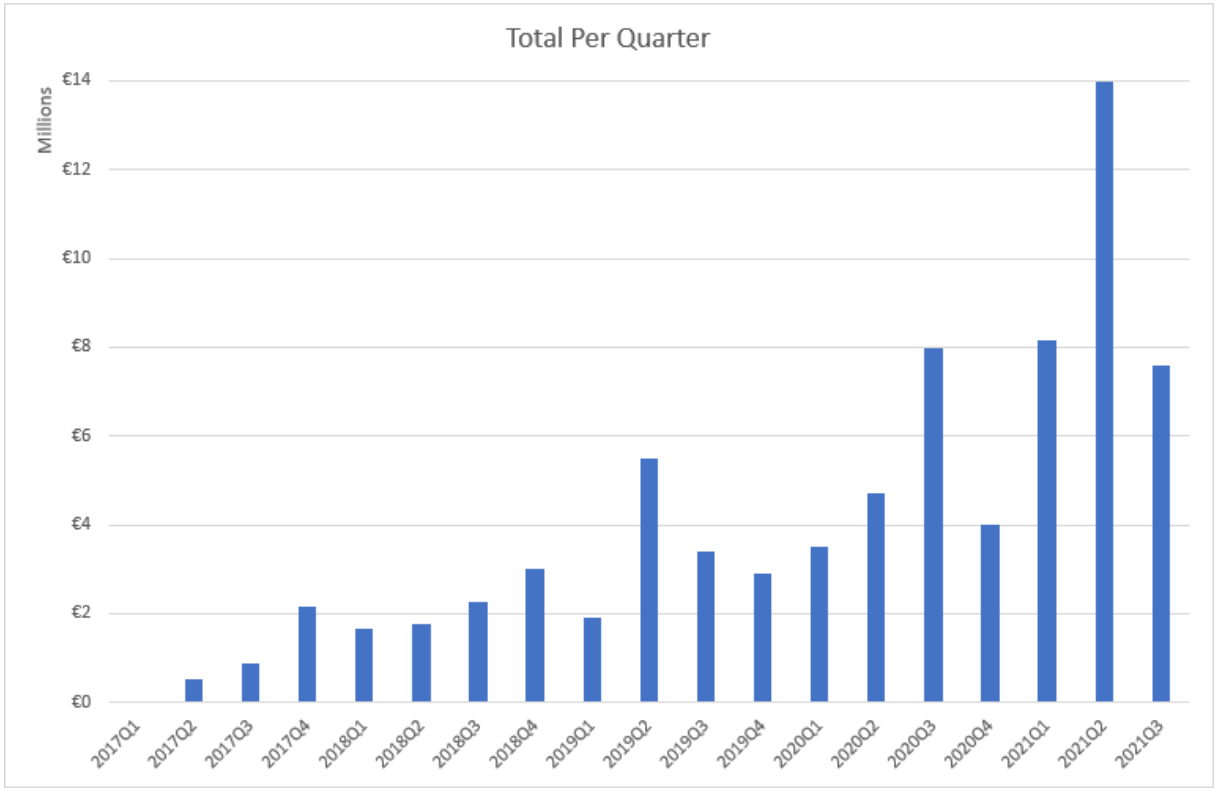


Figure 3.1: Cloud consumption by distribution

Total Consumption (Jan-Oct 2021): **€ 29,715,989**

3.2 Cloud consumption trends

The graphs below represent a trend analysis based on Cloud-based service consumption using call-off contracts provided by the OCRE/GÉANT Frameworks. The consumption (cumulative) reflected indicates a 100% growth year-on-year since 2017. This is likely to continue and possibly accelerate. WP8 hopes that the subsequent usage reporting due in 6 months reflects this trend.



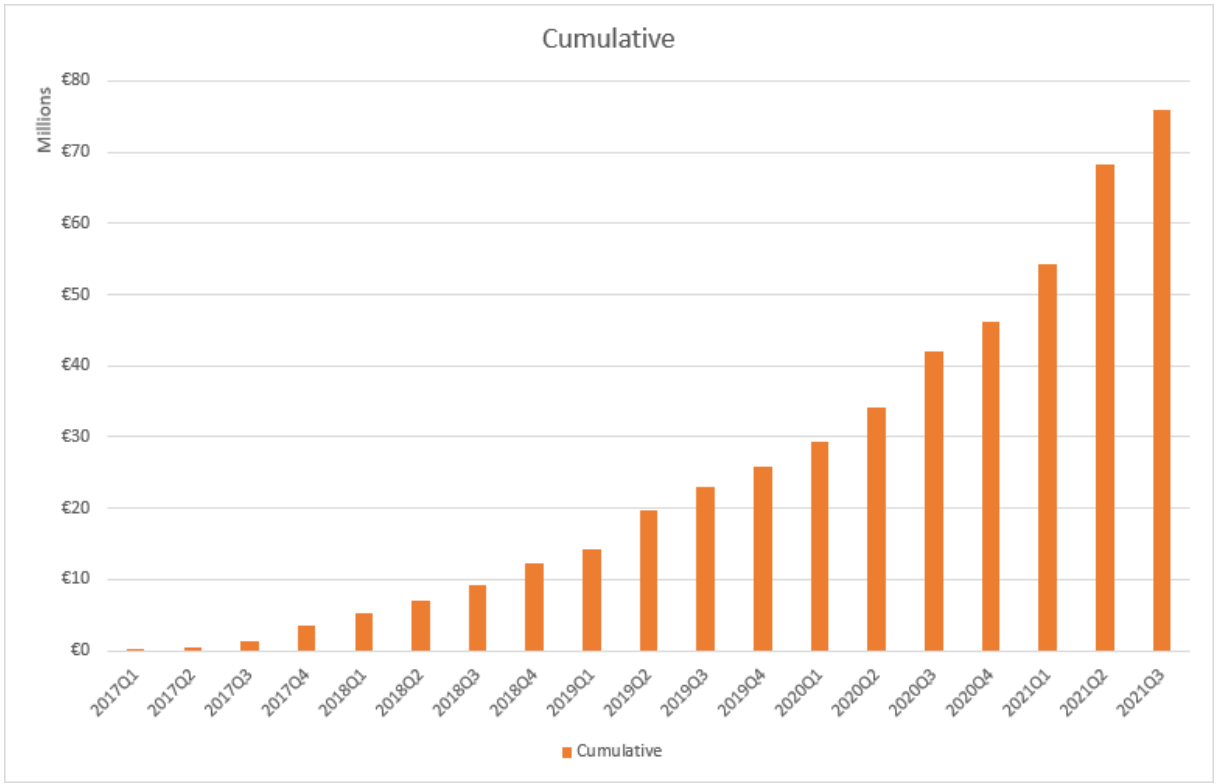


Figure 3.2: Cloud trending charts

4 Case Studies highlighted in Reporting Period

This section highlights two case studies that are directly relevant to the broader ambitions and activities of the EOSC projects. They have been identified and reported on by the National Research and Education Networks (NRENs), who are responsible for the support of procurement activities under these frameworks. These examples clearly demonstrate the benefit to the research community of commercial cloud services consumption.

4.1 High Performance Compute - A flexible alternative to on-site HPC

The University of Bath is one of the UK's leading research-intensive universities. It has 500 active researchers and a £150m research portfolio, with a strong focus on high impact interdisciplinary research.

'We have had an on-site high-performance computing (HPC) facility for a long time', says Dr. Roger Jardine, deputy director of technology at the university, and he continues: 'But in the digital, data and technology (DDaT) group we believed public cloud would offer HPC users more flexibility, so we set up a pilot project to test the theory'.

The project's final report showed that functionality in Azure was at least as good as in the current HPC set-up. It also highlighted implications for the future of research – notably, that enhanced scalability allows researchers to work more efficiently and in ways that suit their own workflows, without having to plan their requests for compute time and then wait for it to become available. The full case study is referenced for more details [1]

4.2 EMBL-EBI selects Google Cloud as Strategic Partner

Hosting the world's most comprehensive range of freely available and up-to-date molecular data resources, **EMBL's European Bioinformatics Institute** (EMBL-EBI), announced it has chosen Google Cloud as a strategic cloud partner.

As part of a new, comprehensive, five-year partnership, EMBL-EBI will tap Google Cloud's innovative technologies and global infrastructure to accelerate the pace of service delivery to its global user community, which includes research labs, pharmaceutical companies, academic institutions, and more.

EMBL-EBI hosts a range of open data resources for the life sciences community, spanning genomics, proteins, chemical data, and more. These data resources are freely and openly available for anyone to use, similar to a digital public library. This approach supports open science and speeds up scientific discovery on a global scale.

EMBL-EBI will use Google Cloud's cloud infrastructure and services to accelerate the processing of data from the community, providing more value for researchers and stakeholders, and delivering new insights through EMBL-EBI's data resources. The full case study is referenced for more details [2]

5 Conclusions

In conclusion, research institutes across Western Europe are engaging in the consumption of cloud-based services at a rapidly increasing rate. Each subsequent report should reflect this trend as it continues to accelerate and highlight new countries starting to adopt these services further east in the region.

The WP8 deliverables should collectively represent a baseline, followed by the adoption of new cloud-based services, and the accelerating trend associated with this;

1. D8.1 identifies all cloud services that are easily procurable by the institutes via the OCRE framework catalogue.
2. D8.2a shows the current consumption figures and reflects the current trend in the procurement of these services across the region (rate of adoption).
3. D8.3 will provide an analysis of those commercial services required by the research community that are not yet available via EOSC project catalogues. The EOSC Future business desk will deliver a procurement plan to ensure that these services are onboarded and become available.
4. D8.2b will reflect the consumption rate and distribution of all these cloud-based services through until the end of the project.

References

[1] OCRE reassures senior managers about moving to public cloud [online] Available at: <https://repository.jisc.ac.uk/8516/1/ocre-case-study-university-of-bath-moves-to-public-cloud.pdf> [Accessed 15 December 2021].

[2] EMBL-EBI selects Google Cloud as strategic partner to accelerate the pace of research | EMBL's European Bionformatics Institute. [online] Available at: <https://www.ebi.ac.uk/about/news/press-releases/embl-ebi-selects-google-cloud-strategic-partner-accelerate-pace-research> [Accessed 15 December 2021].