

EGI Pay-for-Use Proof of Concept

Final Report 2014

Executive Summary

EGI currently operates within the publicly funded academic research environment providing services free at point of delivery with resources funded from grants dedicated to certain groups or disciplines either by direct allocation or by peer review. With the advent of cloud computing, business models and user expectations are shifting towards on-demand and pay-per-use service provision increasing flexibility and agility which creates opportunities to areas of research that have more intermittent demands for computational resources. This new paradigm provides motivation for EGI to explore new service definitions by enabling the possibility to provide ICT services that can be paid for the use, along with the more traditional procurement of resources to be managed and offered for free to the owners.

In addition, sustainability of EGI requires a multifaceted approach. One aspect of EGI's strategy is the increase of business development activities and the potential addition of pay-for-use models. To achieve such a result depends on community engagement from a wide range of both technical and non-technical competencies to implement.

In early 2013, the EGI Council approved a policy to explore business models for pay-for-use service delivery to couple together with the traditional method of free-at-point-of-use. The goal of this activity is to support the implementation of this policy in collaboration with NGIs through the definition and execution of proof of concepts. The mandate of the group is to create a proof of concept pay-for-use prototype.

Advancing from an initial exploratory report approved by the EGI Council in 2013, a Pay-for-Use Proof of Concept group¹ was launched in January 2014 on a best effort basis with formal funding activities starting in May 2014 as a dedicated task within EGI-InSPIRE.

Overall, the group consisted of more than 40 Members and Observers from EGI.eu (Lead), Resource Centers, NGI NILs, and Commercial Companies. In addition to regularly scheduled phone conferences, two dedicated sessions at the EGI Community Forum in Helsinki and the EGI Big Data workshop in Amsterdam (Sept).

The following sections provide a high-level view of the main activities, results achieved, and recommendations moving forward. A full report detailing group activities, technical development and individual status of each EGI resource provider, and ultimately serving as the starting point for future actions in 2015 is available on the DocDB².

Main Achievements

- Complete business processes defined and system tested and approved by resource providers:

¹ https://wiki.egi.eu/wiki/EGI_Pay-for-Use_PoC

² <https://documents.egi.eu/document/2377>

- Providers to publish pricing information; customers to discovery services and prices; request submission; negotiation and SLA; VO set-up; accounting of consumed resources; invoicing.
- Tools adaptation
 - GOODB extensions added to set pricing: cloud compute and storage, grid compute and storage, VAT.
 - Accounting Portal extended for price information accounting.
 - e-GRANT developed to offer both a user-facing interface and enable providers to receive requests, negotiate the service and price and allocate resources.
- Sites Publishing Pricing Information
 - 20 Organisations across 13 Countries
 - 20 Grid Sites: Belarus; Bulgaria; Germany; Greece; Italy; Latvia; Poland; Spain; Switzerland; Turkey
 - 10 Cloud Sites: Finland; Greece; Italy; Poland; Slovakia; Spain; Turkey; UK
 - 15 Storage sites: Bulgaria; Greece; Italy; Spain
- Price Ranges (incl. support)
 - Grid (HEPSPEC/hr): €0.01-€0.15 (Avg. €0.05; Median €0.05)
 - Cloud (wallclock/hr): €0.03-€0.11 (Avg. €0.05; Median €0.05)
 - Storage (€/GB/month): €0.01-€0.14 (Avg. €0.04; Median €0.04)
 - +/- VAT 8%-24% (where applicable)
 - Taxation report available at³
 - Prices to be valid for one year once in production
- Assurance of service management best practices based on FitSM
 - Links to EGI's overall ITSM service management system.
 - Reuse of agreements: SLAs, OLAs
 - Development of a proposed Service Catalogue Record defining provider service offerings and capabilities.
- Business models and pricing schemes defined: selling of physically resources (pay-per-use; packaged), joint development projects, and consultancy.
 - Legal and Policy solutions emerging for institutions not fully able to engage in commercial activities: e.g. research-only purpose statements; charging for human services with resources offered for free (however, monetary value of those services is now able to be calculated).
- Business opportunities being explored (Section 5).
 - Helix Nebula Marketplace (HNX); Engineering SpA (Large Italian IT company); European Space Agency; Pre-commercial procurement (PCP) / Public procurement of innovative solutions (PPI) (e.g. Cloud for Europe; PICSE - Procurement Innovation for Cloud Services in Europe); 100% IT (UK SME cloud provider); Charity Engine (UK Desktop Computing Company); Arctur (Slovenian SME HPC/Cloud provider); Zenotech (UK SME Marketplace).
 - Others being explored through formal Business Engagement Programme (Section 5).
- National exposure and initiatives underway and there are already examples of success stories with various levels of pay-for-use capabilities (Section 6).
 - Ready for production (8): CESGSA (ES), IFCA-CSIC (ES), 100% IT (UK), Albert Einstein Center Univ. of Bern (outside CH users only), MASTER-UP (IT) (limited capacity); TUBITAK (TR); II SAS (BG); INFN-Bari (IT).
 - Ability through joint development projects (1): GRNET (GR).
 - In development (2): CSC (FI) (organisationally ready, finalising FedCloud testing), UIIP-NASB (BY)

³ <https://documents.egi.eu/document/1391>

- Internal decisions on-going (4): Bulgaria Grid; PL-Grid (for outside PL users only); Fraunhofer SCAI/LRZ (DE); Latvia Grid.

Future Recommendations

- User-facing graphical interface – all technical development is complete and a design mock-up created (screenshot in Section 3) – will be ready by end of Jan 2015 (based on e-GRANT).
- Increase automation of varying pricing schemes beyond pay-for-use and packaged services (e-GRANT terminology of “pools”).
- Integrate an automated billing function
- Mature EGI.eu's role as a full central broker
 - Contractually: EGI.eu currently does not have a VAT number and potentially needs a separate business entity
 - Pricing model: Registration fee, % of transaction, etc.
- Align closely with future ‘Marketplace’ activities, which have a very large crossover with the P4U PoC.

Value Proposition

One of the most important aspects when looking at adding pay-for-use mechanisms is to understand the value proposition and determine the differentiating factors from current market solutions. It is clear that there are a number of commercial cloud offerings available, such as Amazon Web Services or Microsoft Azure. In fact, the goal of EGI pay-for-use is not to be a replica of current solutions and in direct competition. However, in order to do so, it is essential to outline the value provided.

1. Focus on research and development activities.
2. Support pre-commercial applications and innovation.
3. Offer dedicated consultancy (e.g. application porting) and high-levels of support rather than bare bones cloud.
4. Ensure competitive pricing to avoid undercutting market.

In addition, currently in academic research grant funding seldom funds operational expenditures (OPEX), but instead focuses more on capital expenditures (CAPEX). Commercial cloud providers work strictly on an OPEX basis, therefore academic institutions can offer CAPEX investments from researchers into their cloud infrastructures, which is compatible with current funding models. So it is foreseen that both types of cloud providers (commercial and academic) will be needed for the foreseeable future.

The vast number of Resource Centres have years of experience in supporting researchers to run distributed computing applications and a mandate to do so. Whether or not individual prices are higher or lower, by coupling tailored research support and consultancy with the access to high-quality IT resources through flexible open-source interfaces, EGI can easily differentiate itself and demonstrate the value for researchers who receive funds to purchase services and the funding agencies who support them. Hence the core value proposition is:

Access to on-demand IT resources with tailored research support and consultancy to accelerate scientific results.