Contribution ID: **2** Type: **Demonstration**

Customizable Elastic Kubernetes on EGI Cloud Compute

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The EKaaS (Elastic Kubernetes as a Service) is an on-demand service to deploy Elastic Kubernetes clusters on the EGI Cloud Compute. EKaaS has been partially funded in the Second EGI Strategic and Innovation call and aimed at the development of a convenient service for the provisioning customization of self-managed Kubernetes clusters.
The service is fully operational at http://servproject.i3m.upv.es/ec3-ltos and provides the following functionality:
- Full integration with the EGI Check-in and support to members of the vo.access.egi.eu VO. Any user belonging to this VO is entitled to deploy a cluster in any of the sites that support it.
- Integration with the appDB information system for the retrieval of the available endpoints, Virtual Machine base Images and instance flavours. Therefore, the cluster fits the configuration of the target cloud compute site.
- Self-elasticity according to the workload, thanks to CLUES (Cluster Energy Savings). A minimum number of nodes are deployed to deal with the workload of the cluster. As the workload increases (provided that the Kubernetes objects make use of the "resources/limits"attributes), new nodes are powered on and added to the cluster, up to a maximum number fixed by the user at deployment time. If the workload reduces, the cluster will be shrunk automatically.
- Deployment of a Kubernetes Dashboard (clusterurl/dashboard/#/login) and a Kubeapps dashboard (clusterurl/kubeapps/#/login) to customize the clusters deployed with custom and official Helm Charts from bitnami and google repositories. The user can easily add services such as databases, web servers, application development, key-value stores, logging, visualization, networking and data analytics among others, to the cluster through a graphical interface without developing the Kubernetes specifications for the deployment of those applications. In the four official repositories included there are over 300 software components available.
The service is open to any user given the above conditions and it is released under Apache 2.0 open source license in https://github.com/grycap/ec3, so it can be easily customized and deployed for a different VO.

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