

## MICADO SERVICE BENEFITS

The results of project COLA enable generic application developers to implement applications that automatically optimise cloud resource utilisation based on application developer/operator defined quality of service parameters (QoS).

Application developers will be able to extend their application code with MiCADO service calls (the generic set of services developed by project) in order to utilise the scalability and optimisation services at both deployment and also at run-time.

Application operators will be able to define desired quality of service parameters, e.g. maximum response/ completion time, maximum cost, security policy requirements etc. MiCADO services will assure that the application is deployed in an optimal way based on the defined parameters.

Moreover, MiCADO services will monitor the application at run-time and will automatically scale it up or down in order to optimise application execution based on the user-defined multidimensional set of QoS parameters. Users/application operators can also modify the parameters during run-time to trigger rescaling of resources, if necessary.

Resources:  
<http://ocopus.lpds.sztaki.hu>  
<http://www.project-cola.eu>

## PROJECT PARTNERS



**COLA**  
Cloud Orchestration  
at the Level of Application

**Project Director:** Dr. Tamas Kiss (UoW)  
t.kiss@westminster.ac.uk  
**Project Manager:** Dr. Gábor Terstyánszky (UoW)

UNIVERSITY OF  
WESTMINSTER



RI  
SE



CloudBroker



CloudSigma

saker solutions



innovation technologies

Published by:



cloudSME UG  
Bismarckstr. 142  
47057 Duisburg  
Germany

Email: cola@cloudsme.eu  
Tel. +49 (0) 203 3639 9955

For more information please visit  
<http://www.project-cola.eu>

## SECURE & SCALABLE MULTI-CLOUD



**COLA**

Cloud Orchestration  
at the Level of  
Application

- [www.project-cola.eu](http://www.project-cola.eu)
- [twitter.com/projectCOLA](https://twitter.com/projectCOLA)
- [facebook.com/projectCOLA](https://facebook.com/projectCOLA)

Project COLA – Cloud Orchestration at the Level of Application receives funding from the European Union's Horizon 2020 research and innovation programme (Grant No. 731574).



## ABOUT PROJECT COLA



**Project COLA is an Innovation Action funded by the European Commission as part of the Horizon2020 Programme. The project started in January 2017 and will last 30 months. The consortium includes 10 companies and 4 research organisations out of 6 different countries from Europe, including the United Kingdom, Hungary, Sweden, Switzerland, Spain and Germany. The coordinator of the COLA project is Dr. Tamas Kiss, University of Westminster (UK).**

SMEs and public sector organizations increasingly investigate the possibilities to use cloud computing services in their everyday business conduct. Accessing services and resources in the cloud on-demand and in a flexible and elastic way could result in significant cost savings due to more efficient and convenient resource utilization that also replaces large investment costs with long term operational costs. On the other hand, the take up of cloud computing by SMEs and the public sector is still relatively low due to limited application-level flexibility and also security concerns.

**Project COLA (Cloud Orchestration at the Level of Application) aims to increase the adoption of cloud computing services by SMEs and the public sector as strategic target communities.**

## APPROACH AND OBJECTIVES

Typical industry and public sector applications require resource scalability and efficient resource utilization in order to serve a variable number of customers with dynamic resource demands, and to suitably optimize resource consumption and costs. However, the dynamic and intelligent utilization of cloud infrastructure resources from the perspective of cloud applications is not trivial.

Although there have been several efforts to support the intelligent and coordinated deployment, and to a smaller extent also the run-time orchestration of cloud applications, no comprehensive solution has emerged until now that could be applied in large scale near operational level industry trials.

The overall objective of the COLA project is therefore to define and provide a reference implementation of a generic and pluggable framework that supports the optimal and secure deployment and run-time orchestration of cloud applications: **MiCADO**

## MICADO ORCHESTRATOR SERVICES

**MiCADO (Microservices-based Cloud Application-level Dynamic Orchestrator) services provide dynamic and automated resource scalability on clouds for all (or at least a very wide range of) applications.**

MiCADO services can be expressed with a set of well-defined (standardised) interfaces to be easily embedded into application control code without changing the original application logic.

Moreover, MiCaDO services can connect to multiple cloud

middleware (e.g. EC2, CloudSigma etc.) or generic cloud access layer (e.g. CloudBroker Platform) via a set of well defined (standardised) interfaces.

Data consistency, data protection, trustworthiness and access control are handled in a secure way when sharing and migrating applications within a single cloud or between multi-cloud platforms.

