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Elasticity Engine Tool User Guide

Activity 4: Basic Service Operation

WP 4.2: Cloud Runtime Optimization

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Dissemination Level

PU	Public	X
PP	Restricted to other programme participants (including the Commission)	
RE	Restricted to a group specified by the consortium (including the Commission)	
CO	Confidential, only for members of the consortium (including the Commission)	



Version History

Version	Date	Comments, Changes, Status	Authors, contributors, reviewers
1.0	2012-04-05	Created document.	
2.0	2013-03-16	Modified Document for Y3	Ahmed Ali-Eldin

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1 Introduction

This document includes the user guide for the software component Elasticity Engine Tool.

Section 2 details the component's release information and provides an overview of its functionality and provided methods. It also details its limitations, as well as its code information and directory structure. Its usage and testing procedures are also provided. Finally, Section 3 contains references for further information.

1.1 Glossary of Acronyms

Acronym	Definition
D	Deliverable
IP	Infrastructure Provider
JDK	Java Development Kit
SP	Service Provider



2 Elasticity Engine Tool User Guide

2.1 Release information

Component Name	Release Number	Release Date
Elasticity Engine Tool	3.0	2013-03-16

Table 1: Release Information

2.2 Introduction

The Elasticity Engine is responsible for the enactment of elasticity. It receives information from the Monitoring System about updates of the terms (the runtime state) that in the service manifest are associated with elasticity rules. For each updated state datum, the engine controls whether to trigger a rule. Examples of elasticity rules of an SP include, for instance, allocating more storage if the number of users of a service exceeds 500. On the contrary, rules at the IP level can determine, for instance, that an additional application service VM must be started if more than 5% of user requests are lost during the last 5 minute period. Upon triggering of an elasticity rule, the engine emits an action (e.g., to start or shutdown a VM) to the VM and/or Data Management components.

2.3 Functionalities

In this section you can find the available functionalities provided by the EE which can be accessed using the EE Rest interface (RestInterface.java)

Name	Description	Input	Output
startElasticity	The interface to start an instance of the EE for a newly deployed service	String serviceID, String serviceManifest, boolean LowRiskMode, SP-address	Boolean, True if success, false otherwise
updateCallback	Register a callback for asynchronous elasticity control	String serviceID, ElasticityCallback callback	Boolean, True if success, false otherwise
stopElasticity	Called to deactivate elasticity for a Service	String serviceID	Boolean, True if success,



			false otherwise
updateElasticityRules	Update the Service Manifest for a particular service. This affects all VM types associated with this manifest.	String serviceID, String serviceManifest	Boolean, True if success, false otherwise
getPrediction	Called to return a future prediction for a given VM type	String serviceID, String imageID, int timeSpanInMinutes	String
setMode	Called to change the mode of operation.	String serviceID, boolean proactive	Boolean, True if success, false otherwise

Table 2: EE Calls supported

2.4 Known limitations

None

2.5 Getting Started

2.5.1 Using the Software

The Elasticity tool is started in a web-server container. Please consult the installation manual for how to install it and run it using Jetty and Tomcat containers.

2.5.2 Testing the Software

Please see the validation and verification document, D1.1.2.3.

2.5.3 Configuration

N/A

2.6 FAQ

N/A

2.7 Other information

2.7.1 Source Code Information

The EE Tool has been developed in Java. Code is available on the SVN.

2.7.2 Contributors

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3 References

- Self-managed Cloud Runtime Detailed Design, Deliverable ID4.2.1 of OPTIMIS project.