Cloud Computing Systems – 2023/24

Project 2

Project to be implemented in groups of up to three elements. Students are allowed to form new groups in this second project.

1. Description

The goal of this assignment is to use Docker and Kubernetes in the deployment of the first project you have developed. In particular, your solution should be able to:

- (mandatory) Deploy your application server in Azure Kubernetes Service.
- (mandatory) Deploy the caching service (Redis) in Azure Kubernetes Service.
- (mandatory) Use a persistent volume to store media data (replacing the Blob Storage).
- (optional) Replace Cosmos DB by a database deployed in Azure Kubernetes Service.
- (optional) Replace timer and http-triggered Azure Functions by HTTP servers and Kubernetes functions.
- (mandatory) Test your deployment using artillery.
- (optional) Deploy the test system in Azure Container Instances and collect results with clients running in different data centers.

Check lab 9 for details on the steps necessary to achieve these goals.

1.1 Environment

This assignment should be tested using Azure Kubernetes service.

NOTE: Be careful with the cost when you leave services/resources running, in particular those that are more expensive, such as VM in Azure Kubernetes service.

Be careful in the selection of the VMs to use for your cluster.

2. Report

The assignment report should include: a) 1 page describing the assignment solution; b) 1 page with a summary of the results obtained (including some info on how the results compare to the ones obtained in project 1); and c) the necessary pages for the following annex: (1) Dockerfiles created; (2) Kubernetes deployment files; (3) anything else relevant for running the solution (11pt font, A4 with decent margins).

3. Grading

The mandatory part of the project will be valued in up to 15 point. Maximum grading from the optional parts is 5 points.

4. Important Dates

10/December – delivery of the scripts and report.