Zurich University
of Applied Sciences

School of
Engineering

SCAD P05 – Applications with Long-Running Constituents

This is a one-week lab, i.e. SW 7, submission before SW 8 lecture.

1. Application Extension

Extend your application from P04 with one short-running and two long-running containerised processes exposed as microservices. Think of a suitable stateless or stateful functionality, for instance:

- containerised data store (only for didactic purposes; requires a lot of care to avoid data loss) running in CaaS
- web service implemented as web application
  - translation, analytics, other functionality according to your application domain
- function reimplemented from code-oriented FaaS into serverless CaaS (or container-oriented FaaS)

Follow these steps to produce your advanced mixed-technology application:

- *keep it simple!*
- create a Dockerfile per intended containerised microservice
- build the Docker images and submit them to Docker Hub
- optional: create a deployment definitions that activate both long-running containers
  - e.g. docker-compose for local testing in a composition
- run the images permanently in one of the provided container services (e.g. APPUiO oc import or the equivalent Docker image import functionality in the OpenShift web interface, or the respective AWS/GCP/Azure/... services based on K8s or similar container platforms) for long-running processes
- run on-demand in serverless CaaS container runtimes (Fission, AWS Fargate, Google Cloud Run, Azure ACI etc.) for short-lived processes that eventually get forcefully terminated by the CaaS runtime
- extend your FaaS-based application to use the three microservices somewhere on the typical invocation path

Submit the code + Dockerfiles + composition/deployment files to your team's Git repository and provide a link to the demonstratable instance of your application and to the Docker Hub repository. Explain the extended application in a README file with some reasoning about the complexity. Do you consider it multi-cloud/cross-cloud, cross-country/region, polyglot, mixed-/polytech, cloud-native, ...?

Your time budget is 90 minutes lab presence time and one week until the next lab additional time.