



Thesis Topic

Automatic deployment of containerized software applications

Motivation

Many software applications are developed following microservices architectures and container-based deployments. Docker containerization and Kubernetes orchestrator are popular software to deploy and manage containers that execute microservices.

The characteristics of the way the software application that has to be orchestrated (that is, deployed in containers, scaled, restored failed components, etc.) is defined following the Infrastructure as Code (IaC) paradigm. However, writing the IaC documents is not an easy task.

Tasks

This thesis will make easier the IaC writing task for software engineers.

Propose and implement a graphical modeling language that allows to define all the information (components, hosts, etc.) that is necessary for the deployment in containers of a microservice-based application and its runtime management.

Transform the information in the graphical model to an Infrastructure as Code document that is accepted by an orchestrator.

Prerequisites *

Software Engineering (2DV603)
Software Architecture (2DV604)
Model-Driven Engineering
UML
Motivation to work on the problem

Supervisor(s)

Diego Perez diego.perez@lnu.se
Michele Guerriero michele.guerriero@polimi.it