From Edge to Cloud: Dynamic Workload Placement on Edge - Cloud Platforms

In the past several years, there has been an increased usage of smart, always-connected devices which provide real-time contextual information with low overhead to optimize processes and improve how companies and individuals interact, work, and live. This growth in IoT is already contributing to an escalating explosion in data generated at the periphery of communication networks. Since the network resources are limited, a cloud-based computation approach seems not able to address the strict latency requirements for the whole bulk of data produced.

In this thesis, we will investigate several cloud paradigms such as microservices, containerization and serverless computing which provide solutions for interconnecting the nodes and deploying software across a cluster. Then we will design a model and implement a solution that addresses the aforementioned problem.

Keywords:
IoT, Edge Computing, Cloud computing, Serverless, Resource management

Prerequisites: Linux, Bash/Shell scripting, eager to learn new things, System design thinking

Knowledge & Experience the student will acquire:
- Research experience on state-of-the-art topics
- A broader understanding on cloud-edge systems design
- Use and configure trending technologies and frameworks (Kubernetes, Serverless, Docker, Edge Computing)

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