

# Multi-cluster Migration of MEC Applications

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**Summary:** Nowadays, more and more devices are connected to the internet, generating a lot of data and requiring constant and fast communication with remote servers. This data is usually processed far from the user that consumes it, leading to high latency and low-efficiency problems. **Multi-access Edge Computing (MEC)** aims to improve this by bringing **cloud-like** computation closer to the network's edge. To achieve this, it is being used **Software Defined Networks (SDN)** and **Network Functions Virtualization (NFV)** to push the **development of MEC** as these technologies offer many **reusable features** that can do **MEC workloads**.

The main goal of this work is to introduce new functionalities that improve the **integration of NFV and MEC**, specifically enabling the automatic **migration of MEC applications** between different **MEC clusters**.

# Work done / results

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- ❖ Continued the analysis of the state of the art and standards on **MEC, NFV, orchestration, management, migration** and **5G**.
- ❖ Started working with **MEC Applications** and an open-source **MEC Application Orchestrator (MEAO)** by learning how to use the platform, how to develop MEC Applications and how to instantiate them.
- ❖ Contributed to the **MEAO** with a new feature to allow additional parameters when instantiating the MEC Applications. Improved the code by removing hard-coded values, making proper use of the helm chart values, adding missing parameters, and using default values when needed. Improved the documentation.
- ❖ Contributed to some projects in Instituto de Telecomunicações by developing and testing MEC Applications for their programs.

# Future work / challenges

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- ❖ Continue the analysis of the state of the art and standards on MEC.
- ❖ Obtain latency metrics from a **5G NEF (Network Exposure Function) Emulator** to ensure more realistic migration decisions and results, and to ensure that the MEAO platform would be easily integrated in a final implementation scenario.
- ❖ Develop a **5G SMF (Session Management Function)** to allow the NEF Emulator to be completely integrated into a more comprehensive 5G core network environment, which will allow the practical use of the NEF Emulator as there still is no real implementation of this network element.