



# OPENHEARTED

## Openflow-based software-defined Real-Time Ethernet



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The objective of this project is to study the application of software-defined networking (SDN) approaches to real-time Ethernet (RTE) networks.

The results of this project will pave the way for the creation of a highly innovative software-defined real-time Ethernet protocol that has the potential to provide features and offer options to industrial communication solutions that go beyond what is achievable using current solutions and technologies regarding properties like flexibility, interoperability or manageability.

In a first step, the high-level requirements of RTE networks that differ from those of conventional communication networks – in which SDN has been so far applied – will be analyzed and specified. To assess the fitness of SDN to fulfil the identified requirements, a matching against the OpenFlow specification will be performed, existing projects and implementations that have already solved demanded requirements studied, and proof-of-concepts using the Mininet tool for rapid-prototyping of software-defined networks will be developed. In a final step, existing state-of-the-art OpenFlow-capable devices will be evaluated using a network performance measurement tool to find out possible shortcomings and suggest necessary or preferable modifications and enhancements.

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