Fog Computing (Summer Term 2023)

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Prototyping Assignment

In the prototyping assignment, you will design and implement an application that has to cope with various fog-specific challenges. You are free to design the application according to your wishes as long as you follow the general requirements defined below. You will work in groups of two.

You will have to prove in a (well structured!) demo presentation video (2min +/-30sec) that your application works as intended and that it fulfills **all** requirements. Please also provide us with a documentation of your application (max. 1 page of written text and 10 pages overall if you include screenshots) and a link to the public git repository (with license) where you manage your source code.

Due until **July 11, 2023**; submission via ISIS.

Requirements

1. Your application must comprise a local component that runs on your own machine, and a component running in the Cloud, e.g., on GCE.
2. Your local component must collect and make use of (simulated) environmental information. For this purpose, design and use a minimum of two virtual sensors that continuously generate realistic data.
3. Data has to be transmitted regularly (multiple times a minute) between the local component and the Cloud component in both directions.
4. When disconnected and/or crashed, the local and Cloud component have to keep working while preserving data for later transmission. Upon reconnection, the queued data needs to be delivered.

Further Notes

- You can build your application using any standard programming language but are not allowed to use any Cloud services or frameworks that take care of resolving fog-specific challenges, e.g., regarding reliable message delivery (messaging libraries such as ZeroMQ are ok). The goal of the assignment is for you to build a fog application and to manually implement the reliable delivery of messages.
- Don’t plagiarize. If you reuse source code from somewhere else provide a reference (like you would with a citation in a written text).
- You can use tools such as obsproject.com for preparing your video.
- If you want to use GC, you can get a 50$ grant code by filling out the form on the ISIS course page **until June 4**.