MASTER THESIS – INTEGRATION TEST OF SOFTWARE CAPSULES USING GOOGLE TEST

Background
Mobile networks are used all over the world and are the cornerstone in the networked society, where everything that benefits from a connection shall be connected. To support the vast amount and diversity of data expected in future networks, Ericsson is developing products to drive and support the networked society. The subjects for Master Thesis are defined to investigate and develop algorithms, architecture, tools etc. to support huge increase of speech, data and massive IoT for Radio Access Networks.

Significant parts of the software in Ericsson 4g radio base-stations are developed in a modeling environment (RSA RTE) where C++ classes are generated from modeled capsule classes. The current test environment is a unit test environment where each capsule class is tested separately. However, it would be beneficial with a lightweight integration test environment where several capsule classes could be tested together.

Thesis Description
The purpose of this thesis is to investigate the possibility to test code generated from different RSA RTE capsules together using Google Test. The following steps are envisioned as part of the thesis:

- Literature study of recommendations and design patterns for integration testing
- Based on findings, analyze and propose how the current unit test environment can be extended to accommodate integration tests. Analyze the speed in both development as well as benefits in terms of quality and its advantages and disadvantages.
- If possible, implement a prototype.

The thesis will be concluded with a result presentation for the Ericsson team.

Qualifications
This project aims at students in electrical engineering, computer science, computer engineering or similar with good knowledge in integration testing, Google test, modeling and C++. A basic understanding of mobile networks is helpful.

Extent
1-2 students, 30hp each

Location
Ericsson AB Mjärdevi, Linköping

Preferred Starting Date
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Keywords
C++, Mobile Telecommunication, testing, Google test

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