Master Thesis – Develop a Meta Language to Implement Logical Error Handling on Top of Google Protocol Buffer

Background
Mobile networks are used all over the world and are the cornerstone for the networked society, where everything shall be connected. To support the vast amount and diversity of data expected in future networks, Ericsson are 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.

Thesis Description
Google Protocol Buffer (GPB) is used to define the data format of packets sent between two applications. GBP supports adding and removing fields without coordinating the applications, i.e. they can be released independently, and the wire format is still backwards compatible. However, in many cases there is also a need for defining a logical error handling based on the data content, i.e. combinations of field values are not allowed, or fields are critical if other fields have specific values.

Task
- Define a meta language to be able to express logical error conditions as part of the Google Protocol Buffer definition and possible implement support generating code that executes the checks.

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.

Extent
1-2 students, 30hp each

Location
Ericsson AB Mjärdevi, Linköping

Preferred Starting Date
Spring 2019

Contact Persons
Johan Wibeck
johan.wibeck@ericsson.com

Michael Lundkvist
michael.lundkvist@ericsson.com