Background
Load-balancing is used to balance the number of mobile devices using different frequencies by performing handover of mobile devices from an over-utilized frequency to an under-utilized frequency. This is in order to improve the overall performance of the mobile networks.

The mobile device can be moved between frequencies while it is sending data (active mode), thus increasing delays before the data is delivered, or it can be moved between frequencies while it is not sending any data (inactive mode). The benefit of moving a mobile in inactive mode is that the mobile device does not suffer any delays. However, it is not certain that the decision to move the mobile device is relevant the next time the mobile device sends data. In addition, moving an inactive mobile device does not move any actual load, but assumes that the mobile device will become active again.

Thesis Description
This thesis aims to investigate and compare the benefits and drawbacks of different load-balancing approaches through simulation. One of the challenges of the thesis will be to design and implement methods for load-balancing in a simulator. Another important part of the thesis is to decide how to compare the methods and perhaps define new measurements for this purpose.

Qualifications
This project aims at students in electrical engineering, computer science, computer engineering or similar. Interest in wireless communication and experience with Java and/or Matlab is beneficial.

Extent
1-2 students, 30hp each

Location
Ericsson AB Mjärdevi, Linköping

Preferred Starting Date
Jan/Feb 2018

Keywords
Mobile Telecommunication, Load-balancing, Optimization, Simulation