

# Weekly report: Week 6 of dissertation for Uninett AS on authentication in IoT

by Magnus Bakke & Liang Zhu at Informatics with specialization in network administration at the Norwegian University of Science and Technology

## Activities

### Monday February 4

We did not succeed in getting the hotspot solution to work using the guide we followed the first time, so we decided to follow a different guide. We succeeded in automatically connecting to Eduroam on one of the two antennas and proceeded to attempt to get the hotspot functionality to work as desired. We briefly had a working hotspot, but this soon became unstable. We traced the problem back to unstable software and hardware limitations, and managed to get a *slow* hotspot running. With this, we have a basic proof of concept for the hotspot solution. The next step is to analyze the traffic routed through the Raspberry Pi, and then design a streamlined solution for deployment.

Work on the prestudy continued. Some confusion arose regarding Norwegian terms such as *resultatmål*, *effektmål*, *prosessmål* and *forstudierapport*, some of which seem to have no English equivalent. We plan on discussing questions regarding the prestudy at the meeting on Wednesday.

We planned on asking Jørn to write an email to Aruba, Aerohive, Ruckus and Riverbed about access to their multi-PSK solutions on our behalf, but he was not present.

### Tuesday February 5

We spent the majority of the day working on the prestudy report and documenting the steps necessary to replicate the working hotspot.

### Wednesday February 6

Our bi-weekly meeting was held. During this meeting, Otto found a link that explained how to enable PPSK on a Raspberry Pi. We tried this solution and managed to configure one SSID with multiple PSKs. Each PSK is linked to a MAC address, so this solution requires that the user knows their device's MAC address, but it will be invaluable as a simulation of proprietary software for now.

February 8, 2019

Magnus Bakke & Liang Zhu

Tom Ivar let us know that a friend of might be able to get us a Cisco access point with PPSK capabilities. Relevant link:

<https://www.cisco.com/c/en/us/solutions/enterprise-networks/mobility-express/index.html>

Work on the prestudy report continued.

## Friday February 8

We researched Cisco ISE, as it claims to support BYOD (Bring Your Own Device). The bulk of the prestudy report is now completed. Analyses remain.

## Saturday February 9

We kept researching Cisco ISE, but eventually found out that the IoT solution requires installing certificates on the device, which makes it useless for our purposes, as most IoT devices do not support certificates.

## Remarks

We are slightly behind schedule when it comes to designing solutions, though we do have a few drafts.