

I. IDENTIFICATION DATA

Thesis title:	Content Caching in Mobile Networks with UAVs
Author's name:	Filip Krupka
Type of thesis :	master
Faculty/Institute:	Faculty of Electrical Engineering (FEE)
Department:	Department of Telecommunication Engineering
Thesis reviewer:	Flores Cabezas Alejandro
Reviewer's department:	Centre for Wireless Communications - University of Oulu

II. EVALUATION OF INDIVIDUAL CRITERIA

Assignment	challenging
<i>How demanding was the assigned project?</i>	
The problem itself is a complex combinatorial optimization problem. While the tasks were solved through heuristics, a good amount of analysis was done.	

Fulfilment of assignment	fulfilled with minor objections
<i>How well does the thesis fulfil the assigned task? Have the primary goals been achieved? Which assigned tasks have been incompletely covered, and which parts of the thesis are overextended? Justify your answer.</i>	
The main objective of the work is presented as the solution to an optimization problem. While the solution presented does address the problem objective, and some local benchmarks are presented, there is no consideration for optimality of the solution. It is also initially presented as a joint optimization problem and later it is separated into isolated problems for each variable. This is understandable due to the complexity of the joint optimization problem, however some clarification on this sub-optimality would have been appropriate.	

Methodology	correct
<i>Comment on the correctness of the approach and/or the solution methods.</i>	
The solutions manage to give a sub-optimal solution to the proposed problem and they are well justified and obtained.	

Technical level	B - very good.
<i>Is the thesis technically sound? How well did the student employ expertise in the field of his/her field of study? Does the student explain clearly what he/she has done?</i>	
The technical content of the thesis is sound and broadly sufficiently-explained, although there are some parts that may need further and clearer explaining.	

Formal and language level, scope of thesis	D - satisfactory.
<i>Are formalisms and notations used properly? Is the thesis organized in a logical way? Is the thesis sufficiently extensive? Is the thesis well-presented? Is the language clear and understandable? Is the English satisfactory?</i>	
The structure of the thesis is good. Some notations are redundant and/or unnecessary and there are considerable issues with the grammar and sentence structure throughout the document.	

Selection of sources, citation correctness	A - excellent.
<i>Does the thesis make adequate reference to earlier work on the topic? Was the selection of sources adequate? Is the student's original work clearly distinguished from earlier work in the field? Do the bibliographic citations meet the standards?</i>	
There is a good selection of adequate and recent sources, and the gap from the state-of-the-art is well defined.	

Additional commentary and evaluation (optional)
<i>Comment on the overall quality of the thesis, its novelty and its impact on the field, its strengths and weaknesses, the utility of the solution that is presented, the theoretical/formal level, the student's skillfulness, etc.</i>

III. OVERALL EVALUATION, QUESTIONS FOR THE PRESENTATION AND DEFENSE OF THE THESIS, SUGGESTED GRADE

Summarize your opinion on the thesis and explain your final grading. Pose questions that should be answered during the presentation and defense of the student's work.

The thesis is good in its proposed solutions. The considered problem is difficult, but it is solved with simple, but appropriate and ingenious, methods. Appropriate benchmarks are presented, for which the results are compared, and the method justified. The main drawback of the work is the clarity in the use of language and sentence structure.

Q1) Do you have some idea of how far the solution is from the optimal solution?

Q2) How would the problem change to account for UAV propulsion power consumption?

The grade that I award for the thesis is **B - very good**.



Date: **31.1.2023**

Signature: