Supervisor's statement of a final thesis

Czech Technical University in Prague   **Faculty of Information Technology**

Student:	Bc. Jaroslav Vašák
Supervisor:	Dr. Pi Chung Wang
Thesis title:	Analysis of Backup for Small and Medium-sized Enterprises (SME) in the Czech Republic
Branch of the study:	Computer Systems and Networks

Date: 2. 11. 2017

Evaluation criterion:	*The evaluation scale: 1 to 5.*
1. Difficulty and other comments on the assignment	*1 = extremely challenging assignment,* ***2 = rather difficult assignment,*** *3 = assignment of average difficulty,* *4 = easier, but still sufficient assignment,* *5 = insufficient assignment*

Criteria description:
Characterize this final thesis in detail and its relationships to previous or current projects. Comment what is difficult about this thesis (in case of a more difficult thesis, you may overlook some shortcomings that you would not in case of an easy assignment, and on the contrary, with an easy assignment those shortcomings should be evaluated more strictly.)

Comments:
This thesis presents the cost-benefit models of different data backup solutions. These solutions could be either based on local backup or hybrid backup. The difficulties of the thesis include identifying and analyzing the cost factors of a backup solution.

Evaluation criterion:	*The evaluation scale: 1 to 4.*
2. Fulfilment of the assignment	***1 = assignment fulfilled,*** *2 = assignment fulfilled with minor objections,* *3 = assignment fulfilled with major objections,* *4 = assignment not fulfilled*

Criteria description:
Assess whether the thesis meets the assignment statement. In Comments indicate parts of the assignment that have not been fulfilled, completely or partially, or extensions of the thesis beyond the original assignment. If the assignment was not completely fulfilled, try to assess the importance, impact, and possibly also the reason of the insufficiencies.

Comments:
This thesis presents the cost-benefit models of different data backup solutions. These solutions could be either based on local backup or hybrid backup. The difficulties of the thesis include identifying and analyzing the cost factors of a backup solution.
As compared to a local-backup solution, the analysis of a hybrid-backup solution involves the tradeoff among different factors. The thesis successfully identifies these factors. The cost model of a backup solution is provided. The thesis also presents a tool for evaluating the cost of different backup solutions.

Evaluation criterion:	*The evaluation scale: 1 to 4.*
3. Size of the main written part	***1 = meets the criteria,*** *2 = meets the criteria with minor objections,* *3 = meets the criteria with major objections,* *4 = does not meet the criteria*

Criteria description:
Evaluate the adequacy of the extent of the final thesis, considering its content and the size of the written part, i.e. that all parts of the thesis are rich on information and the text does not contain unnecessary parts.

Comments:
The presentation of this paper is adequate. All necessary information is included. The thesis also introduces the components of different backup solutions. The discussion of the cost analysis is sufficient.

Evaluation criterion:	*The evaluation scale: 0 to 100 points (grade A to F).*
4. Factual and logical level of the thesis	*90 (A)*

Criteria description:
Assess whether the thesis is correct as to the facts or if there are factual errors and inaccuracies. Evaluate further the logical structure of the thesis, links among the chapters, and the comprehensibility of the text for a reader.

Comments:
The thesis first introduces the background of data backup. Then, the analysis of different backup solutions is provided by presenting related models. The models are then applied to SMEs in Czech. Overall, the organization of the thesis is acceptable. No major errors were found.

Evaluation criterion:	*The evaluation scale: 0 to 100 points (grade A to F).*
5. Formal level of the thesis	*88 (B)*

Criteria description:
Assess the correctness of formalisms used in the thesis, the typographical and linguistic aspect s, see Dean's Directive No. 14/2015, Article 3.

Comments:

The representation and writing of the thesis is suitable and readable.

Evaluation criterion:	The evaluation scale: 0 to 100 points (grade A to F).
6. Bibliography	*91 (A)*

Criteria description:
Evaluate the student's activity in acquisition and use of studying materials in his thesis. Characterize the choice of the sources. Discuss whether the student used all relevant sources, or whether he tried to solve problems that were already solved. Verify that all elements taken from other sources are properly differentiated from his own results and contributions. Comment if there was a possible violation of the citation ethics and if the bibliographical references are complete and in compliance with citation standards.

Comments:

The thesis provides a comprehensive survey of cloud computing and data backup. The product information of backup devices and services is also included. Overall, the bibliography is satisfactory.

Evaluation criterion:	The evaluation scale: 0 to 100 points (grade A to F).
7. Evaluation of results, publication outputs and awards	*87 (B)*

Criteria description:
Comment on the achieved level of major results of the thesis and indicate whether the main results of the thesis extend published state-of-the-art results and/or bring completely new findings. Assess the quality and functionality of hardware or software solutions. Alternatively, evaluate whether the software or source code that was not created by the student himself was used in accordance with the license terms and copyright. Comment on possible publication output or awards related to the thesis.

Comments:

The thesis presents cost models for data-backup solutions. A tool for the models was developed. The experiments showed that the tool is feasible for evaluating the cost and benefit of a backup solution. The tool could be useful for IT staff to arrange the CAPEX and OPEX for their backup plans. The tool could be published as an open-source software.

Evaluation criterion:	No evaluation scale.
8. Applicability of the results	

Criteria description:
Indicate the potential of using the results of the thesis in practice.

Comments:

The thesis analyzes and presents cost models for data-backup solutions. The author also applied the model to the SMEs in Czech. The results showed that the proposed models are feasible.

Evaluation criterion:	The evaluation scale: 1 to 5.
9. Activity and self-reliance of the student	*9a:* *1 = excellent activity,* ***2 = very good activity,*** *3 = average activity,* *4 = weaker, but still sufficient activity,* *5 = insufficient activity* *9b:* ***1 = excellent self-reliance,*** *2 = very good self-reliance,* *3 = average self-reliance,* *4 = weaker, but still sufficient self-reliance,* *5 = insufficient self-reliance.*

Criteria description:
Review student's activity while working on this final thesis, student's punctuality when meeting the deadlines and consulting continuously and also, student's preparedness for these consultations. Furthermore, review student's independency.

Comments:

Mr. Vašák was a motivated student. He created the research problem on his own. His preparation for each meeting was satisfactory so that he can always respond to my questions promptly. Due to the tight schedule of his stay in Taiwan, it was difficult for him to meet the timetable of preparing his thesis. However, he finished the thesis well and timely.

Evaluation criterion:	The evaluation scale: 0 to 100 points (grade A to F).
10. The overall evaluation	*90 (A)*

Criteria description:
Summarize the parts of the thesis that had major impact on your evaluation. The overall evaluation **does not** have to be the arithmetic mean or any other formula with the values from the previous evaluation criteria 1 to 9.

Comments:

Mr. Vašák's thesis addresses the problem for the cost and benefit of data backup based on cloud or on-premises. The performance of different backup solutions was considered. Also, the cost models were developed as well as a software tool. The tool was also applied to the SMEs in Czech to demonstrate the feasibility. Overall, I would recommend the qualification of Mr. Vašák's thesis.

Signature of the supervisor: