Review report of a final thesis

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

Student:	Bc. Ondřej Šejvl
Reviewer:	Ing. Tomáš Kukrál
Thesis title:	Suitability analysis of Kubernetes for Seznam.cz
Branch of the study:	Web and Software Engineering

Date: 1. 6. 2016

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:
The assignment focuses on current problems in containerized and cloud environments. This topic is suitable for the master thesis because this field is very progressive and there is not enough of analysis, especially with a real implementation and benchmarks.

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:
Fulfilled.

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:
I consider the information provided in the thesis adequate for a master thesis. Theoretical part covers basic principles of Docker and Kubernetes but it could be more comprehensive to provide better understanding for readers without any prior knowledge. However there is many information available in Kubernetes documentation and I don't expect the thesis to duplicate it.

Analysis of possible issues in Seznam.cz's environment is sufficient and Tarsier application is well described.

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 is well structured and provide good information flow. Technical overview is provided in the beginning together with possible problems. Solution for these problems is suggested in second part together with the examples.

There are a few inaccurate details mentioned, for example about pod migration. It is caused by a rapid evolution of Kubernetes and significant changes in recent versions. It would be beneficial to mention these facts together with the version.

Evaluation criterion:	The evaluation scale: 0 to 100 points (grade A to F).
5. Formal level of the thesis	85 (B)

Criteria description:
Assess the correctness of formalisms used in the thesis, the typographical and linguistic aspect s, see Dean's Directive No. 12/2014, Article 3.

Comments:

A few typing errors are present in the theses but majority of the text is correct. Word "virtual" is used for virtual machine which may confuse native speaker but overall level is totally adequate for master student.

Evaluation criterion:	*The evaluation scale: 0 to 100 points (grade A to F).*
6. Bibliography	*70 (C)*

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 majority of bibliography is based on the online sources and I consider it acceptable because this topic is new and there is not enough of good articles.

Evaluation criterion:	*The evaluation scale: 0 to 100 points (grade A to F).*
7. Evaluation of results, publication outputs and awards	*80 (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 most valuable contributions provided by this thesis is a deployment analysis of using new emerging technologies in Seznam.cz and Tarsier application. Procedural as well as technical issues were taken into account during this analysis. Solutions proposed in this thesis can be used as starting point for suitability analysis in different environments and companies.

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:

Tarsier benchmarking application was used to compare different application servers. This analysis can be used for designing an application stack based on the Kubernetes.

Evaluation criterion:	*No evaluation scale.*
9. Questions for the defence	

Criteria description:
Formulate any question(s) that the student should answer to the committee during the defence (use a bullet list).

Questions:

Why did you chose Kafkafeeder instead of native Docker's log drivers?

Evaluation criterion:	*The evaluation scale: 0 to 100 points (grade A to F).*
10. The overall evaluation	*95 (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:

This thesis provides basic theoretical overview on Docker and Kubernetes. However most valuable part is an application called Tarsier. The application is very useful for testing Kubernetes and it will probably be used by the rest of the community for stressing their deployments.

Suitability analysis for Seznam.cz is very important part of the thesis because it compare Kubernetes stack with current requirements. Possible issues are described together with proposed solutions in respect with relative unique environment at Seznam.cz.

Signature of the reviewer: