

I. IDENTIFICATION DATA

Thesis name:	Automation of testing of operating system backup and recovery
Author's name:	Bc. Anton Voznia
Type of thesis :	master
Faculty/Institute:	Faculty of Electrical Engineering (FEE)
Department:	Department of Computer Science
Thesis reviewer:	Ing. Matěj Klíma
Reviewer's department:	Department of Computer Science

II. EVALUATION OF INDIVIDUAL CRITERIA

Assignment	challenging
<p>The topic of this master thesis is related to the Software Engineering branch of study only from a high-level view. To satisfy the assignment, it is necessary to get familiar with tools, such as ReaR (Relax-and-Recover disaster recovery tool source repository) or TMT (Test Management Tool), and with the concepts of testing such bash tools. Additional complexity to the student brings the fact that these tools are not covered in the syllabus of the master's courses.</p> <p>Therefore, I evaluate the master thesis topic as challenging.</p>	

Satisfaction of assignment	fulfilled with major objections
<p>The thesis assignment specifies the following parts:</p> <p>1) <i>Describe requirements to infrastructures for ReaR Continuous integration testing. Examine existing infrastructures (for example Travis CI and CentOS CI) for suitability.</i> The author addresses this requirement in Chapter 3 and selects the Testing Farm tool as infrastructure for the Continuous Integration.</p> <p>2) <i>Execute at least one test in infrastructure via TMT (Test Management Tool).</i> The process of test execution via TMT is described in section 4.3</p> <p>3) <i>Propose a solution for statical code analysis of of the ReaR program code, or alternatively, of unit testing of internal functions in the program.</i> Static code analysis of the ReaR program code is proposed in Chapter 6.</p> <p>4) <i>Describe disadvantages of ReaR for CI testing and extend ReaR to overcome them.</i> I haven't found in the thesis a clear answer to this requirement.</p> <p>5) <i>Document the result.</i> The level of the documentation of the results seems very poor to me.</p>	

Method of conception	partially applicable
<p>It seems that the author chose the right method of conception. He tried to introduce the tools and techniques he used and placed various code samples and figures to describe them. It contains many results that address the assignment and could be useful for various levels of the automation testing of the ReaR tool. It might even be a valuable source for other students or experts that try to create such automation of similar Linux tools.</p>	

However, I didn't like the way how the author presented the results. A clear overview of the requirements at the beginning of the thesis is missing; the same is true for the level of satisfaction of those requirements in the individual chapters of the work.

Technical level

B - very good.

Assess level of thesis specialty, use of knowledge gained by study and by expert literature, use of sources and data gained by experience.

From the technical level, the thesis seems very good. The author successfully created the assigned automated tests, for which it was necessary to understand the concepts of ReaR, Packit package builder, testing system Testing Farm and its management tool TMT. Moreover, the author also created some tests for the Static Code Analysis in the tools called ShellCheck and Differential ShellCheck. To my knowledge, neither of those tools is covered in the syllabus of the courses in the Open Informatics study program.

Formal and language level, scope of thesis

E - sufficient.

The language level of the thesis is very inconsistent and contains grammatic errors on almost every single page, which makes the understanding of the proposed problem solution very difficult.

To document the formal and linguistic level of the work, I quote the thesis opening in Chapter 1: *"Making a backup is an essential and usual process for now. Operating systems became more complicated. That causes to problems during development or usage it. A bit changes may crash the whole system, and cause loss of data. To prevent it, a lot of methods were invented for backup data. Most of them is just an naive data storage that copies all files on the backup storage. The main problem with such methods is the lack of disaster recovery. The term "disaster recovery" means an opportunity to restore the whole system without reinstalling an operating system. For example, in case the partition table, the boot partition, or some essential files for booting OS (like initrd) had been lost or broken, before recovery data, we would install a clean image of an OS, and we could restore data. In most cases, it could be more practical and may take o lot of time to configure the new system to the previous set-up."*

The content on page 16 is also something to think about: *"In this section, I described ReaR-testing. It is a set of tests that I used as a basis and extended them. Below you can find an explanation of the tests, and I described the most important steps. I didn't write details all steps because that is unnecessary. If you are interested, follow the link. You can contact me or the test's author (Lukáš Zaoral) in case of questions."*

There are also less important issues, like on Page 14, the figure is not correctly referenced, Figure 4.11 and 6.2 are not not well readable, in the Motivation chapter, the concrete names of the chapters don't correspond to their actual names, etc.

Selection of sources, citation correctness

E - sufficient.

The thesis contains only 10 sources. The first source is cited in Chapter 3, when both previous chapters contain statements worth mentioning the source, such as, in the beginning of Chapter 2: *"Relax-and-Recover (ReaR) is an open-source project that provides a simple way to make backup and disaster recovery..."*, or where the source is mentioned incorrectly: *"For this example I used QEMU. "QEMU is a generic and open source machine emulator and virtualizer. QEMU can be used in several different ways..."*, where the author mentions the URL of the source in the footnote, but without the date, name, author, and other important details that should be provided for the online source. There are many more examples of such errors in the thesis.

III. OVERALL EVALUATION, QUESTIONS FOR DEFENSE, CLASSIFICATION SUGGESTION

Generally, to find the answer to the question, whether the thesis satisfies the assignment and its individual parts, was complicated, because of its very chaotic structure and many language errors. However, the main requirement to propose a solution for automation of testing of Rear was satisfied.

Question for defense:

How can the Rear developers benefit from the results of your work? And do you know whether they are going to use it?

I evaluate handed thesis with classification grade **D - satisfactory**.

Date: **2.2.2023**

Signature: