

Assignment One

Literature Review

Set: 16th of November 2010
Due: 26th of November 2010 @ 23:55 CEST

Synopsis:

Write an article that provides an overview of existing research into versioning file systems.

Introduction

This is the first of three assignments in the *Principles of Computer System Design* course. The three mandatory assignments are based on the creation of a versioning file system, using the traditional software development approach: research, design, implementation, and testing.

This assignment is about research: you are required to read at least 3 articles and produce a short literature review which sums up the information that you have gathered from your reading. Your review, along with the papers it refers to, will be made available on Absalon to everyone else on the course. You, and others, can then freely reference the information contained in the 'published' literature reviews (or associated articles) in the following assignments.

Background

Softhelpers, the company where you have recently been hired as a consultant, is considering development of a new versioning file system. They have done some market research and determined that there is a demand for such a system. You have been hired to provide academic input to the design and development process and your first task is to produce an overview of existing academic research on versioning file systems. Softhelpers already has internal experience with the FUSE system, they have asked that your research also includes an evaluation of the benefits or drawbacks of using FUSE.

You have been asked by Softhelpers to present your results as a small literature review written using the ACM SIG Proceedings article template, as they would like to publish your work. Your article should briefly explain the benefits and drawbacks of existing systems, referencing the literature you have read and should provide explanations of any terminology or technology that is not self-evident. With your article in hand, Softhelpers should be able to enter the design phase and avoid repeating previous mistakes.

Your Report

Your reports should contain:

- An abstract, summarising the article
- A description of benefits and drawbacks of existing versioning file systems, referencing the articles you have read
- A description of the benefits and drawbacks of FUSE
- Explanation of non-obvious terminology or technology
- A conclusion summarising the consequences of different choices
- A bibliography containing the relevant articles, at least 3

ACM Template

The Absalon course page for *Principles of Computer System Design* has an ACM article template available for download. You are encouraged to use \LaTeX to write your article, however, if you choose to use a word processor you should download the Word template directly from the ACM. If you are new to \LaTeX , you should attend the first practical session where we will help you install and getting started with \LaTeX .

Finding Relevant Articles

You must search for relevant articles to include in your literature review. When you are using the University of Copenhagen proxy (e.g., when connected to the university network) you are granted access to a number of resources for free. These academic search engines should provide you with a good starting point:

- Google Scholar: <http://scholar.google.com>
- ACM Portal: <http://portal.acm.org>
- CiteSeerX: <http://citeseerx.ist.psu.edu>
- IEEE Xplore: <http://ieeexplore.ieee.org>

You may use, **at most**, one of the articles mentioned in the chapter “Suggestions for Further Reading” in the book “Principles of Computer System Design”.

Relevant Topics

The articles that you read and present in your article must relate to versioning file systems in some way. Some topics to get you started are:

- File systems
- Version control

- Versioning file systems
- FUSE (File Systems in User Space)
- User space device drivers (e.g., Minix 3 might be a good place to start)

Deliverables for This Assignment

You are allowed to work in informal groups for this assignment, for the purpose of discussing and recommending articles (though, you are encouraged to ensure that within your group you do not all review the same set of articles). The literature review that you hand in must however be **your own individual work**. You should submit the following items:

- A single PDF file in ACM article format, A4 size, no more than 3 pages, including bibliography
- Any articles referenced (also as PDFs)
- A BIBTEX file (.bib) containing bibliographic data for the attached articles

Handing In Your Assignment

You will be handing this assignment in using Absalon. Try not to hand in your files at the very last minute, in case the rest of the PCSD students stage a DDoS attack on Absalon at the exact moment you are trying to submit. **Do not email us your assignments unless we expressly ask you to do so.**

General Notes

- Your report and referenced articles must be written in English
- You must use the supplied ACM L^AT_EX or Word template
- Submit your documents as PDFs. No Word, OpenOffice, L^AT_EX, or PS files
- Absalon allows you to attach any number of files to your submission. Please **do not** compress your PDFs into a single ZIP file

Assessment

You will receive either a “pass” or a “fail” for this assignment along with a critique of your work to help you in the next assignment. The assessment will be based mostly on your writing and evaluation of articles, the choice of articles is less relevant. You are encouraged to use the available ‘writing workshops’ to ensure that you produce a report of adequate quality.

To pass the course, you must pass all three assignments as well as the exam. The final grade for the course is based solely on the exam.