

MEMORANDUM

TO: Hal Abelson

FROM: Amy E. Riley (R02B)

SUBJECT: Versioning File System Project Proposal

DATE: February 15, 2013

I am writing to propose an idea for my next project. I would like to develop a versioning file system. A versioning file system implements revision control within a file system, storing old versions of files in addition to the most recent ones. Additionally, the system would support the traditional Unix file system commands, would allow users to elect to not store old versions of certain files, and would allow for the garbage collection of unwanted old versions of files. I think a versioning file system would be of great value to our customers. Furthermore, I think I could develop such a file system within a little over a month. I outline below the customer benefits as well as a project timeline, detailing the component of the project I think will be most technically challenging.

A versioning file system would primarily give our customers greater peace of mind. Because the file system would store old versions of files, it would provide a customer with records of all of the changes he has made to his files. As a result, when editing files, this customer would not need to worry about losing old material. The versioning file system would only allow customers to edit the latest version of a file – the old versions would be read-only – but even read access to old material would be a vast improvement over our current file system, in which old material disappears.

If I receive approval for this project, I would create and record a design for the versioning file system within the next two weeks. The design would be contained in a proposal document, which I would deliver to you on March 1 for review and feedback. I would incorporate feedback on the design proposal and any other changes to the design into a more formal, detailed final report on the versioning file system. The final report would be complete by March 22. I anticipate that the most technically challenging aspect of this project will be figuring out how to store old versions of files efficiently space-wise; I would want the computer to store as little as possible beyond the changes between files. Because of its expected complexity, I would tackle the storage problem first in the initial design stage, so it would become apparent early on if it is an insurmountable challenge.