CSCC01 Reading Summary 1: Why Software Projects are Moving to Decentralized Version Control Systems from Centralized Version Control Systems

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The paper is about the reasons several projects are switching from centralized version control systems, like CVS and Subversion, to decentralized version control systems, like Git and Mercurial. It includes a description of both kinds of version control systems, highlights of the open-source projects examined in the paper, and the various reasons and kinds of discussions that went into the decision of actually switching version control systems, including anticipated benefits, the transitioning, and challenges that would arise from and/or after switching.

The paper describes centralized version control systems as "the most commonly-used version control system used today." (de Alwis & Sillito, 2009) Around 9 years since this paper was written, we now see this is no longer the case as many more projects use decentralized version control systems. It also describes how a centralized version control system works and then how decentralized version control systems work. The focus on this was to highlight how decentralized version control systems improve upon some of the shortcomings of centralized version control systems.

The paper then discusses the reasons that Perl, OpenOffice, Python, and NetBSD had for switching to a decentralized version control system and found that a number of anticipated benefits were the driving factors. These are: provision of first-class access to all developers, supporting atomic changes, simplicity of automatic merging and improved support for experimental changes. The challenges the paper found that the projects had for transitioning was changing the teams' development process, transferring metadata from their previous version control system, and having meaningful commit identifiers.

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What I found interesting about the paper was the multitude of benefits that a decentralized version control system had to offer over a centralized one, while having little to no downsides. I also found it interesting that the challenges the teams faced in transitioning were mostly preferential differences and ones they could get accustomed to. Specifically, I enjoyed learning about the Python Enhancement Request, the extensive document detailing the decision to switch to a decentralized version control system as well as detailing the foundation's process, revolving around how various tools support relevant usage scenarios.

I can relate to the transitioning challenges that were described in the paper as prior to CSCB07, I had always used Github as a platform for Git when dealing with projects at a team (like managing a club website in highschool and several hackathon projects). Using Subversion in CSCB07 proved to be similar but reinforced all the benefits of using a decentralized version control system, which I am now glad to be using again in CSCC01.

References

de Aliws, Brian & Sillito, Jonathan (2009). Why Are Software Projects Moving From Centralized to Decentralized Version Control Systems?