

## **Abstract**

The Linux kernel is an ever-changing piece of software that is growing at an incredible rate. It is unique in the fact that it is being developed by hundreds of people all around the world. Most development is done by solo programmers, then submitted via a mailing list and incorporated into the next kernel release. Although Linus (the inventor of Linux) reviews the code before it is incorporated into the kernel, for much it is only the second time the code has been reviewed. It is a dangerous thing to incorporate code into Linux that has not been designed and reviewed thoroughly.

Pair programming is the process of two programmers working together on a single task or product. The output of the process will be a single result belonging to both programmers involved. Pair programming is one of the more controversial components of extreme programming and the costs and benefits are not well established. Using existing studies and papers, I organized a table showing the proposed costs and benefits of pair programming.

To determine if pair programming would be valuable in Linux kernel development, I analyzed the costs and benefits advertised by pair programming and applied them to the Linux kernel domain. Using a chart created showing the disadvantages of Linux, I matched each disadvantage with at least one advantage provided by pair programming. Using pair programming to develop the Linux kernel would decrease the number of bugs submitted and increase the readability of the Linux code through simpler designs thought out by a pair of programmers.