

Project Proposal

Title: Deep Dive into Linux Kernels and Performance Analysis

Team: Group 13

Names/NetID

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Overview/Deliverables

This research mainly focuses on an in depth analysis about Linux kernels and distributions. We were so into the fact where Linux stands alone amidst other kernels. So we decided to break down that factor and compare it with other popular kernels where we could spot the key differences and the trade-offs.

Our project also dives into the linux distributions and research into the reasons behind the different configurations of their kernels and how they would compare to other versions of the same distribution. Our technical report will display the following:

- Background/History: Covers the history of different Linux distributions. Why there are so many Linux-based distributions.
- Structure of the base Linux kernel. (Eg: process creation, booting, virtualization)
- Concurrency processes (Threads are implemented as standard processes, which is unique to Linux)
- Example and comparisons: Looking at the differences between distros and the purpose of configurations made
- Performance analysis of linux distributions and how they've changed over time. (Eg: Same distro but different versions)
- Summary of lessons learned

Timeline

Week 1 (Oct 26)	Week 2 (Nov 2)	Week 3 (Nov 9)
Technical Report Outline	Rough Draft (draw conclusions from research)	Revisions
Research	Create slides/outline for presentation	Presentation finalizations (finish up slides and video)

Turn in date for Final materials and presentation: Sunday [11/15/2020] @ 11:59 PM (MST)

Division of Labor

We plan on dividing our workload evenly between the four of us by approaching this with a hybrid agile scrum approach. This includes at least two quick meetings with the team per week asking and answering questions for the deliverables that are due the week of and planning for the week ahead. For the first week, we will each research a different Linux distribution of our choosing and look into how it works/what makes it different from other distributions. We will use this research in our second week to compare our findings and write about them for the rough draft of our technical report. In our third week we will go over our rough draft together and make revisions as necessary. Any parts that are not included within our research topics will either be worked on together or divided evenly between us. We plan on creating our final presentation using this same format to divide the work.