Containers: from the Ground Up

Project Members:
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Proposed Work:

Our group has decided that we want to dig deep into containers. Specifically, we want to present to the class a "from the ground up" explanation of how containers work – using Docker as a reference implementation. We are going to focus on two questions during this investigation. First, we want to understand (and demonstrate) in code *how* a container is started. Next, we want to learn how containers isolate themselves from an existing OS, and how a process becomes "containerized". We anticipate individually digging deep into how Docker implements the high-level topics we have discussed in class, such as memory management and scheduling.

Timeline:

Oct 25-31st: *General/Broad research by all team members.*

1) Look at Docker, understand how it works on the user side, dig into the open source code.
2) Read literature that explains/digs into/presents "under the hood" questions about containers (explained in overview).
3) Summarize learning outcomes.

Nov 1st-Nov 7th: *Individual focuses identified for further research.*

1) Identify one main piece of the Container puzzle that each person wants to dig into (or, a series of small things that seem to amount to equal work).
2) Become an expert on that one thing.
3) At the end of the week, start discussing how all the pieces fit together.

Nov 9th-Nov 14th: *Creation of report and presentation by all team members.*

1) Create a final technical report.
2) Create and record the final presentation.

Goal to Submit: Nov 13th

Final Project Due: November 15th @ 11:59pm

Division of Labor:

Week 1: Each member of the group will spin up a Docker Container and Image. Additionally each team member will find and read a relevant scholarly article on containerization software.

Week 2: With a better understanding of Docker and Containers in general, each team member will choose a particular topic in how containers function within a Linux operating system.

Week 3: Each team member will choose a portion of the presentation to prepare. All team members will collaborate to ensure smooth integration of ideas.