Efficiency Evaluator for Parallel Scripting

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Who We Are

Our names are Ved Kommalapati and Ananth Hariharan, and we are 12th graders at Normal Community High School in Normal, Illinois.

We had the privilege of being involved with a project using Parsl this summer under the guidance of Dr. Daniel Katz and Ben Clifford.
Our Objectives

The purpose of our project
Our Research Question

- How should workers and cost be balanced?
- What is the most optimal use of nodes for a given workflow?
- How can the use of time and resources be managed?
Our Solution

- Efficiency Evaluator for Parallel Scripting (EEPS)
- Determines cost in relation to time
- Outputs graphs with efficiency data
- Helps user find most optimal number of cores for their program
Our Data
The graphs from our experimentation
Illustrated effects of cores on cost and time
Trade-offs between shorter runtimes and cost
Our Guide

The process of using EEPS
Using EEPS

Input your code
Add your Parsl workflow to 'eeps.py' as directed in the documentation

View charted information
After choosing the number of workers you want to test, run singleCpwTest.py

Evaluate the data
EEPS will chart out data that gives you an idea of the runtimes and resource costs associated with your project
Future Improvements

- Modularization
- Database implementation
  - monitoring.db functionality
- More informational graphs
  - Enables user to input specific requirements
  - Output ideal workers/cores for workflow
Thank You!

EEPS GitHub Repository

More Information
(Parsl Blog Article)

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