Final Project Milestone Report

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1 Current progress and deliverables

Since changing our project proposal we have spent the bulk of our time with studying the theory and investigating practical sides of dynamic graphs. We have found many resources to guide us and we now have a solid basis to work on.

In terms of our main deliverable of constructing a parallel path assignment algorithm to route traffic, we are on track to finish our base application soon (see schedule below) and start performance debugging and parallelizing over the next week with OpenMP and MPI. The base algorithm for our project is an adaptation of Dijkstra's path finding algorithm which takes into account information on time-dependent edges.

Assuming that our time estimates for the steps listed up to April 26 are accurate, we should have enough time to test our code on real world large graphs from available map data which we'll have to pre-process to fit our particular graph representation. We still plan on displaying speedup and performance graphs on our poster and presentation, as well as examples of routing being done by our algorithm.

2 Revised goals and schedule

- By Friday (April 19):
  - Finish implementation of time dependent Dijkstra's and graph generation + parsing along with related debugging.
- By Monday (April 22):
  - Finish parallelization of time dependent Dijkstra's with MPI
  - Finish parallelization of time dependend Dijkstra's with OpenMP
- By Friday (April 26):
  - Perform significant performance debugging on both fronts
  - Generate and test on large graphs
- By Monday (April 29):
  - Performance debug on larger tests
  - Collect data for analysis on poster and final writeup
- By Friday (May 3):
  - Finish collecting data and conducting performance analysis
  - Begin final writeup
  - Begin poster and presentation
- By Sunday (May 5): Finish up report and poster.