CSEE W4840 Project Proposal

Creating an MDP3.0 Tickerplant and Implied Order Book Generator

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Design Overview

We propose to construct an MDP3.0 tickerplant which will also calculate first generation implied orders. Using the MDP3.0 datafeed and the parallelizable attributes of FPGAs, we propose to create a hardware alternative to software book building, significantly increasing the speed and efficiency which market data can be processed and broadcast. We also propose to implement the functionality of being able to calculate first-generation implied orders and generate an updated book which merges the order book generated from the MDP3.0 feed and the generated implied order book.

Input

Our tickerplant will take in data in MDP3.0 form, a lower latency and less CPU intensive alternative to FAST. This will then be used to construct an order book with increased timestamp granularity.

We will initially be inputting historical data to test the accuracy and functionality of our tickerplant. We hope to be able to input real time data from one of the test environments provided by CME.

Output

In addition to snapshots of the original order book, we will also be generating an implied order book, which will then be merged with the original order book, and broadcast out. These snapshots should be generated and available at any given moment.

Algorithm

1. Intake UDP packets from the network
2. Decode MDP3.0 data
3. Update order book accordingly
4. Calculate first generation implied orders
5. Update implied order book accordingly
6. Merge original order book and implied order book
7. Broadcast snapshot of merged order books out to network