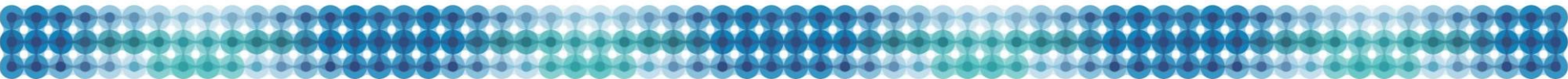


Software in Financial Markets

Presentation to UNSW CSE, March 2017

Nick Haan, Louie Nguyen & Denya Tessier



- Products
- Participants
 - Investors
 - Speculators
 - Arbitrageurs
 - Market makers
- “Liquidity”

IMC? Who are these guys?

BBC Documentary: "Traders: Millions by the Minute", Sep 2014



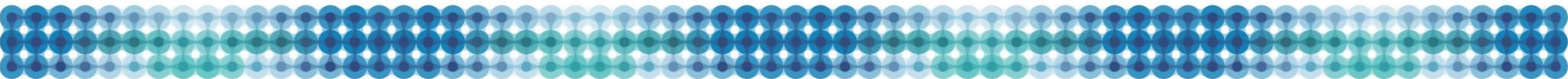
- (B)leading-edge technology
 - Latency
 - Scalability
- Supercompetitive
- Technology decisions are business decisions

Supercompetitive: Speed is *critical*

- Innovation time
 - Fast feedback is *critical*
 - Iterate everything
 - Manage risk

- Performance
 - Level playing field: Reaction time (=latency) counts
 - Iterate everything

Speed



- Arbitrage
 - E.g. Nikkei between Osaka stock exchange and Singapore stock exchange
- Protection
 - E.g. management of hundreds active orders on the exchange?
- No one like to use a sluggish system
 - E.g. Buying a super computer to run excel.

- Modularisation and abstractions.
- Design trade-offs
 - E.g.
 - The algorithms & data structure
 - Time complexity
 - How does it scale?
 - With users & with data.

- Tooling:
 - Off the shelf vs build your own
 - Accuracy & granularity of the tool.
- Methodology:
 - E.g. simplistic approach – loop 10, 1000, 10000 ...
- Targeted Measurements:
 - E.g. hot path(s) vs Once off.

The Speed “Secret Sauce”

Feature(s) that gives your API a speed edge over the other teams

E.g.

- Awesome data structure
- Smart Caching
- Parallelisation
- ????

In Summary...

Three equally weighted sections:

- The Design
- The Measurements
- The Speed “Secret Sauce”



Three teams invited to the IMC office to do a 5-10 minutes presentations

- Guarantee prize money & chance to mingle with IMC engineers

Questions?