Cloud Computing Services in Finance: Ready for Ubiquitous Computing?

Prof. Alexander Yap, PhD
Elon University, Elon, North Carolina, ayap@elon.edu

Prof. Dr. Claudia Loebbecke
University of Cologne, Germany claudia.loebbecke@uni-koeln.de

Discussion today
• Nature of Electronic financial market
• Needs of traders/investors in financial market (systems users)
• Different user interface
• New user interface (iPad)
• Investigate cloud computing for financial services

Research Objective
Determine Cloud Computing Readiness for u-commerce/u-computing in the financial market
How is cloud computing enabling effective ubiquitous computing?

Trading: Luck or Skill or Both?
• Luck: when Preparation meets opportunity
• Fortune: Favors the bold

"While it is better to be a lucky trader than a skillful one, being both is best"

"Sometimes, the luckiest is just the one with the best information or knowledge at hand at the right place and the right time"

Advent of Electronic Trading
• Creation of NASDAQ - Allow investors to bypass brokers and directly buy or sell stocks electronically (avoiding 1987)
• In Feb. 2006, ARCA (Archipelago) merged with NYSE And it became the 2nd largest electronic financial market

Global Financial Markets
• Global Financial markets – all inter-connected; trading trillions of dollars
• Performance of one stock market impacting others in milliseconds
  □ If Shanghai stock exchange has a bad day, NYSE and NASDAQ are programmed to sell off
  □ 500-600 points drop in China caused the Dow to drop 400-450 points
  □ Better informed traders can react quicker or program their trades better

Global Financial Markets
• Global Financial markets – all inter-connected; trading trillions of dollars
• Performance of one stock market impacting others in milliseconds
  □ If Shanghai stock exchange has a bad day, NYSE and NASDAQ are programmed to sell off
  □ 500-600 points drop in China caused the Dow to drop 400-450 points
  □ Better informed traders can react quicker or program their trades better
Dual Monitor Full Screen Interface (streaming real-time data, news, charts)

Simplistic Mobile Interface for Trading

- More minimalistic interface
- Less tools for research or charting
- No streaming data via cloud (or slow)
- No Rich Media for richer knowledge representation

Thin Clients for Ipad

We investigate the iPad as device for ubiquitous computing and u-commerce for financial markets

Offering services similar to the desktop, but providing mobility advantages via cloud computing

Research: Service Dimensions of Cloud Computing provided by iPad?

- Ameritrade Ipad App
- CNBC Ipad App
- NASDAQ Ipad App
- Bloomberg Ipad App

Four Applications

Ameritrade’s Ipad Application (Streaming Real-time data)

- Three windows
- Real-time data
- Real-time charting
- Real-time news
Ameritrade (Streaming Data)

- Watch List for several stocks
- Green & Red for prices for gains or loss
- Percentage & Absolute value displayed
- Stock balance
- Margin power

Streaming Level 2 Realtime Data

NASDAQ Level 2 Data available to see where BIDs and ASKs come from

Real-Time Charting

- Real-time streaming price data funneled through cloud from different electronic financial markets ...
- Real-time charting available and to be configurable
- Display from 9:30 am – 4:00 pm + after hour trading

Full Screen Charting Tools

- Different choices of display – candlestick, log, moving averages, bollinger bands, and other visual tools

CNBC iPAD Application

- Real-time data
- Real time charts
- 52-week High and Low Bar chart
- Streaming News
- Streaming Videos
- Breaking News Alert

Pop-up Interface (Streaming News)
Summary / Conclusions

(1) Cloud Computing Readiness
Is extensive in Financial Markets
Delivering real-time data, real-time charting, ubiquitous commerce for buying/selling stocks, real-time video and tweeting

(2) iPad provides the vehicle for effective ubiquitous cloud computing
Compact interface, pop-ups, multi-media capability

ayap@elon.edu
claudia.loebbecke@uni-koeln.de