

Literature Survey

Bas van IJzendoorn, 4024850

ABSTRACT

Categories and Subject Descriptors

1 [A]: B

; 2 [C]: D

Keywords

e-mails, demographic data, languages

1. INTRO

Commodities are traded on decentralized markets (Miao, J., 2005).

<http://www.uniba.it/ricerca/dipartimenti/dse/seminari/seminari-2011/Schiraldi-al2011.pdf> Rapson, D. (2011) Proof that transaction costs are less in decentralized markets and that

2. PROBLEM DESCRIPTION

Decentralized markets are hard to create. Buyers and sellers need to be matched to each other according to their preferences. A price should be negotiated and a trade deal should be made. The requirements vary among markets. Brunner, E. et al divides the economic requirements into four categories of parameters: basic, composed, complex and comments. Basic and composed parameters are simple values like price, volume and quantity. Composed parameters are more complex economic measurements that needs to be computed from more values like Return of Investment (ROI) and Price-earnings ratio. The last parameters are comments like quality or expert reviews. Policies on how these parameters should be created, altered and read needs to be specified for each market. Other research introduces the concept of contracts between peers called P2P contracts or smart contracts. These contracts allow to transfer user specified amounts against user specified conditions. For instance, ABN AMRO bank uses smart contracts in a case in

which it only transfers money after a quality check has been done successfully (BRON). These conditions allow great flexibility in the economic parameters. Namely, all transactions conditions and requirements can be programmed as a smart contract. This allows to maintain money on the Internet without the need of an intermediate party (Fairfield, J., 2014). Brunner, E. *et al* also specifies time sensitive and historic information that should be made public to the user. Also privacy information of the public and private market and personal data of the user are considered parameters by Brunner, E. *et al*.

MEER info over preferences, tot nu toe alleen requirements.

3. SYSTEM MODEL AND ARCHITECTURE

There are a wide range of possibilities to architect the decentral market systems in which a lot of decisions have to be made. The most important problems are:

1) Trust and reputations Trust is a big economic problem (BRON). Trust is a problem on the internet, the internet is build for research. Trust is solved in the Silk Road and other anonymous markets. Trust is solved in TOR with anonymous relays and the TOR architecture. Trust is solved in P2P file sharing with reputation systems. 2) Market structure Impact on market according to Bichler with broker services. However, time has proven that the market still requires the broker. Example van Olsthorn et al, just buy out the bid prices.

3) Matching engine The matching engine needs to be strategy proof. No obvious strategies to fool people should be in the market. (GIVE EXAMPLE OF POSSIBLE STRATEGIES). Olsthorn counterexamples. TOR anonymity can be used as a tool to provide a better matching engine. A manual matching is also an option.

The markets are called matching markets. We have many-to-many markets. Meaning that they have substitutable contracts.

<http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.359.3617r> Contract design and stability in markets (Harvard, Hatfield, 2011).

4) Price discovery mechanism Is fixed in matching engine.

According to Bichler, M. dynamic pricing mechanisms can be implemented such that market prices match the market conditions and therefore creating an optimal outcome for both buyer and seller. In physical markets, the high transaction costs of auctions have made it impossible to implement these price mechanisms. With information technology it might be possible to implement auctions and change the way how the markets are operated. Ebay has already proven itself to be successful in online auctions. An example of an auction is where buyers send their bid prices to suppliers. The suppliers can then accept the bid prices as a contract. Electronic exchanges can focus on the buyer side or the seller side. The actor that has the least market power usually takes the initiative. There are also auction techniques on which over multiple attributes of the contract are negotiated to allow complex products (Bichler, 2001). In other markets there is also a need for dynamic pricing models. There is research done in multiple markets to find suitable price discovery mechanisms that suits each market. For instance, in the cloud computing market Anandasivam, A. and Prem, M. (2009) introduce a dynamic pricing model for price determination in the cloud computing market In cloud computing systems, sometimes the demand is high and sometimes the demand is low. The price is changed when the demand level changes. This price change is calculated in a mathematical model. Another example of the need for a dynamic pricing mechanism is in modern electric power grids. ELECTRONIC POWER GRID UITWERKEN.

Methods: Auction from Bichler, Auction from Lee,

Various possibilities on matching engine and price discovery mechanism

<http://link.springer.com/article/10.1007/s12599-009-0071-2/fulltext.html>

Current cloud computing solutions lack pricing mechanisms, but there are movements to bring this into the business world (Weinhardt, C.)

<https://pdfs.semanticscholar.org/85e2/69c8b6a9d791424e16747a6d390406649038.pdf>

Auction as a dynamic price mechanism in e-commerce (Lee, J.)

<https://books.google.nl/books?hl=nllr=id=-lhLmmSM-4Coi=fndpg=PR7dq=future+matching+engine+decentralized+marketots=Zd>

Book on matching (Bichler, M.)

<file:///C:/Users/Lenovo/Pictures/wilson-market-architecture.pdf>

Economisch paper over markets (Wilson, R.) <http://www.emeraldinsight.com/doi/pdfplus/10.1108/10662249810231050>

Importance of trust in economic commerce (Pauline Ratnas-

ingham) <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.58.4038rep=rep1type=pdf>

Commodity trading using an auction (Preist, C.). <http://people.bu.edu/miaoj/intermedRED.pdf>

Search model centralized and decentralized trade (Miao, J.).

[http://scholarlycommons.law.wlu.edu/wlulr-online/vol71/iss2/3/?utm_source =](http://scholarlycommons.law.wlu.edu/wlulr-online/vol71/iss2/3/?utm_source=scholarlycommons.law.wlu.eduSmartcontracts(Fairfield))

[scholarlycommons.law.wlu.eduSmartcontracts\(Fairfield\)](http://scholarlycommons.law.wlu.eduSmartcontracts(Fairfield))

<http://ieeexplore.ieee.org/stamp/stamp.jsp?arnumber=4536461>

Requirements and architecture decentralized information system (Brunner)

<http://www.sciencedirect.com/science/article/pii/S002205318471074X>

Equilibrium mechanisms in decentralized market (Peters, M.)

ToDo:

Meer zoeken op matching engine. Printen van oude lit survey. Printen van twente formulieren. Planning morgen Planning weekend someren

4) Sybil attack resilience

4. INTRODUCTION

5. MAIN PROPOSAL

5.1 Minority group size estimation

6. DATA

7. ANALYSIS

7.1 Language as a predictor of origin country

7.2 Unregistered illegals

8. RESULTS

9. DISCUSSION

10. CONCLUSIONS

11. REFERENCES

Table 1: Expected and Measured Results