Evolution of Two-Sided Markets

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Based on joint work with Ravi Kumar and Andrew Tomkins
Network Effect in Two-Sided Markets

Two sided market = every product serves consumers of two types A and B

Cross-side network effect: the more type-A users product X has, the more attractive it is for type-B consumers and vice versa
Examples?
Business Models?
**Consumer pays**
- subscription fee
- per-query fee

**Supplier pays**
- listing fee (ebay Motors)
- revenue sharing (iPhone app store)
- premium positioning (yellow pages)

**Supplier/Consumer**
- premium features
- commission

**Ads**
- three-sided market (content providers - users - advertisers)
- sponsored marketplace (stackoverflow careers)
Interesting markets:

- «Russian brains»
- Event venues
- Event sponsors
- Newsmakers and journalists
- Experts and media
- Educational travel
- Internships
Technology opportunity?
Market Engine (a-la Wordpress):

- Open source
- Standalone version
- Hosted version
Personal Career as a Two-Sided Market
Today

Open Problem

Evolution formula

Coalitions
An agent joins if number of opposite-side connections to current platform users is at least T

You can pay uninterested agent to join

How much do you have to pay to get everyone on board?
\[ A' = V(B) - A \]
\[ B' = W(A) - B \]
Example
Important cases:

preferential attachment
social influence
crossing the chasm
Independent platforms
Coalition

Joint database
Market Shares Dynamics

Theorem

Market shares stay the same

\[ A' = B - A \]
\[ B' = A - B \]
Technical Coalition

Theorem
If all market shares are below $1/\sqrt{k}$
coalition (sharing data) is profitable for
all distributors

Corollary
Coalitions are not monotone
Example: 5 : 4 : 1 : 1
Theorem
One can re-distribute revenue for full coalition in such a way that no subset has an incentive to walk away and form a sub-coalition.
Future Work
Future work

• Algorithm for solving attachment curve equation (starting position -> stable state)
• Stability under noise?
• Predictive power?
• Revenue redistribution for coalitions?
• Investment strategies?
Demo:
http://Interview2010.com
Thanks!

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