

Insurance for social media

Hedge against unexpected drops in popularity

Author: Piotr Grudzien
piotr@piotrgru.com

Motivation

- Social media presence is a multi-billion dollar market¹
- Popular platforms such as Twitter, Instagram or Pinterest with several 100M monthly users²
- Streams of revenue include advertising, personal and business branding

¹ <https://hbr.org/2017/03/whats-the-value-of-a-like>

² <http://uk.businessinsider.com/facebook-dominates-most-popular-social-media-apps-chart-2017-7>

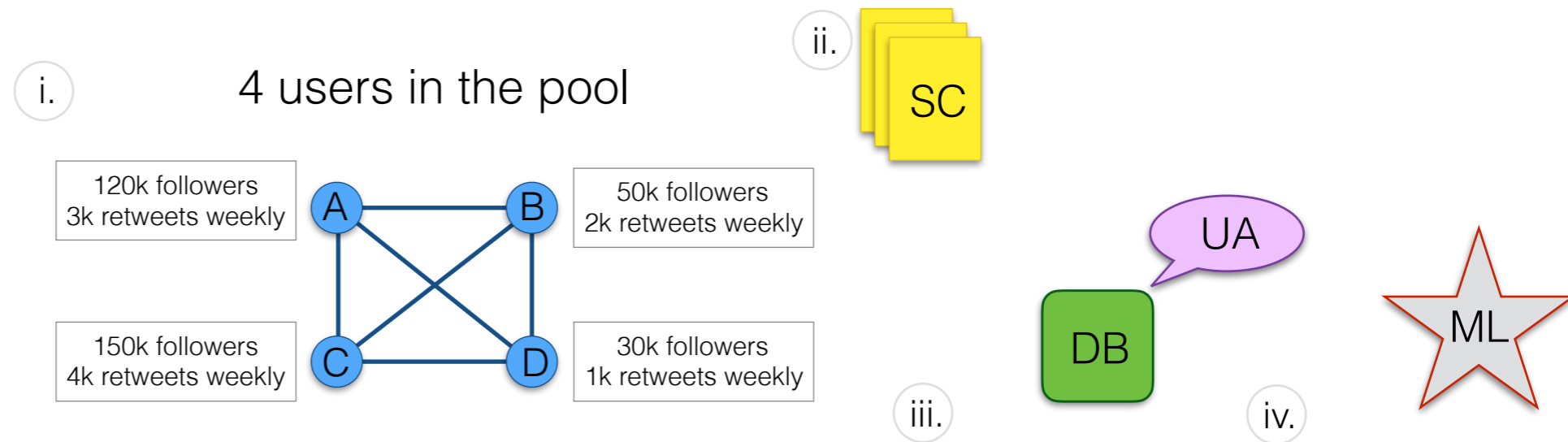
High-level overview

- Social media users create groups (pools) which provide **compensation for decrease in popularity / user engagement**
- Compensation is implemented in a **moneyless** fashion - by means of endorsement or recommendation on social media
- User behaviour is enforced by smart contracts on a blockchain so there is **no need for trust or central authority**
- Participants are protected against malicious / low-quality actors by a **consensus mechanism*** similar to blockchain DAO's
- The system is **social-media-agnostic** by design - users of various social networks can easily participate

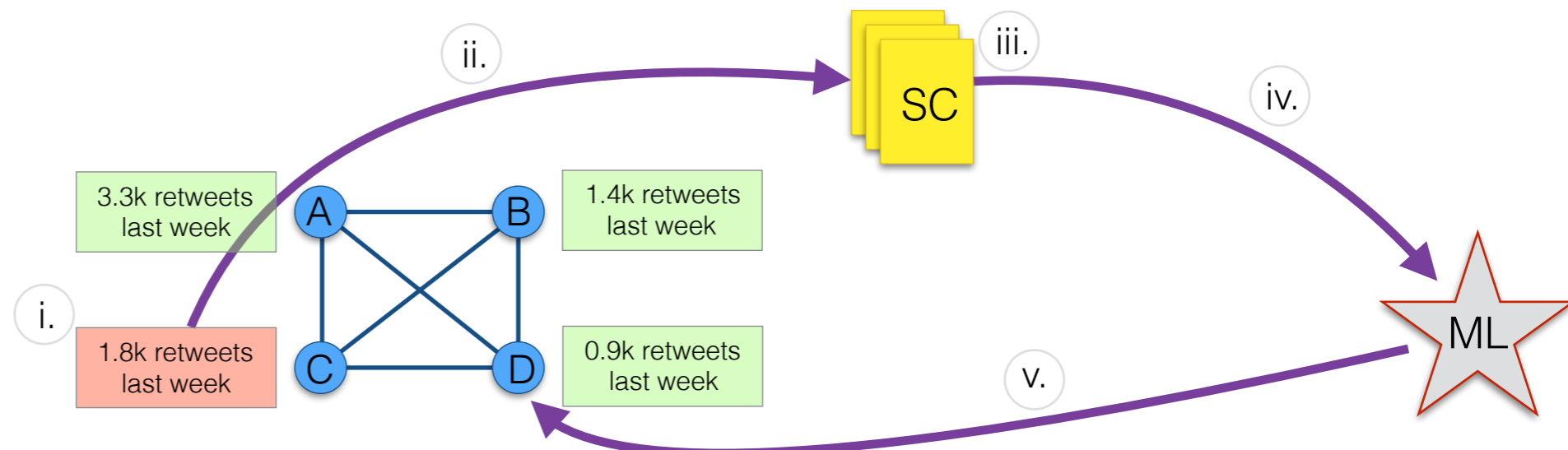
* 51% consensus is necessary whenever a new user joins a pool. Additionally, every user can submit a proposal for removing a user from the pool (based on low quality or controversiality of their social media content). 51% consensus determines whether the proposal is enforced. This protects users from bad actors, yet will not be overused because all participants of a pool have incentive to make it as large in numbers as possible to increase their chance of being sufficiently compensated for losses in popularity should they file a claim.

Concept details (1/2) using Twitter as an example

- i. 4 Twitter users (A, B, C and D) have decided to join the pool¹.
- ii. Smart contracts (SC) encode claim conditions² and obligations³.
- iii. Information about user activity (UA) is accumulated in the database (DB) using the public Twitter API.
- iv. Machine learning model (ML) of feedback⁴ is leveraging UA to constantly improve.



- i. User C achieved only 45% of their weekly average # of retweets.
- ii. User C files a compensation claim
- iii. Compensation claim is validated⁷ against the conditions².
- iv. Validated claim is fed into the machine learning model.
- v. Machine learning model chooses user D as the optimal respondent.



¹ In order to join the insurance **pool**, users have to submit a refundable deposit. Small fees are deducted from the deposit to cover the (ether i.e. gas) cost of processing transactions: setting up account, validating/processing claims or proposals. Remaining deposit balance is recoverable on leaving the pool.

² **Claim conditions** define the circumstances under which user's claim is valid and they are eligible for compensation. Example: # of retweets in the last week less than 50% of the average weekly # of retweets in the last 3 months.

³ **Claim obligations** define the actions a user has to take if chosen to be the respondent⁵. Example: publish a tweet including claimant's⁶ @handle. If obligations are not met, penalty is deducted from the deposit.

⁴ The model estimates the expected **feedback** that is change in claimant's⁶ popularity as a result of respondent's⁵ action. The model is used to recommend optimal choice of the respondent and their action given a claim.

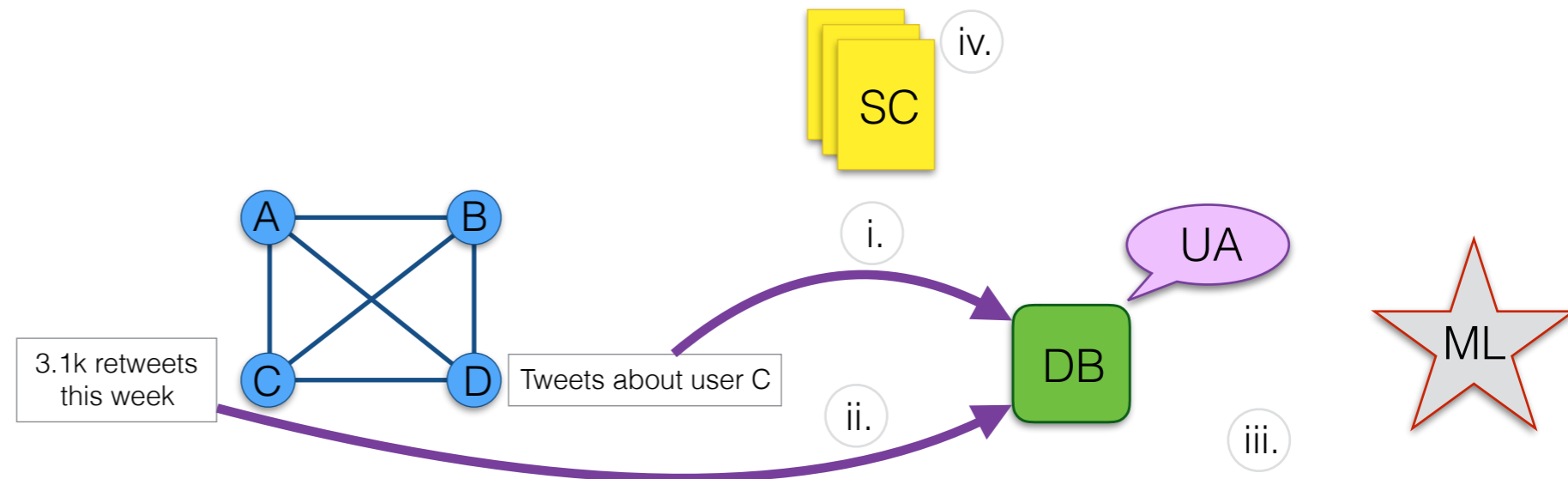
⁵ **Respondent** is the user obliged to take actions expected to improve claimant's⁶ popularity.

⁶ **Claimant** is the user who suffered a drop in popularity, filed a claim which, if validated, is an obligation³ for the chosen respondent⁵ to take an action.

⁷ In order to validate claims against claim conditions², smart contracts use the Twitter public API via an oracle.

Concept details (2/2) using Twitter as an example

- i. User D, the chosen respondent, tweets about user C.
- ii. Popularity of user C, the claimant, is noted in the database.
- iii. The feedback model is updated using the new information.
- iv. Smart contracts check if the respondent fulfilled their obligations using the Twitter API via an oracle.



Consensus mechanism

- i. Consensus mechanism is triggered every time a new user wants to join the pool.
- ii. Alternatively, pool participants may submit proposals to remove a user from the pool on grounds of controversial or low-quality social media content.
- iii. New-joiner or user-generated proposal is submitted and handled by the smart contract.
- iv. Users within the pool vote and consensus is reached. Proposals are rejected or enforced based on majority decision.

