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IDENTIFICATION OF FAKE IDENTITIES IN SOCIAL MEDIA

Rupali D. Kate[1] , Jagruti P. Mahajan[2]

Komal V. Narke[3] , Priyanka N. Matere[4]

Department of Computer Engineering

G. S. Moze College of Engineering Pune, (India)

ABSTRACT

Online social networking site suffer from the usage of fake accounts that leads to fake product reviews, advertise, malware and spam. Existing system focus on using the social graph approach to detect fakes. However, our project shows that fake user could be friend of a large number of genuine users, invalidating the assumption of social graph based detection. In this project, we represent VoteTrust, a reliable system that further protect user level activities. VoteTrust models the friend request scenario among users as a directed, signed graph, and use two key mechanisms to find fake user over the system : a voting-based fake detection to find users that other users vote to reject, such that fake user community detection to find other colluding fake around identified Sybils. Through evaluating on social network, we show that VoteTrust is able to prevent user from generating many irrelevant friend requests.

I PROPOSED SYSTEM

In this, we further explores the negative *distrust* relationships (e.g., in the form of rejected friend requests) among users, as Sybils have more distrust relationships than trust ones with real users. However, this feature cannot be directly applied because attackers could obfuscate their Sybils from the detector by generating many fake trust relationships among Sybils.

To prune the fake relationships, we model the friend invitation interactions among users as a signed, directed network, with an edge directed from the sender to the receiver and a sign (1= ¡ 1) indicates whether a friend request is accepted.

Based on the above rationale, we present *VoteTrust*, a system that leverages the friend invitation graph to detect Sybils. In VoteTrust, we say that a node B casts a (positive/negative) vote on a node A if B accepts/rejects the request from A. VoteTrust first uses a PageRankstyle algorithm to appropriately assign the number of votes that one can cast on another node (referred to as *vote capacity*).

This process assigns few vote capacity for individual Sybils and thus prevents them from significantly vouching each other through collusion. After that, VoteTrust evaluates a *global* acceptance rate (i.e., the probability of being a real user) for each node through aggregating the votes over the network. During the aggregation, VoteTrust further penalizes votes from suspected nodes. Due to more negative votes from real users, Sybils would get low global acceptance rates and thus can be identified out.

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II EXISTING SYSTEM

To defend against Sybils, prior Sybil defenses leverage the positive *trust* relationships among users, and rely on the key assumption that Sybils can befriend only few real accounts. Unfortunately, we find that people in real OSNs still have a non-zero probability to accept friend requests of strangers, leaving room for Sybils to connect real users through sending a large amount of requests.

III MATHEMATICAL MODEL

VoteTrust models the friend invitation interactions among users as a directed, signed graph to detect Sybils over the graph: a voting-based Sybil detection to find Sybils that users vote to reject, and a Sybil community detection to find other colluding Sybils around identified Sybils.

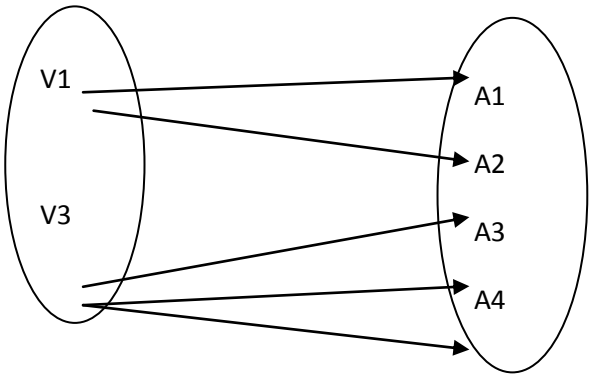
Consider a set V, A set of users registering with our system. This set can be represented as follows

V= {V1, V2, V3,….VN}

These users can perform social activities such as chatting, profile update, add remove friends, search friends etc. Now consider a set a which is a set of social activities, user can perform. This sent can be represented as

A = {A1, A2, A3…An}

The relation between these two sets can be represented as follows. It shows the one to many relationship, that is a user can perform multiple social activities.



The main aim of VoteTrust is to takes as input the friend invitation graph *G*, and outputs the classification of any node or user *u as real*, *Sybil* or *unknown*.

The friend invitation graph G is represented as follows

G = {V, E}

Where V – Set of nodes or users

E – represented the set of links

A link $e = (u, v, s)$ from u to v, of sign $s = 1$, indicates that v trusts u and accepts its request. If $s = -1$, then v distrusts u and rejects its request.

There are two methods that we are working on here in order to detect Sybils from social network. First is Trust based vote assignment and second is Global Vote Assignment.

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In first method the friend invitation graph is used in order to detect the Sybil users. Here we first select some trusted users as seeds, and then propagate the vote capacity from the seeds to others along the links of friend invitation graph *G*(*V;E*).

As Sybil region has a limited number of in-links, the total vote capacity entering the Sybil region is constrained.The initial vote capacity of user u is represented as follows

$$I(u) = \frac{N}{Vs} \quad If(u€Vs)$$

Where N – Total vote capacity of system

Vs – Trusted seeds, we equally assign the vote capacity over V_s.

In second method global vote aggregating is done to get the global acceptance rate $p(u)$ of a node u.

As the acceptance rate of Sybils is very low as compared to real users. SO we can use this two methods to detect sybils from social network.

IV LITERATURE SURVEY

Sybil attacks has become an increasing pervasive and dangerous problem as more and more people rely on online social networks for online communication and discover realtime information on the Web. For example, according to a report on Facebook in August 2012, there are more than 83 million illegitimate accounts in the social network out of its 955 million active accounts.1 These undesirable accounts are fabricated for various purposes such as spreading malware and spam, or gathering many `likes' from users to unfairly promote products. Similarly, a lot of fake Twitter followers are sold rampantly in e-markets and bought by people to increase popularity or launch underground illegal activities.2 Besides, an adversary can manipulate Sybils to conduct malignant activities.

V CONCLUSION

1] provide the security guarantees of VoteTrust, demonstrating that we limit the number of requests Sybils can send to real users.

2] First, we introduce a *new graph model* for Sybil defense, which nicely combine link structure and user feedback.

3] Second, we propose *new techniques*, including global vote aggregation and local community expansion, to exploit the negative links. Finally, we present and analyze theoretically the *security guarantees* of VoteTrust.

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