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SURVEY ARTICLE

A Survey on Spam Filtering for Online Social Networks

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Abstract— Spam is an unending headache associated with the phenomenon called the Internet. Most of us are spending a lot of time on Social networks where users build explicit networks and create virtual relationships. But users have less control over messages that are posted on their walls. Users may get spam (unwanted) messages. So, Social networks can be treated as double-edged sword. This survey presents different types of spam prevention and control mechanisms provided by the social networks and different techniques to improve user control.

Keywords— spam, online social networking, messages, user walls, control mechanism

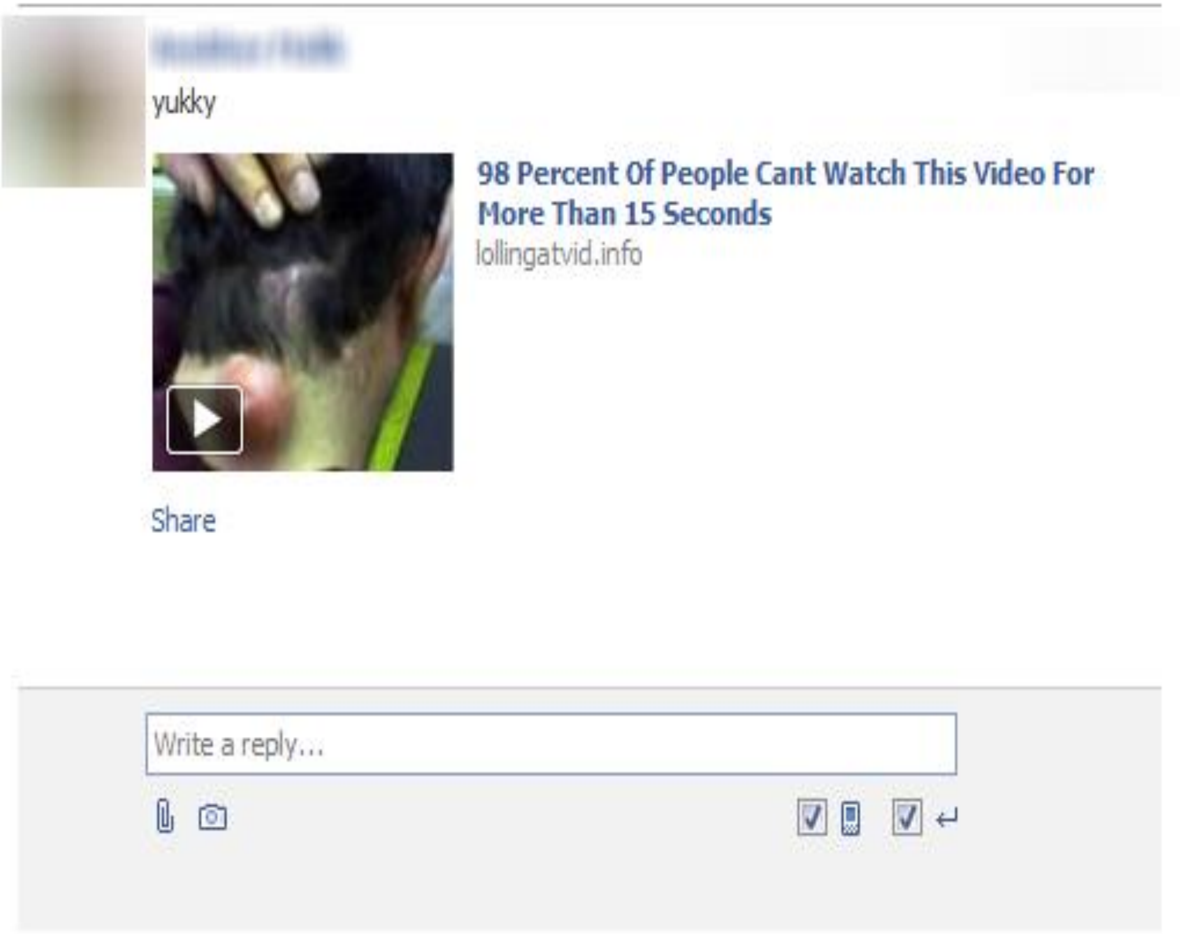
I. INTRODUCTION

Social Networks and the Internet have become part of our lives. Online Social Networks are useful for communication, information sharing and mostly designed for entertainment purpose. So users are mostly addicted to the internet of this reason only. Social Network is grouping of individuals to multiple groups, depending on locality region etc.

Well users being spending much time with chatting and messages on their walls. Users can post messages on their friend's online social network (OSN) walls.

But when a user posts something on other user's wall, the message can only removed by the user who posted it not by the recipient user. The user control is less over their user wall messages. The OSN's should improve this user control.

User privacy and security should be the goals of OSN providers. But though many security policies are there still attacks and threats are occurring, which shows the significance of changing the privacy and security policies.



[redacted]

yukky

98 Percent Of People Cant Watch This Video For More Than 15 Seconds

lollingatvid.info

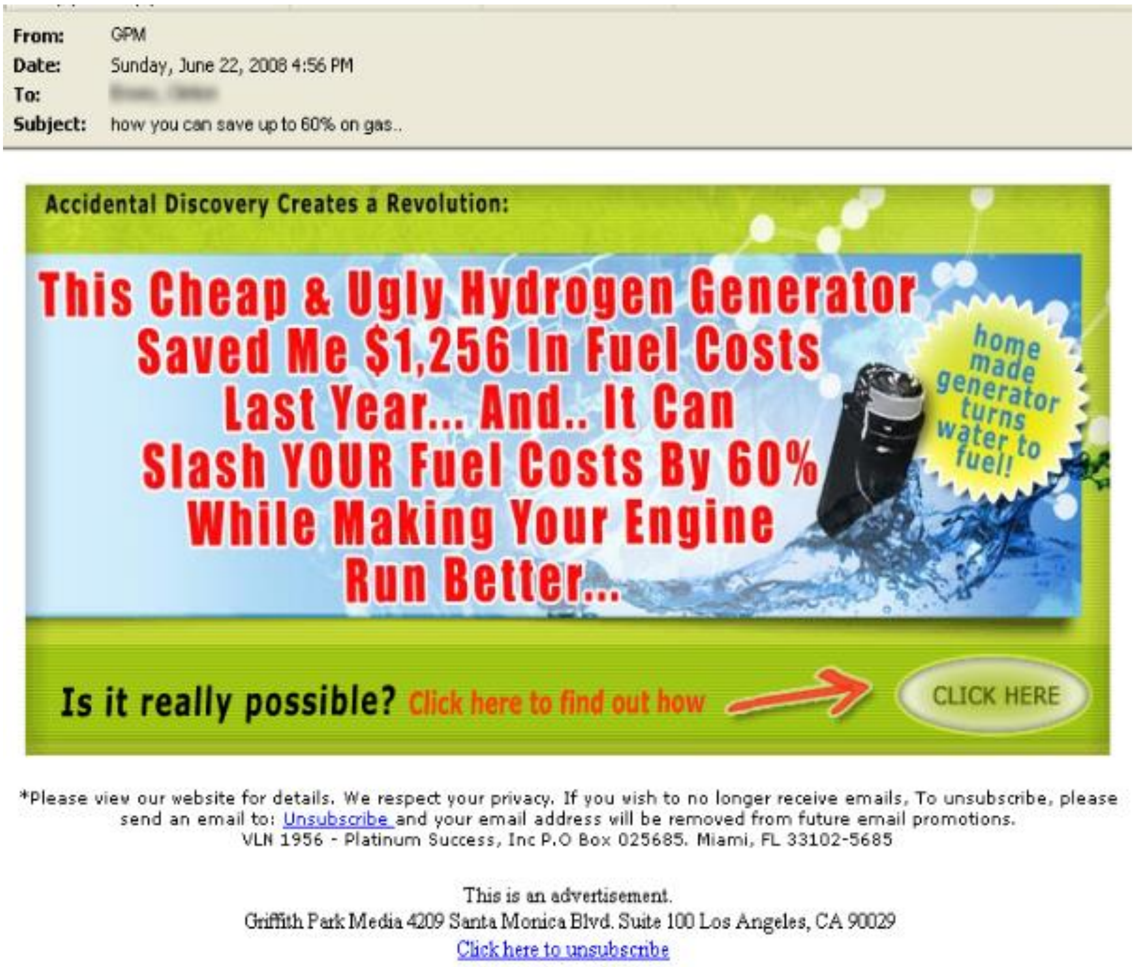
Figure: Example spam post

Spam is a message which may contain malicious code or a junk mail. Spam can be defined as an unsolicited bulk mail. Spammer is the one who sends the spam and the process is called spamming. These spams won't have any identity, no recipient address.

Different Spam techniques: [1]

- Image spam

Image spam is a befogging way in which message can be shown as pictorial form either GIF or JPEG form. This avoids filtering by any text based spam filters. Often, image spam will be senseless content which leads to wastage of user's bandwidth, browsing time and displeases the reader finally. Day to day technology is improving; some filters try to read the images but not efficiently somehow they filter normal images with text also.



From: GPM
Date: Sunday, June 22, 2008 4:56 PM
To: [redacted]
Subject: how you can save up to 60% on gas..

Accidental Discovery Creates a Revolution:
This Cheap & Ugly Hydrogen Generator Saved Me $1,256 In Fuel Costs Last Year... And.. It Can Slash YOUR Fuel Costs By 60% While Making Your Engine Run Better...
home made generator turns water to fuel!
Is it really possible? Click here to find out how
CLICK HERE

*Please view our website for details. We respect your privacy. If you wish to no longer receive emails, To unsubscribe, please send an email to: Unsubscribe and your email address will be removed from future email promotions.
VLN 1956 - Platinum Success, Inc P.O Box 025685. Miami, FL 33102-5685

This is an advertisement.
Griffith Park Media 4209 Santa Monica Blvd. Suite 100 Los Angeles, CA 90029
Click here to unsubscribe

❖ Blank Spam

Blank spam name itself indicates blankness; it’s a spam without payload advertisement. The message body and subject line can be skipped sometimes. Still it can behave as a spam. Blank spam may be raised in different ways, either knowingly or unknowingly:

Blank spam can be sent to grab valid addresses from an email service provider, since the theme in such an attack is to use the bounces to separate invalid addresses from the valid ones.

If Spammer puts aside the payload and tries to run the spam, blank spam exists.

Often blank spam headers come into sight trimmed, leads to computer malfunctioning- from poorly written spam software.

❖ Back Scatter Spam

Back scatter spam is an effected email. It will contain malicious code, malware, virus and worms, where email servers receiving spam and other mail send bounce messages to an innocent party. Due to the original message’s envelop is forged to contain the email address of the victim

Media for spam’s are

- Email
- Instant messaging
- News group and forum
- Mobile phone
- Social networking spam
- Social spam

- Online game messaging
- Spam targeting search engines
- Blog, wiki, and guestbook
- Spam targeting video sharing sites
- SPIT
- Academic search

Spam and virus are different from each other but sometimes a spam can be virus which leads to phishing attack. Spam can be an email, message, picture or a video which serves no use nothing but waste of time.

Filtering techniques are used to discard the spam messages. The message can be a wanted or unwanted, no problem with wanted messages but problem is the unwanted messages.

II. LITERATURE SURVEY

A 2011 Cisco Systems report shows spam volume originating from countries worldwide. [2] India is the biggest hub for spammers as per this survey. Filtering is the best technique used for preventing the spam;

Now a day's every OSN user faces a trouble while others post any spam message on the user wall, the user can report it as a spam but he can't get delete on his own. Let me explain with an example Facebook allows users, who can post messages, images and videos on their walls (friends, friends of friends, group members etc). But there is no content based preferences featured to user and there is no choice to remove spam or any message such as political vulgar or any malicious code unless we posts it. [3]

Plenty of techniques used to filter spam's, we survey the literature on those techniques.

They are as follows:

- Content-Based Filtering
- List-Based Filtering
- Collaborative Spam Filtering

2.1. CONTENT BASED FILTERING

Content based filtering is used to work with the words or phrases present in each individual message posted by every user, is a spam or not. Content based filtering can be defined as a Machine Learning (ML Filtering) process which learns from user's interest and recommend familiar suggestions to the user. [4] User recommendations can be shown as per the rating given by the user for particular item. The user interest might be weighted than other preferences. But here comes the challenge how to learn user interest.

A word-based filtering can be the basic in Content-based filtering. Set of repeated or suspicious words can be used to compare, in the prevention of spams. In general spammers knowingly misspell the words to avoid this filtering. So there is a necessity of updating these black-words in filter by the IT people.

Rule-based filters are little effective than the word-based filters, rather than using a suspicious word, multiple terms can be considered. When a message is scanned the vulgar terms can be weighted high, whenever the score reaches maximum message can be treated as spam. Large scope is there to find spams using it.

Bayesian filter is the latest filter which works with mathematical calculations like probability of a word. Spams have more probability than normal messages. [5]

2.2. LIST BASED FILTERING

List based filtering uses to prevent spam messages by sorting senders as spammers or authenticated users. According to their messages

- Black list

  Black list is a record of email senders or ip addresses which are maintained by the admin, to avoid spam messages sent by spammers. Sometimes spammers won't send directly, sends from authorized IP address. Coming to the working when a message sent to us it can be checked by the filter. The sender of the message can be matched with the blacklist senders unless it does match the message can be treated as a normal message else it can be treated as junk mail, hence it can be discarded.

Since spammers are being cleverest they change their ip addresses frequently, proves limitation of spam filter with black-list.

- White list

White list is quite opposite to the black-list. Instead of maintaining the blocking sender list, the senders who should be allowed can be maintained. For efficient spam filters, white-list is mostly used for strict filtering of spams.

Some anti spam filters are automatic. They maintain automatic white-list and checks the senders email id with the recent spammers list if the user didn't commit any spamming earlier the id can be added to the white-list and message can be allowed.

- Grey list

Grey list is a step ahead from blacklist. Generally spammers try to send spams at once only, the grey list initially sends a failure message to the unknown senders and stops the message. If the mail server responds again and sends it for second time the grey list confirms it as a legitimate mail. The sender address can be added to the grey-list.

2.3. Collaborative Spam Filtering

A collection of input from millions of email users is to be considered in judging a particular message, a spam or legitimate mail. Up to some number of users treat the message as a spam it can be treated as a spam by the community and can be filtered by spam filter. [4]

III. Conclusion and Future scope

In this paper we discussed the problem of spam and necessity of spam filtering from the user walls. We can simply define a spam as an unsolicited bulk mail or junk mail. But spam has worked more than a junk mail; used to sniff user data, to phish user credential details (net banking, online transactions, and credit card or debit card details). Spam causes not only financial problems but also ethical problems. Though plenty of spam filtering techniques was designed, still user is facing problems with the spam. Finally I conclude that there is a necessity to improve user security and privacy in online social networks.

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BIOGRAPHY

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Dr. G.Venkat Rami Reddy is presently Associate Professor in Computer Science and Engineering at school of Information Technology. He is more than 11 years of experience in Teaching, and Software Development. His areas of interests are: image Processing, Computer Networks , Analysis of Algorithms , Data mining, Operating Systems and Web technologies