National Conference on Current Research Advances in Computer Science (CRACS - 17)

17th & 18th March, 2017

Editors : Dr. B. Rama | M. Venugopal Reddy

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Kakatiya University
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A Secured Architecture of Mobile Payment Entrusted by Public Key Cryptography

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***Abstract*—since the mobile systems are growing quickly, the e-commerce will change gently to m-commerce. As a result, mobile security will become the one of the most important part of mobile system and will become the hottest area facing the mobile payment due to mobile networks directness. However, the appropriate encryption scheme for mobile communication must have small amount of data calculating and quick operation as of its inherent restrictions of small quantity and low calculating ability. The objectives of this paper are to look at mobile payment and its security. Also, to explain elliptic curve with public key encryption, authentication of wireless security. Compare with the RSA scheme, an elliptic curve has shorter key size, smaller signature length, low calculating, fast operations and high security working.**

Keywords*—*Authentication, Cryptography, Decryption, Encryption, Mobile Commerce, public key.

I. INTRODUCTION

As indicated by the mobile payment report (IEEE IRI, 8-10), mobile payment is defined as a new transaction payment method employing a mobile terminal on the existing tools for example wireless LAN and Bluetooth. Also, the mobile payment as an important part of m-commerce is defined as the process of two participants exchanging monetary values employing a mobile device in response for merchandise or services,. Mobile security is considered to be a major issue for mobile payment that can be faced through sensitive payment. Actually, there are many research papers discussing businesses markets, payment processing and payment schemes, but in fact there are a few papers that deal with the construction of wireless payment schemes, involving protocols and security protection solutions.

II. PROBLEM FORMULATIONS

As stated by the Wireless World report, mobile payment on wireless solutions will give great business opportunities in the upcoming years. But, with new challenges mobile security is one of the most critical, and difficult challenges to mobile payment. To construct secured wireless payment scheme and to support mobile payment transactions becomes a hot area of research; we should keep the user with the sensitive and transaction data and in the state of security and confidentiality. Give facts and mechanism to solve the challenge if either the client or the merchant declines the transaction. Therefore, generating secure and cost effective wireless payment scheme to aid mobile device by not just gives great business opportunities, but also carries new practical challenges and issues.

III. PROBLEM SOLUTIONS

The appropriate solution for mobile communication equipment is public key encryption but must have a small amount of data calculating and fast operations because of its small volume and low calculating ability.

A Mobile Payment Scheme

Secure milieu for mobile payment scheme is shown in figure 1. It includes seven components: customer, merchant, mobile network operator(MNO), bank, trusted authority (TA), information center (IC) and certificate authority (CA).Time stamping server (TSS) gives notarization from the neutral viewpoint if challenge happens. The system is relied on the SEMOPS (Secure MobilePayment Service), but enhancements to the SEMOPS are made to deal with the signature validation and confidentiality issues. In the system, MNO can be work as the user payment processor in addition to the role of wireless access provider. In general, the bank is the customer accounts holder. So the bank is more appropriate as the payment processor. TA is the part, where CA and TSS, to give notarization from the neutral viewpoint if challenge happens. IC is similar as in SEMOPS; it is in charge for routing and distributing notifications to recipient payment processor.

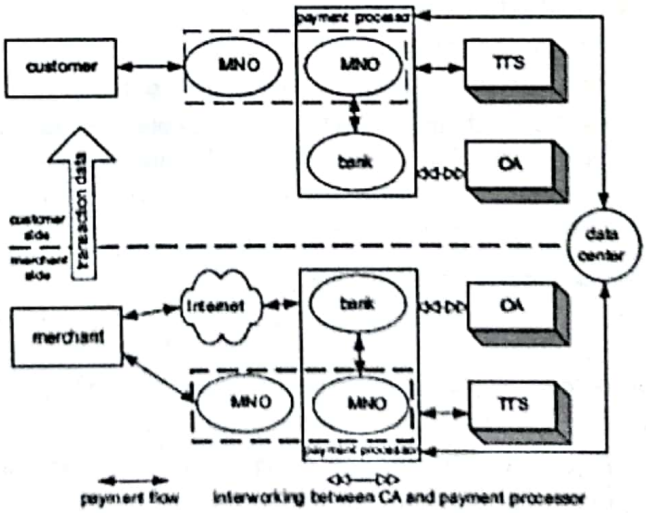

Fig. 1 Mobile payment scheme

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Natural Language Processing Technologies for Multi-Level Intelligent Spam E-Mail Filter

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***Abstract*—The growing problem of unsolicited bulk e-mail, lso known as "spam", has generated a need for reliable anti-pam e-mail filters. To overcome the lack of existing mail iltering system, we designed a content-based message filtering ystem of multi-level intelligence. Using natural language rocessing technology, it denotes the E-mail content including ttachments. First, it pre-processes the content of E-mail, ncluding segmentation, feature extraction. Second, combining knowledge-base and expansion of the feature, it can form the vector. Corresponding categories vector in the database, two vectors similar degree of calculation determines the credibility of the message. Based on the above theory, with the Java EE 6+SQL Server 2005 platform, a mail filtering system is achieved. It can maximize the elimination of spam. The major features are following: 1) black /white list filtering. It can intercept white list blacklist e-mail messages released. 2) Reverse DNS testing. it can effectively eliminate the anonymous e-mail attacks. 3) content-based message filtering. An accurate analysis of mail content can filter out suspicious messages. 4) Fingerprint recognition. It can mimic the biological concept of fingerprint identification to complete the identification of spam. 5) user-personalized filtering. The user independently designed filter program. 6) intent detection. It can detect the content URL connection in email. Experiment shows mail filter system can play a very good effect on spam filters.**

Index Terms—Spam mail-filter, *mail* classification, privacy protection, information security.

I. INTRODUCTION

As spammers continue to adopt new methods to make the current mail filtering system becomes inadequate, and therefore the development of safe, reliable spam filter has become one of current problems to be solved. Therefore spam filtering research people's wide concern. Mail filter is a very early application, but also a wide range of technologies. Obviously, research more effective spam filtering system, is a significant issue.

Structure of the mail system in accordance with the role of e-mail filtering can be divided into three categories [3], [4]. 1) MTA (mail transfer agent) filters. MTA filtering is the process of the data in the session to check the mail for the line filter to filter processing. E-mail before sending, check for the envelope. E-mail sent later, to inspect the data, including the header check and the letter body check. The most popular message body check is to check the contents using Bayesian algorithm. 2) MDA (mail delivery agent) filters. MDA is a filter to receive mail from the MTA, local or remote to be checked when submitted to deal with line filter mail. Many MDA filters are supported in this process, such as Procmail, Maildrop, and Cyrus-IMAP. 3) MUA (mail user agent) filters. MTA and MDA are server-side email filtering, and MUA filtering is the client-side filtering of mail users. Most popular mail clients such as Outlook Express, Fox mail, have supported the MUA filters. Currently most of the users often enter the mail server to send and receive mail, without the client-side, so the MUA filtering does not work.

There is already hardware spam filters on the market, such as Barracuda's spam filter, its function more perfect. Users can specify their own spam keywords and the extension of the attachment, and can set Bayesian factor to control the degree of intercepting mail. It also has some function, such as anti-virus, automatic-update virus database, but the message content filtering is also not accurate enough.

According to the different stages of email transmission and methods, this paper puts forward intelligent multi-level mail filtering system based on natural language processing. Its main features include black and white list filter, reverse DNS testing, fingerprint recognition, intent detection, content-based spam filtering, and user-personalized filtering technology.

II. MAIL-FILTERING RELATED RESEARCH

June 1973, J. White submitted a report entitled "A Proposed Mail Protocol" of the RFC, number 524. August 1982, Jonathan B. Postel proposed simple mail transfer protocol (SMTP) based on the famous RFC524. It is defined by the IETF as an international standard. Because at the time not fully taking into account the security of computer networks, there are a lot of security vulnerabilities. Many spammers take advantage of SMTP's security vulnerabilities, such as fake e-mail address of the head or disguise the sender, madly to send spam. It is difficult to identify the real sender. Although security for SMTP subsequently made a number of enhanced vulnerability agreement, it is difficult to be widely adopted [5]. Existing anti-spam technologies, there are three main directions as following. 1) Modify an existing SMTP protocol to develop a new secure mail protocol, so that spam does not "survival of the environment." The method is through improving communication protocol, to enhance security authentication performance, to eliminate spam flooding the environment, to reduce or eliminate spam. 2) To enable the

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Enhancing the User Search Goals Using Feedback Sessions and Evaluation Methods

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***Abstract*—Internet is a place of various information and it contains huge amount of data. As the web content rises, it became difficult to organize and manage the data. These data must be organized in such a way that the search engine must be able to retrieve it efficiently. Various methods are there which helps to improve the search results in search engines by inferring user search goals. Users all over the world have different views and requirements for searching. Most of the search goals coincide. It is the function of the search engine to satisfy the user search goals. Analyzing user search goals is a best practice to make the search results efficient. These sessions are called feedback sessions which help to infer user search goals.**

***Keywords*—Web content, User Queries, Query Ranking Methods, feedback sessions, Click-Through;**

I. INTRODUCTION

A Web in a collection of inter-related files which reserves on one or more servers. Web mining helps to extract knowledge from web data. Web data mining is mainly classified as Web content mining (both the extraction of useful data and information),Web Structure mining(Using graph theory to analyse the nodes and connection structure of Websites),Web usage mining(Extracting useful information from server logs).In this paper we are dealing with Web usage mining. Finding and analyzing the feedback sessions from server logs will helps to improve the web search results and speeds up the processing of search engines. For every users access to web page the web server records it in weblogs. These web logs contain the information about the requested URL, the IP address from where the request has originated and the duration of the session. It is based on the web log records the feedback sessions are explored.

II. TECHNIQUES FOR INFERRING USER SEARCH GOALS

II.1 Automatic Identification of User Goals in Web Search

Every query submitted by the user has a particular intention. Based on these user goals and its analysis it is very useful to identify what the user expect when he is submitting a query. Manual goal identification method is used to identify the target of the user query prior to this. In manual query classification whenever a user submits a query, q the result is i(q), the percentage of users who submits this query as informational .By this way a query is classified as either informational or navigational. The proposed system mainly focuses on automatic identification of user search goals. This method uses two criteria to identify the user search goals.

- Past user click behavior
- Anchor Link Distribution

II.2 Context - Aware Query Suggestion by Mining Click-Through and Session Data

Query Suggestion plays an important role in the forming the feedback sessions to infer the user search goals. The mined patterns in the existing Query Suggestion are not Context - Aware. Context-Awareness consists of mainly two steps.

- Offline Model Learning Step
- Online Query Suggestion Step

III. ARCHITECTURE AND IMPLEMENTATION

Implementation is the stage of the project when the theoretical design is turned out into a working system. Thus it can be considered to be the most critical stage in achieving a successful new system and in giving the user, confidence that the new system will work and be effective. Architecture Consist following modules

(a) Feedback Sessions
(b) Pseudo-documents
(c) Inferring Pseudo-documents
(d) Evaluation Search Result

(a) **Feedback Sessions:** The inferring user search goals for a particular query. Therefore, the single session containing only one query is introduced, which distinguishes from the conventional session. Meanwhile, the feedback session in this paper is based on a single session, although it can be extended to the whole session.

(b) **Pseudo-documents:** The URLs with additional textual contents by extracting the titles and snippets of the returned URLs appearing in the feedback session. In this way, each URL in a feedback session is represented by a small text paragraph that consists of its title and snippet.

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The Effective and in-centric Approaches of Web Personalization

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***Abstract*—In recent years, web personalization issue has been addressed in different application domains with different perspectives, and it will be indeed have the fastest growth over the next coming years, to prove it in the top 3 of essential personalization practices. Web Mining is a technique of data mining which is useful to extract the knowledge and has grown rapidly in research and e-business areas and have explosive growth in web. Web Personalization can be defined as delivery of dynamic customized content to a particular user from the web. In the literature survey the research focus is on web personalization and its categories.**

***Keywords*—Data Mining, Web Mining, Web Personalization.**

I. INTRODUCTION

Web Mining is the technique to classify the web pages and internet users by taking into consideration the content of the page and behavior of internet user in the past. Web mining is an application technique of data mining which is useful to extract the knowledge and has grown rapidly in research and e-business areas and have explosive growth in web [3]. Web mining is mainly categorized into three branches Web content mining (WCM), Web structure mining (WSM) and Web usage mining (WUM). Web usage mining refers to the discovery of user access patterns from Web usage logs. Web structure mining tries to discover useful knowledge from the structure of hyperlinks. Web content mining aims to extract/mine useful information or knowledge from web page contents, in the figure 2 shows the complete process data mining and its types and the algorithms and application of Web Personalization. Here in the figure 2 describe the mining techniques and the italic font describes the algorithms used in the mining techniques and its applications.

1. ***Web content mining:*** This is the process of mining useful information from the contents of Web pages and Web documents, which are mostly text, images and audio/video files.
2. ***Web structure mining:*** This is the process of analyzing the nodes and connection structure of a website through the use of graph theory. There are two things that can be obtained from this: the structure of a website in terms of how it is connected to other sites and the document structure of the website itself, as to how each page is connected.
3. ***Web usage mining:*** This is the process of extracting patterns and information from server logs to gain insight on user activity including where the users are from, how many clicked what item on the site and the types of activities being done on the site.

II. GENERAL DESIGN OF SYSTEM

Web usage mining is a type of web mining, which exploits data mining techniques to discover valuable information from navigations of web users in order to discover user access patterns from web servers i.e., the data from the web server log files. Web usage mining has various application areas such as Web pre-fetching, Business Intelligent, Link prediction, Site re-organization *(Modification)*, System Improvement, Usage Characterization and Web personalization. Most important phase of web usage mining is Web personalization techniques and discovering useful patterns from the web. Web usage mining is a complete process that includes various stages of data mining cycle, which can be decomposed into the subtasks, namely: *Resource finding, Information selection and Data preprocessing, Generalization and Pattern Analysis* [6].

1. ***Resource finding:*** The task of Resource finding is to retrieve intended weblog data form web documents it means process of retrieving the data either online or offline from the text sources available on the web.
2. ***Information selection and Data pre-processing:*** Automatically selecting and data pre-processing specific information from retrieved Web resources. It is a kind of transformation processes of the original data retrieved in the IR process.
3. ***Generalization:*** It automatically discovers general patterns at individual Web sites as well as across multiple sites. Machine learning or data mining techniques are typically used in the process of generalization.
4. ***Analysis:*** Validating and/or interpretation of the mined patterns.

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Network Coding Gain Optimization in Wireless Ad-hoc Networks

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Abstract–**Network coding is the technique which combines the packets at the intermediate node which there by reduces the number the transmissions that are to be send through the network and therefore improves the transmission efficiency. However it is waste to combine the packets together if the receiver is unable to decode the packets. This paper addresses how to find the coding solutions which guarantees decodability at the destination. As the number of transmissions are reduced we first show the coding gain obtained and provide a method which checks weather the coding pair can be separated at the destination or not. The one which provides the maximum coding gain is selected among all the decodable pairs. This algorithm can be applied to unicast and multicast traffic. Finally simulation results show that the numbers of transmissions are reduced especially in the multicast networks were we find many coding opportunities to apply network coding.**

Keywords–Wireless networks, network coding, routing protocols.

I. INTRODUCTION

In wireless networks information is send efficiently by using the technique called network coding. notwork coding has the capability of reducing the traffic in the network by using the concept of encoding[1]. During the last decade the reaearch done n the network coding are: Improve communication throughput and fairness [2], or to determine the throughput capacity through random [3] or deterministic [4] coding schemes. Traditional routing farwards the packets as it is fro node to the other were as the network coding combines the packets at the relay node which reduces the transmissions. Consider the network in Fig 1,nodes A and B need to send packet to each other through the intermediate node C. Traditional routinf uses the concept of Store-and-farward which farwards the packets as it is with out any modifications, it takes 4 transmissions altogether .if network coding is used the relay node combines the two packets using bitwise XOR operation and broadcasts the coded packet to A and B,which takes only 3 transmissions.

Less number of tranmisions reduced the bandwidth demand which in turn improves the communication throughput. Delay performance can be improved gy reducinh the medium contension. However, when the network topology becomes complex, there is no easy solution for network coding. Some researchers studied the characteristics of the network topology that has a network coding solution [5].These characteristics include butterfly networks, grail network, etc. If two paths share the same relay node then there is an opportunity to encode them. this pare gives an algorithm which computes maximum transmission reduction from a coded pair, and a solution to check weather the destination is cabable of decoding the packet.

According to [6] systematic network coding which uses XORs require less and simple operations during the process of decoding, when compare to random linear network coding which uses lrge field size. Therefore in this paper we use simple XOR and deterministic network coding scheme, rather than searching for best coding function. this paper gives solutions for which packets should be encoded together and coding should be performed by which relay node so that optimal performance is achieved, this guarantees the decidability at the destination. This solution also avoids the problem of "pollution" in which the unwanted data is mixed with the usefull data and the destination wil not be able to decode the needed data[7].

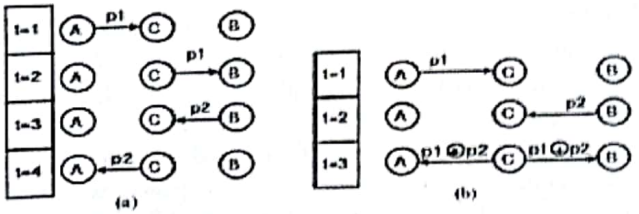

Fig. 1 (a) Routing requires 4 transmissions in 4 time slots, (b) Network coding requires 3 transmissions in 3 time slots.

The rest of the paper is organized as follows. In Section II, we briefly survey the previous related work. In Section III, we provide a decodability analysis framework and a practical algorithm to find the optimal coding solution. We present simulation results in Section IV to study the performance of the algorithms in randomly chosen network settings. Section V concludes the paper and points out future research directions.

II. RELATED WORK

Since the introduction in 2000 [1], network coding has attracted a lot of attention in research community. Wang et al. [5] studied the problem of network coding with two simple unicast sessions for directed acyclic graphs (DAG), and also

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