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Securing Broker-Less Publish/Subscribe Systems Using Identity-Based Encryption

M.Muthuraj and R.Mohankumar

Department of Computer Applications, K.S.R College of Engineering, Tiruchengode, Tamilnadu, India.

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ABSTRACT

Identification approach to provide authentication and confidentiality in a broker-less and confidentiality are the main objective of any distributed system the pub/sub system. Our approach allows subscribers to maintain credentials according to their subscriptions. Private keys assigned to the subscribers are labeled with the credentials. A publisher associates each encrypted event with a set of credentials. We adapted identity-based encryption (IBE) mechanisms 1) to ensure that a particular subscriber can decrypt an event only if there is a match between the credentials associated with the event and the key; and 2) to allow subscribers to verify the authenticity of received events. 1) Extensions of the cryptographic methods to provide efficient routing of encrypted events by using the idea of searchable encryption, 2) "Multicredential routing" a new event dissemination strategy which strengthens the weak subscription confidentiality, and 3) a thorough analysis of different attacks on subscription confidentiality.

Introduction

A new confidentiality authentication in content based pub/sub system. To prove this, paring based cryptographic concept is been used to encrypt and decrypt the files. Sign cryption has a valid string which uniquely identifies the public key of the user. Alice encrypts the file, using master public key and sends the message to bob. Bob decrypt the same message by using master private key. Key Server maintains both public and private keys. Instead of identity based encryption ,sign cryption concepts are used. Sign cryption performs the function of both digital signature and encryption. A secure sign cryption scheme should provide confidentiality, authentication, and should provide insider security.

Encryption and Decryption

Attempts of applying LSI/PLSI-based techniques to discover a more reliable concept association in ABIR systems have been reported in the context of online image retrieval systems. Attempts of applying LSI/pLSI-based techniques to discover a more reliable concept association in ABIR systems have been reported. The problem of automatic image annotation is closely related to that of content-based image retrieval. Since the early 1990s, numerous approaches, both from academia and the industry, have been proposed to index images using numerical features automatically-extracted from the images. Probabilistic Latent Semantic Indexing and latent semantic indexing methods to retrieve the images easily. The new method is shown to possess certain theoretical advantages and also to achieve better Precision versus Recall results when compared to Latent Semantic Indexing (LSI) and probabilistic Latent Semantic Indexing (pLSI) methods in Annotation-Based Image Retrieval (ABIR) tasks.

The Latent Semantic Indexing (LSI)-based approaches that were initially applied with increased success in document indexing and retrieval were incorporated into the ABIR systems to discover a more reliable concept association. However, the level of success in these attempts is questionable; a reason for this lays in the sparsity of the per-image keyword annotation data in comparison to the number of keywords that are usually assigned to documents.

The system responds with a list of images. The user can download or ignore the returned images and issue a new query instead. During the training phase of the system the images are considered with no annotation. As the users issue queries and pick images the system annotates the images in an automatic manner and at the same time establishes relevance relations between the keywords as will be explained later on in the manuscript. The user never annotates the images explicitly, this happens by the system transparently from the user. At the testing phase the system uses the annotations available from the training phase but also the keyword relevance probability weights also evaluated during the training phase to return images that better reflect the user's preferences and improve user satisfaction. This interactive procedure has implicit consequences that we exploit one by one in a step by step construction of the proposed system.

Pre-Computed Challenging Process

It supports public verifiability and privacy against third-party verifiers, while at the same time it doesn't need to use a third-party auditor. It is secure against the un trusted server and private against third party verifiers.

Data storage

An increasing number of clients store their important data in remote servers in the cloud, without leaving a copy in their local computers. it can be easily adapted to support data dynamics.

Public verification

Public verifiability, by which *anyone* (not just the client) can perform the integrity checking operation. That support of data dynamics verification supports public verifiability and privacy against third-party verifiers, while at the same time it doesn't need to use a third-party auditor.

Data Base Design

The Data Model is used to group data into a number of tables. The tables are organized to reduce duplication of data, Simplicity functions like adding, deleting, modifying data etc., Retrieving data.

Tele:

E-mail addresses: plcdepts@gmail.com

In the project we use SQL Server to build the necessary tables and also to make the relations. Each of the below mentioned modules have their own fields and among which there is a primary key with the help of which we can identify and call the table.

Flow chart

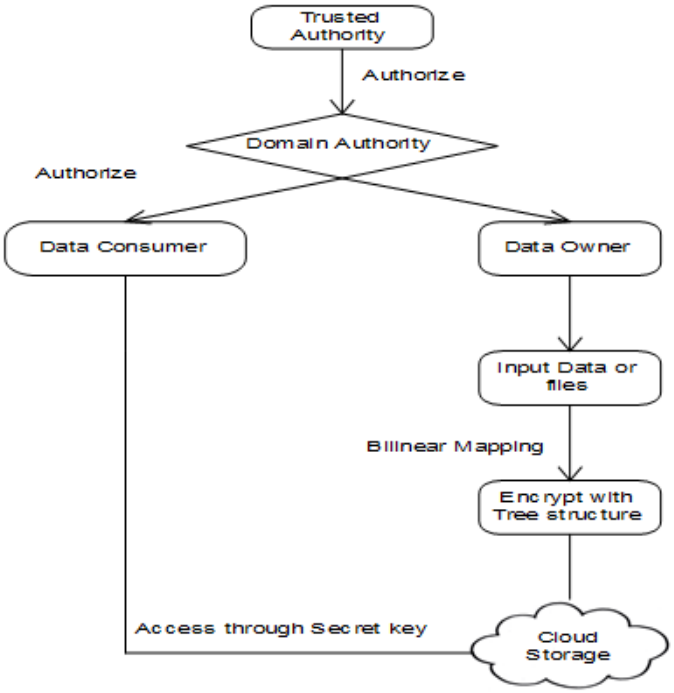

Figure 2.1

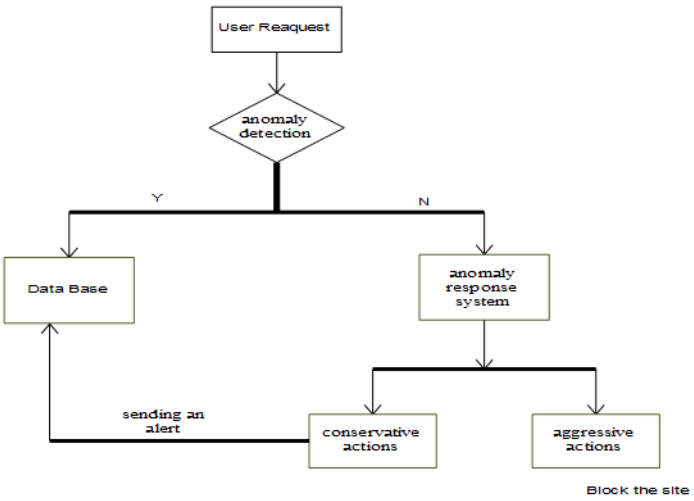

Figure 2.2

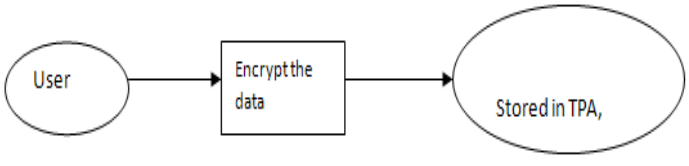

Figure 2.3

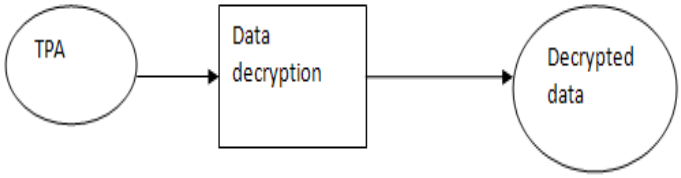

Figure 2.4

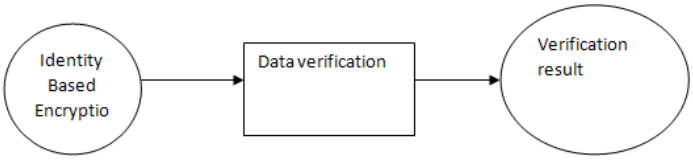

Figure 2.5

Experimental Results

This experiment does not permit reliable comparison to pLSI, since the limited number of images used in this experiment and it's a comparison to LSI. The full features of the proposed distance (MSI) are demonstrated in this experiment since the generative process of the aggregate Markov chain during the automatic annotation of images was available to us as is explained later on. Sixty four images that form two intuitive classes were used for this experiment, 32 images related to the term Greek and considered to belong to the first class, and 32 images related to the term Hawaiian are considered to belong to the second class.

Figure 4.1

Figure 4.2

Figure 4.3

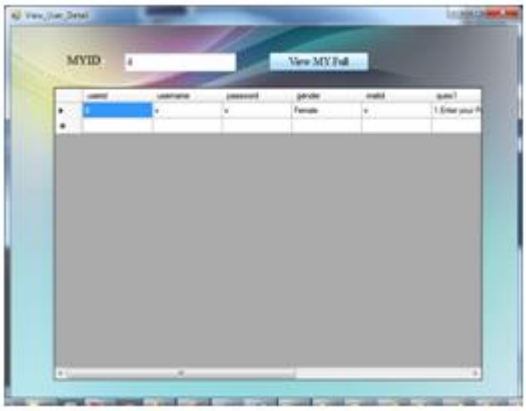

Figure 4.4

Figure 4.5

Figure 4.6

Conclusion

A new approach to provide authentication and confidentiality in a broker-less content-based pub/sub system is discussed. The approach is highly scalable with the number of subscribers and defining keyword relevance as a connectivity measure between Monrovian states modeled after the user queries. The proposed system is dynamically trained by the queries of the same users that will be served by the system. Consequently, the targeting is more accurate, compared to other systems that use external means of nondynamic or nonadaptive nature to define keyword relevance.A Markov process is a random process in which the future is independent of the past, given the present. Thus, Markov processes are the natural stochastic analogs of the deterministic processes described by differential and difference equations. They form one of the most important classes of random processes.

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