MULTISERVICE PRODUCT COMPARISON AND CASE BASED RECOMMENDATION SYSTEM WITH IMPROVED RELIABILITY

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ABSTRACT

This paper proposes a novel scheme of compressing encrypted images with auxiliary information. The content owner, encrypt the uncompressed images and generate information, which will be used for data compression and image reconstruction. The channel provider who cannot access the original content may compress the encrypt data by quantization method with optimal parameters and transmit the compressed data. At receiver side, the principal image can be restored using the compressed encrypted data and secret key. In this proposed work, an improved multi-featured based product recommendation system was built on the real time ecommerce sites. In this system, multiple web based products are analyzed and ranked by using multi-product based recommender system and multiple products from different vendors are taken with multiple product features. The proposed work gives the best solution to the users who are interested in comparing the different products. To improve scalability and efficiency in a big data environment the proposed system is implemented on Hadoop, which is widely adopted using distributed computing platform using the MapReduce parallel processing paradigm. Hence Our Applications Stands unique as it does not rely on the Single Service Provider. The Purchase phase look up for the Web services of the Products Service Provider and can make the Online Payment with the Banks from Service Provider All the Information Will be Securely and Precisely Stored in the Users Session.

Keywords: - *Recommendation, Comparison, Security, Bigdata;*

1. INTRODUCTION

Along with the above example, the era of Big Data has arrived. Every day, 2.5 quintillion bytes of data are created and 90 percent of the data in the world today were produced within the past two years. Our capability for data generation has never been so powerful and enormous ever since the invention of the information technology in the early 19th century. As another example, on 4 October 2012, the first presidential debate between President Barrack Obama and Governor Mitt Romney triggered more than 10 million tweets within 2 hours. Such online discussions provide a new means to sense the public interests and generate feedback in real-time, and are mostly appealing compared to generic media, such as radio or TV broadcasting. Another example is Flicker, a public picture sharing site, which received 1.8 million photos per day, on average, from February to March 2012.

Assuming the size of each photo is 2 megabytes (MB), this requires 3.6 terabytes (TB) storage every single day. Indeed, as an old saying states: "a picture is worth a thousand words," the billions of pictures on Flicker are a treasure tank for us to explore the human society, social events, public affairs, disasters, and so on, only if we have the power to harness the enormous amount of data. The above examples demonstrate the rise of Big Data applications where data collection has grown tremendously and is beyond the ability of commonly used software tools to capture, manage, and process within a "tolerable elapsed time." The most fundamental challenge for Big

Data applications is to explore the large volumes of data and extract useful information or knowledge for future actions. In many situations, the knowledge extraction process has to be very efficient and close to real time because storing all observed data is nearly infeasible. For example, the square kilometer array (SKA) in radio astronomy consists of 1,000 to 1,500 15-meter dishes in a central 5-km area. It provides 100 times more sensitive vision than any existing radio telescopes, answering fundamental questions about the Universe. However, with a 40 gigabytes (GB)/second data volume, the data generated from the SKA are exceptionally large. Although researchers have confirmed that interesting patterns, such as transient radio anomalies can be discovered from the SKA data, existing methods can only work in an offline fashion and are incapable of handling this Big Data scenario in real time. As a result, the unprecedented data volumes require an effective data analysis and prediction platform to achieve fast response and real-time classification for such Big Data.

This paper proposes a novel scheme of compressing encrypted images with auxiliary information. The content owner encrypts the original uncompressed images and also generates some auxiliary information, which will be used for data compression and image reconstruction. Then, the channel provider who cannot access the original content may compress the encrypted data by a quantization method with optimal parameters that are derived from a part of auxiliary information and a compression ratio-distortion criteria, and transmit the compressed data, which include an encrypted sub-image, the quantized data, the quantization parameters and another part of auxiliary information. At receiver side, the principal image content can be reconstructed using the compressed encrypted data and the secret key. To compete with the big data problems prevailing in many of the Service Recommender Systems in Market and to build a Scalable, Efficient and Precise System for Service level Comparison between products in Market.

2. RELATED WORK

W. Yuan, D. Guan, Y.K. Lee, S. Lee, S.J. Hur[1]. In the year 2010 proposed a system where the trust network is a social network where nodes are inter-linked by their trust relations. It has been widely used in various applications, however, little is known about its structure due to its highly dynamic nature. Based on five trust networks obtained from the real online sites, we contribute to verify that the trust network is the small-world network: the nodes are highly clustered, while the distance between two randomly selected nodes is short. This has considerable implications on using the trust network in the trust-aware applications. L. Zhen, Z. Jiang, H. Song[2] in 2010 proposed a novel model of distributed knowledge recommender system is proposed to facilitate knowledge sharing among collaborative team members, our model is oriented to the peer-to-peer (P2P) environment without the centralized control. Among the P2P network of collaborative team members, each peer is deployed with one distributed knowledge recommender which can supply proper knowledge resources to peers who may need them. This paper investigates the key techniques for implementing the distributed knowledge recommender model. Moreover, a series of simulation-based experiments are conducted by using the data from a real-world collaborative team in an enterprise. N. Zheng, Q. Li [3]. In 2011 proposed a Social tagging has become increasingly prevalent on the Internet. These tagging systems offer lots of useful information, such as tag, an expression of user's preference towards a certain resource, time, a denotation of user's interests drift. With tagging behavior, a great deal of valuable information emerged, which strongly suggests the need to make use of such information to provide personalized services.

Min Gao , Zhongfu Wu , Feng Jiang [4]. In 2011 proposed this system to improve the quality of recommendations, we incorporate the weight of a user, user rank, into the computation of item similarities and differentials. In this paper, a data model for user rank calculations, a Page Rank-based user ranking approach, and a user rank-based item similarities/differentials computing approach are proposed. H.N. Kim, A. Alkhaldi, A.E. Saddik, G.S. J [5] in the year 2011 proposed a approach that first discovers relevant and irrelevant topics for users, and then enriches an individual user model with collaboration from other similar users. In order to evaluate the performance of model, compare experimental results with a user model based on collaborative filtering approaches and a vector space model. The experimental results have shown the proposed model provides a better representation in user interests and achieves better recommendation results in terms of accuracy and ranking.

C.Kaleli, H.Polat [6]. In 2012 proposed a method preserves data owners' privacy and is able to suggest predictions resourcefully. By performing several experiments using real data sets, we analyze our scheme in terms of accuracy. Our empirical outcomes show that it is still possible to estimate truthful predictions competently while maintaining data owners' confidentiality based on horizontally distributed data. Roy.S.B. , Amer-Yahia.S. , Chawla. A. , Das, G. , Yu,[7]. In 2010 the system explore the impact of space constraints on maintaining per-user and pair wise item lists and develop two complementary solutions that leverage shared user behavior to maintain the efficiency of our recommendation algorithms within a space budget. The first solution, behavior factoring, factors out user agreements from disagreement lists, while the second solution, partial materialization, selectively materializes a subset of disagreement lists. P. Bedi, R. Sharm [8]. In 2012 this system propose a Trust based Ant Recommender System (TARS) produces valuable recommendations by incorporating a notion of dynamic trust between users and selecting a small and best neighborhood based on biological metaphor of ant colonies. Along with the predicted ratings, displaying additional information for explanation of recommendations regarding the strength and level of connectedness in trust graph from where recommendations are generated, items and number of neighbors involved in ratings can help active user make better decisions. J. Bobadilla, A. Hernando, F. Ortega, J. Bernal [9] in 2011 This paper provides: (a) measures to evaluate the novelty of the users' recommendations and trust in their neighborhoods', (b) equations that formalize and unify the collaborative filtering process and its evaluation, (c) a framework based on the above-mentioned elements that enables the evaluation of the quality results of any collaborative filtering applied to the desired recommender systems. J. Bobadilla, F. Serradilla, J. Bernal,[10]. In 2010 the paper proposes a new metric which combines the numerical information of the votes with independent information from those values, based on the proportions of the common and uncommon votes between each pair of users. Likewise, we define the reasoning and experiments on which the design of the metric is based and the restriction of being applied to recommender systems where the possible range of votes is not greater than 5.

3. EXISTING METHODOLOGY

Existing Systems only provide users, with the products in their stocks and will render the Comparison within their products only. There by limiting the users to analyze before buying a product. Existing Service Recommender Systems suffers from big data Problems like scalability and Time Consumption and thus lack of preciseness

4. PROBLEMS IN THE EXISTING SYSTEM

Existing systems use Super Computers for data processing and is not cost efficient Existing Service comparison and Recommender systems suffers from scalability and efficiency. Existing systems redirects to the selected Service Provider when Transaction is initialized. Users have to manage multiple E-Commerce accounts for purchasing products on various applications.

5. PROPOSED WORK

In this proposed work, an improved multi-featured based product recommendation system was built on the real time ecommerce sites. In this proposed architecture, multiple web based products are analyzed and ranked by using multi-product based recommender system.

We propose an efficient and precise service comparison and recommender system which enables the shoppers to deeply analyze on what product to choose and in which application easily and fairly using Hadoop framework which allows multiple nodes to obtain the data and perform parallel processing for efficient computation and scalability of service recommender system and provides the recommendation to users efficiently

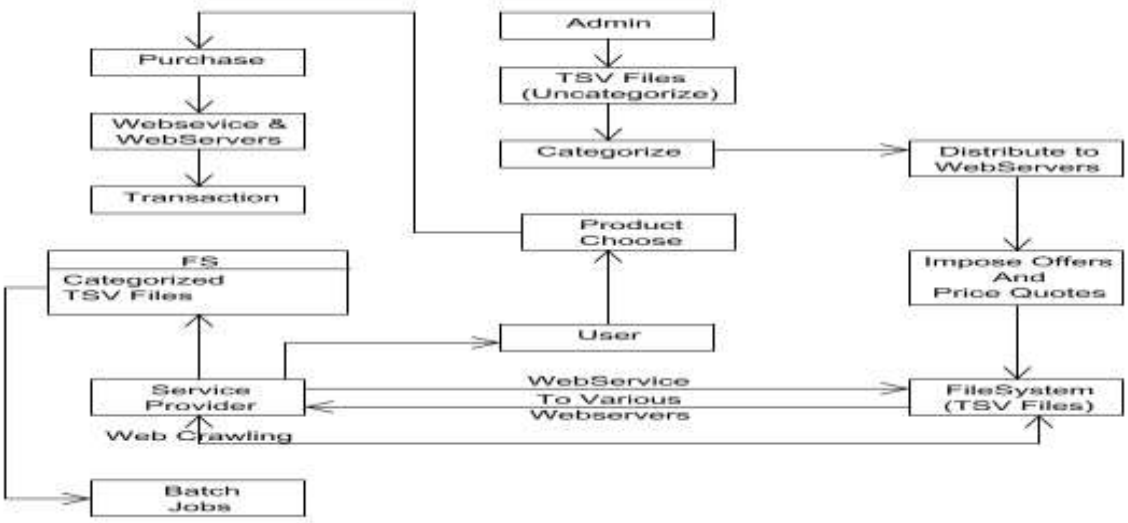

Fig -1 Architecture diagram of proposed method

We propose a Scalable, efficient and Precise Service Comparison and Recommender System which enables the shoppers to deeply analyze on what product to choose and in which Application, ease and fair with our Gateway .The Shoppers will be provided with Clean Indexes of various products with its spec ,cost and also Service Ratings which is done in a statistical way .Our System crabs the data's from various web application and loads in its datasets collaboratively and process with Batch jobs so as to Categories classify and to Index the data's in a distributed and Parallel processing Manner. Shoppers can Analyze, Get Recommendations and Can Pick Products and Add to Cart irrespective Of the Service Provider. Hence our applications Stands unique as it does not rely on the Single Service Provider. The Cart can be reviewed at any time and can be Processed Whenever the Shopper Wants the Product. All the Information Will be Securely and Precisely Stored in the Users Session. The Purchase phase look up for the Web services of the Products Service Provider and can make the Online Payment with the Banks from Service Provider. Once it got over Process Gets Back to our Gateway bringing out the Track Id's from Product Service Provider.

5.1. MODULES:

5.1.1. WEB APPLICATIONS BUILDING AND BROADCASTING

Sample Web Applications were built so that the users can compare their products With different Service Providers. The Applications uses sample datasets that has been crawled in Amazon previously. Similar Datasets were prepared for other Applications too using the Meta model that has been crawled earlier. Each Data Set was loaded independently in Various Web Applications. Features and other specifications have been loaded differently for each Application based on the Service Providers Requirement. These Applications have been deployed in Web Servers so that the Application is Up and Running. Web Services have been written on each Web Application so that any third party can communicate with Secure Authentication.

5.1.2. GATEWAY APPLICATION AND BATCH PROCESSING OVER THE TSV DATA

Now Our Gateway Application is built which gives users with Recommendations and Comparisons between the Products in the Market .Generally the Resources provided by Various Web Servers are in TSV (Tab Separated Values) Format and should be Batch Processed before Proceeding. For that we use our own API for TSV Manipulation. The TSV files were parsed for data. Theses data's are used for further processing

5.1.3. WEB CRAWLING FOR RESOURCES AND MAPREDUCE

The Users can register and can login to view Various Products Available in Market. This is done by writing a Web Service Client Process for each Service provider. It can connect to the Various Web Applications Web Service and can pull all the needed data's to our backend. A huge Amount of data got accumulated now .Web crawling looks for web services provided by various web applications. The Crawled Resources are then reduced by Map Reduce Framework and converted into a single object .This Reduced Object Contains all the necessary information for providing comparison and Recommendations.

5.1.4 PICKING PRODUCTS FROM RECOMMENDATION AND PURCHASE

The Recommendations were given based on the QOS, Availability, Delivery, Offers, Price and Specifications of the particular product. The Users can pick any product so that our application provides with a most Genuine Recommendation and a set of Comparisons. The Users are provided with neat and clean indexes so that he can pick a best provider for a particular product. The picked products were added in Cart and can be purchased later. The User Cart is equipped with Case Based Recommender Systems. It uses case-based reasoning (CBR) to identify and recommend the items that seem more suitable for completing a user's buying experience provided that he or she has already selected some items. The system models complete transactions as cases and recommended items come from the evaluation of those transactions. Because the cases aren't restricted to the user who purchased them, the developed system can generate accurate item recommendations for joint item selections, both for new and existing users. Having analyzed the previous transactions and identified the concepts within which concrete items appear, the given part of a new transaction is matched over the existing ones to find the more adequate solution. i.e. the best way to fill this basket.

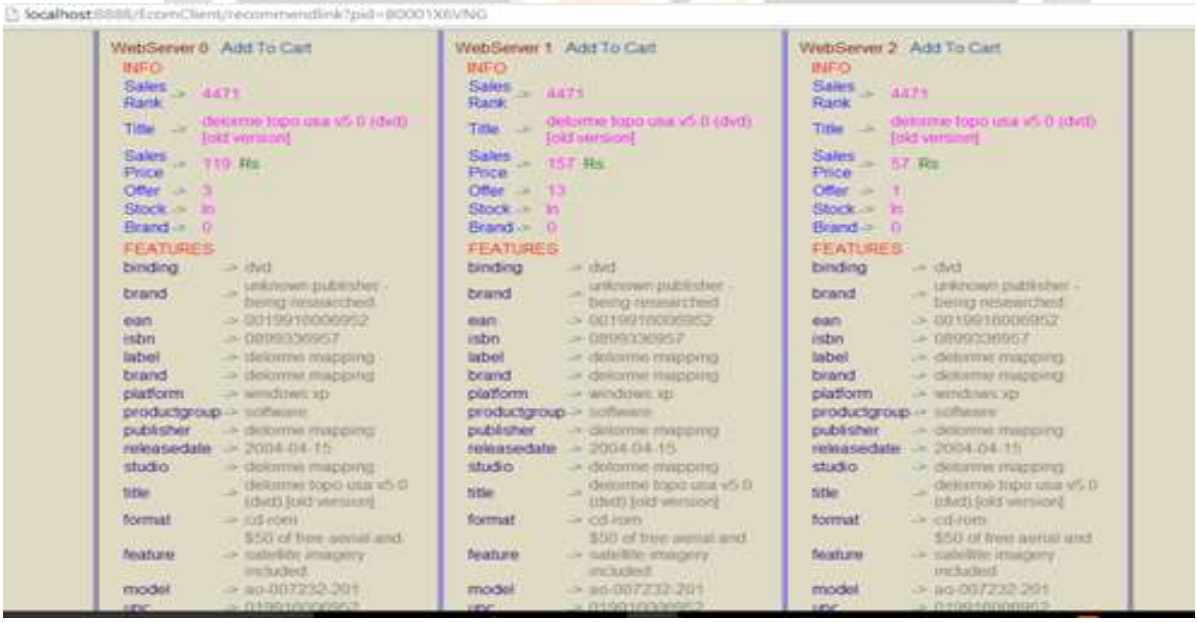

Fig -2 comparison of the products

When the User initiates Transaction our Gateway will connect to the Banking Web Services directly on behalf of the Service Provider and Completes the transaction securely with help of OTP sent to their mail id given on User Registration .A Bank Account is needed for Complete the Transaction which can be created earlier through our Banking Application .The Process will be back to our Application as soon as the Transaction is over and the Purchased products will be reflected on the Bag List. i.e. Purchased Items List.

6. CONCLUSION

Big data based web application offers several advantage over other web application method such as security, reliability, efficiency. As we browse through products, the Recommendation system offer recommendations of products we might be interested in. Regardless of the perspective — business or consumer, Recommendation systems have been immensely beneficial. And big data is the driving force behind Recommendation systems. A typical Recommendation system cannot do its job without sufficient data and big data supplies plenty of user data such as past purchases, browsing history, and feedback for the Recommendation systems to provide relevant and effective recommendations. In a nutshell, even the most advanced Recommenders cannot be effective without big data.

This system allow users to select items of their interest. Also act a supporter to both customer and provider. The proposed work gives the best solution to the users who are interested in comparing the different products. The proposed system is reliable and fault tolerant when compared to the existing recommendation systems as it collects the ratings from the user to predict the interest and analyses the item to find the features. The system is also adaptive as it updates the rating list frequently and finds the updated interest of the user.

7. FUTURE WORKS

Our future work focuses on several aspect, Recommender systems are being dumped by large data sets day by day of the users data available on the web. Thus we need to create technologies that can help us shift through all available information to find which is more valuable to us. As more and more information is being created and collected, and analytic capabilities continue to advance.

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