Secured QoS Feedback System for Ranking Cloud Services

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Abstract

Cloud computing has a rapid growth in short time.Hence many organizations started to offer the cloud services it is very difficult for the customers to choose the best one to use. QoS rankings provide valuable information for making optimal cloud service selection from a set of functionally equivalent service candidates. To avoid the time-consuming and expensive real-world service invocations, a QoS ranking prediction framework is used to predict the ranking which takes the advantage of the past service usage experiences of other consumers. Two personalized QoS ranking prediction approaches are used to predict the QoS rankings directly.In our proposed work the feedback method is used to predict the ranking which is based on the likes and dislikes of the end users. The user can also send suggestions along with the feedback to improve the quality of the services. We also provide security using the elliptical curve cryptography to encrypt and decrypt the feedback which is given by the user in order to prevent the system from the hackers. The more accurate ranking prediction can be done using our feedback method.

Keywords: Quality-of-service, cloud service, feedback, security, ranking prediction,

I. INTRODUCTION

The cloud, is an expression used to describe a variety of different types of computing concepts that involve a large number of computers connected through a real-time communication network such as the Internet. Cloud computing is a term without a commonly accepted unequivocal scientific or technical definition. In science, cloud computing is a synonym for distributed computing over a network and means the ability to run a program on many connected computers at the same time. The phrase is also, more commonly used to refer to network-based services which appear to be provided by real server hardware, which in fact are served up by virtual hardware, simulated by software running on one or more real machines. Such virtual servers do not physically exist and can therefore be moved around and scaled up (or down) on the fly without affecting the end user - arguably, rather like a cloud. Cloud Computing is the use of computing resources (hardware and software) that are delivered as a service over a network (typically the Internet). The name comes from the common use of a cloud-shaped symbol as an abstraction for the complex infrastructure it contains in system diagrams. Cloud computing entrusts remote services with a user's data, software and computation.

Cloud computing providers offer their services according to several fundamental models: infrastructure as a service (IaaS), platform as a service (PaaS), and software as a service (SaaS) where IaaS is the most basic and each higher model abstracts from the details of the lower models. Other key components in anything as a service (XaaS) are described in a comprehensive taxonomy model published in 2009. Strategy-as-a-Service, Collaboration-as-a-Service, Business Process-as-a-Service, Database-as-a-Service, etc. In 2012, network as a service (NaaS) and communication as a service (CaaS) were officially included by ITU (International Telecommunication Union) as part of the basic cloud computing models, recognized service categories of a telecommunication-centric cloud ecosystem.

Nonfunctional performance of cloud services is usually described by quality-of-service (QoS). QoS is an important research topic in cloud computing. When making optimal cloud service selection from a set of functionally equivalentservices, QoS values of cloud services provide valuable information to assist decision making. In traditional component-based systems, software components are invoked locally, while in cloud applications, cloud services are invoked remotely by Internet connections. Client-side performance of cloud services is thus greatly influenced by the unpredictable Internet connections. Therefore, different cloud applications may receive different levels of quality for the same cloud service. In other words, the QoS ranking of cloud services for a user (e.g., cloud application 1)

cannot be transferred directly to another user (e.g., cloud application 2), since the locations of the cloud applications are quite different. Personalized cloud service QoS ranking is thus required for different cloud application which is based on the feedback given by the user..

II. FEEDBACK SYSTEM

Feedback from customers is one of the best ways that helps in growing and expanding the products and services. Obtaining feedback from them and applying it effectively into the business can mean the difference between a good year and a great year. One of the main goals of gathering the customer feedback is to enable communications between you and your customers. It can also help you in recovering flaws in our business whether it could be technical or related to price.

For predicting and depicting the ranking for the cloud services feedback from the end users will be collected along with their suggestions for such services to Rank the Quality Of the provided Service. a request is send to the users to get the feedback, suggestions on their usage of services. The service with high number of positive feedbacks will be at the top position in the ranking process. When they got low or negative rating those services will have less rating. T he service with the lowest ranking is again improved based on the suggestions given by the users.

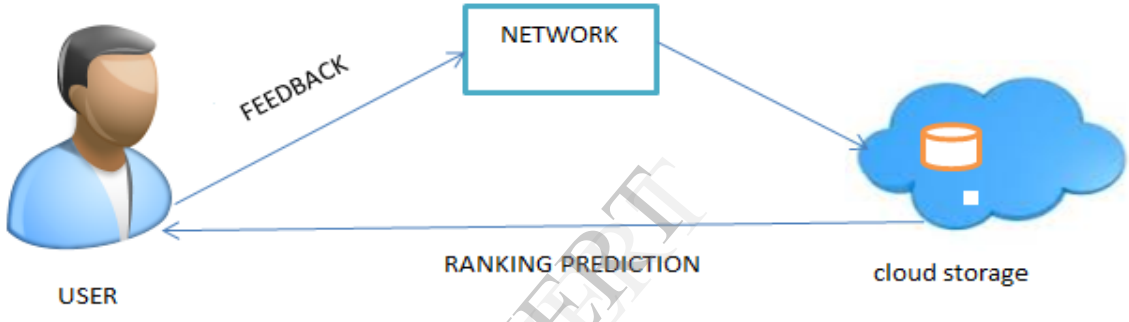

Figure 1: feedback system

The feedback for the service used by the end user is send to the cloud service provider by the user along the network. The feedback is based on the like and dislike comments. the service with maximum number of likes will be in the top of the ranking. Similarly the other services also. When a user request for the particular service the ranking order will be send to the user so that the user can select optimal service which will serves them the best.

III. SECURITY USING ECC ALGORITHM

Elliptic curve cryptography (ECC) is an approach to public-key cryptography based on the algebraic structure of elliptic curves over fields Elliptic curves are also used in several integer factorization algorithms that have applications in cryptography, such as Lenstra elliptic curve factorization.

Public-key cryptography is based on the intractability of certain mathematical problems. Early public-key systems are secure assuming that it is difficult to factor a large integer composed of two or more large prime factors. For elliptic-curve-based protocols, it is assumed that finding the discrete logarithm of a random elliptic curve element with respect to a publicly known base point is infeasible. The size of the elliptic curve determines the difficulty of the problem.Security depends on a mathematical function whose inverse is difficult to calculate.

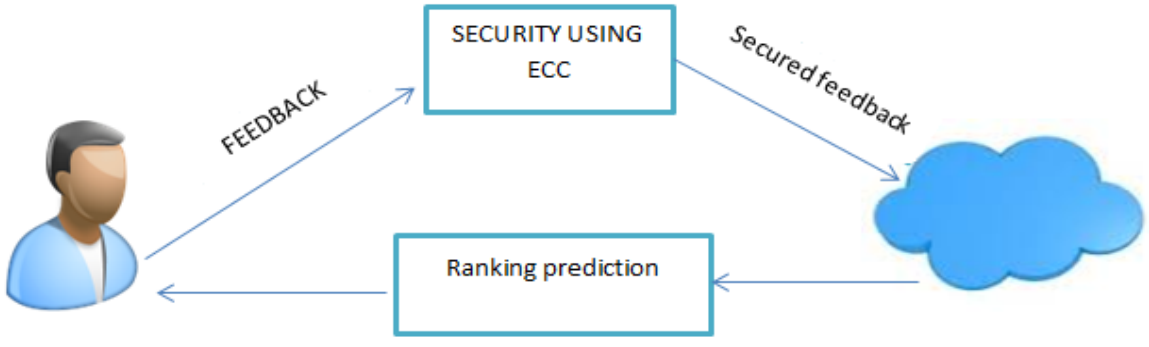

Figure 2: Security Using Ecc

The feedback sent from the users system is secured using ECC algorithm so that no other hacker or bottleneck bandwidth user will disrupt the feedback from the authenticated users. Elliptic Curve Cryptography (ECC) will be used for secure transactions for feedbacks and suggestions which might ensures its security for changes.

IV. PROPOSED ARCHITECTURE

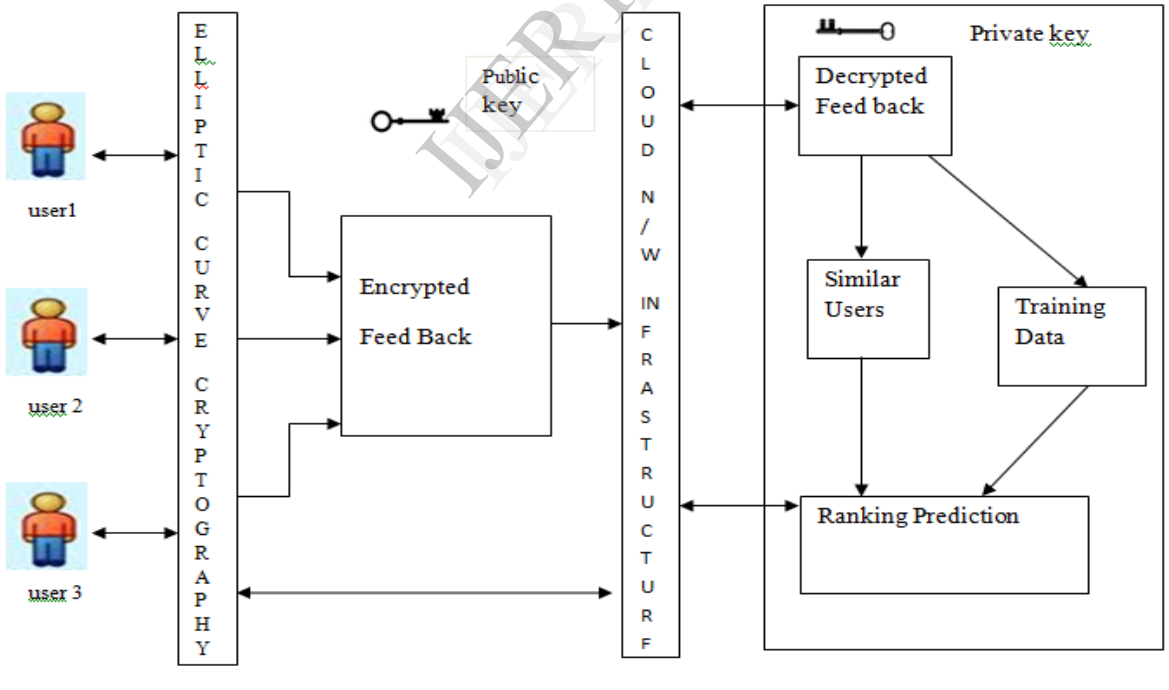

Figure3:Secured Feedback Architecture

In our proposed work the feedback method is used to predict the ranking which is based on the likes and dislikes of the end users. The user can also send suggestions along with the feedback to improve the quality of the services. We also provide security using the elliptical curve

cryptography to encrypt and decrypt the feedback which is given by the user in order to prevent the hackers the advantage of using this method is Herethe ranking done according to the privilege user comments.QOS improved by suggestion along with likes/dislikes.Elliptic Curve Cryptography (ECC) is used to ensure security for feedback.

CONCLUSION

Wecan improve the accuracy of the ranking by getting the feedback from the user in the form of like and dislike comment. The user can also send suggestions along with the feedback to improve the quality of the service. Based on the feedback the ranking prediction is for the set of functionally equivalent services. The most important enhancement we have done is providing security to the feedback system. We provide security for the system to protect it from the hacker who will change the comment which will lead to the false rating of the services.

REFERENCE

[1]"QOS ranking prediction for cloud services" Zibinzheng ,member,IEEE,Xinmiaowu,yileizhang,student Member, IEEE,MichaelR.Lyu,Fellow,IEEE,andJianminwang.

[2] K.J. arvelin and J. Kekalainen, "Cumulated Gain-Based Evaluation of IR Techniques," ACM Trans. Information Systems, vol. 20, no. 4, pp. 422-446, 2002.

[3] P.A. Bonatti and P. Festa, "On Optimal Service Selection," Proc. 14th Int'l Conf. World Wide Web (WWW '05), pp. 530-538, 2005.

[4] J.S. Breese, D. Heckerman, and C. Kadie, "Empirical Analysis of Predictive Algorithms for Collaborative Filtering," Proc. 14th Ann. Conf. Uncertainty in Artificial Intelligence (UAI '98), pp. 43-52, 1998.

[5] R. Burke, "Hybrid Recommender Systems: Survey and Experiments," User Modeling and User-Adapted Interaction, vol. 12, no. 4, pp. 331-370, 2002.

[6] W.W. Cohen, R.E. Schapire, and Y. Singer, "Learning to order things," J. Artificial Intelligent Research, vol. 10, no. 1, pp. 243-270, 1999.

[7] M. Deshpande and G. Karypis, "Item-Based Top-n Recommendation,"ACM Trans. Information System, vol. 22, no. 1, pp. 143-17

[9] R. Jin, J.Y. Chai, and L. Si, "An Automatic Weighting Scheme for Collaborative Filtering," Proc. 27th Int'l ACM SIGIR Conf. Research and Development in Information Retrieval (SIGIR '04), pp. 337-344, 2004.

[10] T. Yu, Y. Zhang, and K.-J.Lin, "Efficient Algorithms for WebServices Selection with End-to-End QoS Constraints," ACM Trans. Web, vol. 1, no. 1, pp. 1-26, 2007.

[11] L. Zeng, B. Benatallah, A.H. Ngu, M. Dumas, J. Kalagnanam, and H. Chang, "QoS-Aware Middleware for Web Services Composition," IEEE Trans. Software Eng., vol. 30, no. 5, pp. 311-327, May2004.

[12] Z. Zheng, H. Ma, M.R. Lyu, and I. King, "QoS-Aware Web Service Recommendation by Collaborative Filtering," IEEE Trans. Service Computing, vol. 4, no. 2, pp. 140-152, Apr.-June 2011.

[13] Z. Zheng, Y. Zhang, and M.R. Lyu, "CloudRank: A QoS-Driven Component Ranking Framework for Cloud Computing," Proc. Int'l Symp. Reliable Distributed Systems (SRDS '10), pp. 184-193, 2010.