Semantic based Web Service Selection In Cloud Environment

Ms. R. Jayanthi[1], Mrs. A. Kanimozhi[2], Mr. C. Saravabhavan[3]
[1, 2, 3]Department of CSE
[1, 2, 3] Kongunadu College of Engineering &Technology

Abstract- *Today there exist a vast amount of tools that sustain and facilitate the development, deployment and invocation of Web Services, and there are almost no limits as to what Web Services be capable of do within their realm. With the rapid development of Web Services, the retrieval of relevant services has become a challenge. And also a Semantic Web service incorporate the meaningful content of the Semantic Web with the business logic of Web services and thus allows industries and individuals to access these services. But as the number of available web services augments, there is a growing demand for a mechanism for effective retrieval of required services. We propose an enhanced Semantic Web Service Discovery method by combining functional similarity matching and textual similarity matching. The framework search through a set of annotated Web services for matching user query which can be represented in natural language, so that information about semantic languages is not required by the user. We analyze the complexity of existing algorithms and nearby performance results, which show that our algorithm gives more flexibility and also performs well with respect to the existing algorithms.*

Keywords- Web services, Discovery of web services, Business logic, Semantic Web Service Discovery method, Textual similarity matching.

I. INTRODUCTION

Cloud service recommendation is most importance task when users deal with large number of functionally equivalent candidate services. To recommend services which best fit into the user's need, service evaluation through their non- functional In reality, the QoS information of cloud service is not easy to obtain, because of the following three reasons: 1) The QoS values need to be assessed from point of view of users, because different users might perceive different QoS values. 2) Only a limited number of service invocation records exist, since each user typically just invokes a handful of services. 3) It is time-consuming and resource-consuming to charge all the QoS values by invoking candidate services one by one, due to the large number of users and services. The QoS values of services observed by different users can be represented as a user-service matrix, whose rows represent users, columns signify services and entries are observed QoS values. But there are many missing values in the user-service matrix. To address this difficulty, QoS prediction is proposed to get approximated QoS values for those missing values in the user-service matrix. Personalized QoS value prediction is essential task whereby effective services recommendation can be made. During service recommendation, among several equivalent service set ,cluster the services according to the location and QoS information then missing value prediction has to be performed. The proposed task mainly focuses similarity aware slope one method to predict the QoS value of individual services. The web service recommendation framework as described in fig 1.

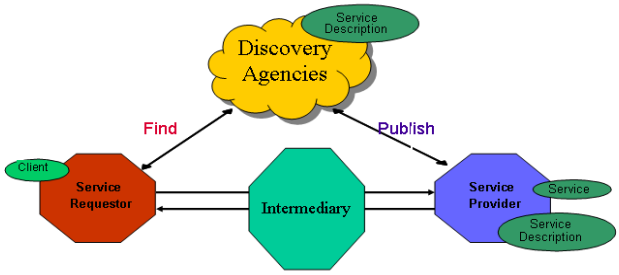

Fig 1: Service recommendation framework

II. RELATED WORK

ZibinZheng,et.al…,2013 [1] identifies the critical problem of personalized QoS ranking for cloud services and proposes a QoS ranking prediction framework to deal the problem. To the best of knowledge, CloudRank is implemented first as personalized QoS ranking prediction framework for cloud services.

AngLi,et.al…,2010[4] propose CloudCmp that complies with all acceptable use policies and systematically compare the performance and cost of cloud providers along dimensions that matter to customers and address some key challenges with regards to scoping the problem to one that is manageable given bounded money and time and yet is meaningful to predict the performance of real applications.

A. Lenk,et.al…,2011[6] propose a method to expand a custom benchmark suite that consists of multiple benchmarks

to gain reliable and comparable results. The selection of benchmarks is heavily influenced by the related Cloud software project that requires comparable results to identify a suitable IaaS provider to deploy the application to. Thus, building a custom tailored benchmark suite to compare Cloud offerings of virtual machines is a process that should be part of every project.

T. H. Noor,et.al…, 2011[8] overview the design and implementation of the Trust as a Service (TaaS) framework. This framework helps distinguish between the credibleand the malicious trust feedbacks through a credibility model and particularly introduced the cloud service consumer's Capability and the Majority Consensus factors in calculating the trust of a cloud service. In addition, TMS allows trust feedback assessment and storage to be managed in a distributed way.

A. Srivastava,et.al…,2010[9] present a technique to make the nonfunctional characteristics of the potential services, referred together as its 'Quality of Service (QoS)' attributes, as the factor responsible for service selection. The main issue that would be addressed here would be to compare functionally equivalent services on the basis of the collective score of all the QoS attributes.

III. C^2 CLOUD FRAMEWORK

In dynamic cloud computing environment, cloud services leads low accuracy in service composition and can't predict trustable services. To address this problem, we propose C^2 cloud framework that contains multi-criteria assessment to give service quality in secured manner. This framework contains four layers such as (1) cloud selection service, (2) benchmark testing management service, (3) user feedback management service, and(4) assessment aggregation service. The cloud selection service is responsible for accepting and pre-processing the requests for cloud service selection from potential cloud consumers. The benchmark testing management service is responsible for collecting and managing objective assessments of cloud services from different TPs through benchmark monitoring and testing. In addition, it can request some TPs to carry outsome specific cloud performance tests designed according to potential cloud consumers' requirements. The user feedback management service is in charge of collecting and managing subjective assessments extracted from cloud consumer feedback. The assessment aggregation service is responsible for further processing assessments and returning the final aggregated scores of every alternative cloud service to the cloud selection service according to potential cloud consumers' requirements. Then calculate subjective and objective attributes. The attributes are privacy, after sales services, availability, response time and cryptographic calculation. Both services are aggregated and finally provide trustable services to end users. The working blocks are described as architecture diagram in fig 2.

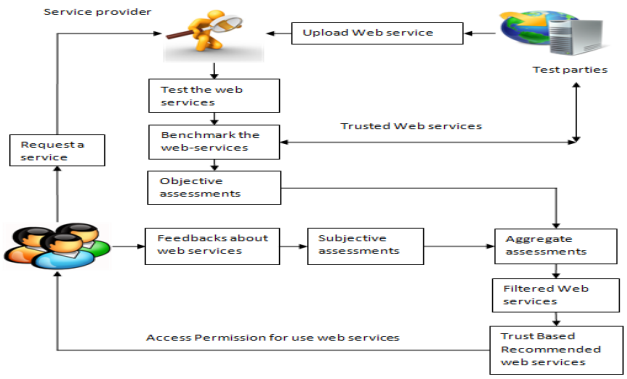

Fig 2: C^2 cloud Framework

3.1 Semantic based web service discovery:

The limitations of existing approaches, an integrated approach needs toward be developed for addressing the two major issues related to automated service discovery: 1) semantic-based categorization of web services; and 2) selection of services base on semantic service description rather than syntactic keyword matching. The move toward needs to be generic and should not be tied to a specific description language. Thus, any given web service can be give details using WSDL, OWL-S or through other means Semantic-based categorization of web services is performed on the UDDI that involves semantics augmented /classification of web services into functional categories. The semantically linked web services are grouped together even though they may be published under different categories within the UDDI. Service selection then consists of two key steps: 1) parameters-based service refinement; and 2) semantic similarity-based matching.

3.2 Text mining based review ranking:

With the rapid growth of the web services, users' ability to discover the web services has created active service that provide best services information. Consumers naturally gravitate to reading reviews in order to decide whether to discover best service. However, the high volume of reviews that are typically published for a single product makes it harder for individuals to locate the best reviews and understand the true underlying quality of a product based on the reviews. Similarly, the manufacturer of a product needs to identify the reviews that influence the customer base, and examine the content of these reviews. In this paper we propose ranking mechanisms for ranking web service reviews: a

consumer-oriented ranking mechanism ranks the reviews according to their expected helpfulness, and a manufactureroriented ranking mechanism ranks the reviews according to their expected effect on sales. Our ranking mechanism combines econometric analysis with text mining techniques and with subjectivity analysis in particular. Our results can have several implications for the service design of online opinion forums. The proposed framework is illustrated in fig 3.

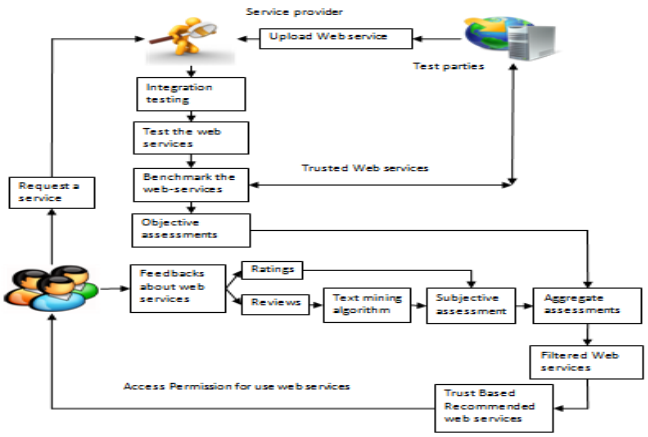

Fig 3: Semantic web service

IV. CONCLUSION

In this paper, we present an integrated approach for automated service discovery. Specifically, the approach addresses two major aspects related to semantic-based service discovery: semantic-based service categorization and semantic-based service selection. For semantic-based service categorization, we propose an ontology guided categorization of web services into functional categories for service discovery. This leads to better service discovery by matching the service request with an appropriate service description. For semantic based service selection, we employ ontology linking (semantic web) and text mining thus extending the indexing procedure from solely syntactical information to a semantic level. Our experiments show that this leads to increased precision levels, recall levels, and the relevance scores of the retrieved services.

REFERENCES

[1] Bouguettaya.A, Qu. L, Wang.Y, and Orgun.M. A, Liu.L(2014), "Context aware cloud service selection based on comparison and aggregation of user subjective assessment and objective performance assessment," in 2014 IEEE International Conference on Web Service (ICWS), pp. 81–88.

[2] Bouguettaya.A and Malik.Z(2009), "RATEWeb: Reputation assessment for trust establishment among web services," VLDB J., vol. 18, no. 4, pp. 885–911.

[3] Chou. S.-Y, Chang .Y.-H and Shen .C.-Y(2008), "A fuzzy simple additive weighting system under group decision-making for facility location selection with objective/subjective attributes," European Journal of Operational Research, vol. 189, no. 1, pp. 132–145.

[4] Cohen. R, Zhang. J and Larson. K(2008), "A trust-based incentive mechanism for e-marketplaces," in AAMAS-TRUST, pp. 135–161.

[5] Fagin. R, Kumar .R and Sivakumar .D(2003), "Comparing top k lists," SIAM J. Discrete Math., vol. 17, no. 1, pp. 134–160.

[6] Goh .A, Weng .J and Miao. C(2005), "Protecting online rating systems from unfair ratings," in Trust and Privacy in Digital Business (Trust-Bus), pp. 50–59.

[7] Jeh. G and Widom. J(2002), "Simrank: a measure of structural-context similarity," in ACM SIGKDD Conference on Knowledge Discovery andData Mining, pp. 538–543.

[8] Kandula. S, Li.A, Yangand .X , Zhang. M(2010), "CloudCmp: comparing public cloud providers," in Internet Measurement Conference, pp. 1–14.

[9] Lenk. A, Menzel. M, Lipsk. S, Tai and Offermann. P(2011), "What are you paying for? performance benchmarking for Infrastructure-as-a-Service offerings," in IEEE CLOUD, pp. 484–491.

[10] Li. L and Wang. Y(2008), "A trust vector approach to service-oriented applications," in IEEE International Conference on Web Services (ICWS), pp. 270–277.

[11] Li .L and Wang. Y(2010), "Subjective trust inference in composite services," in AAAI Conference on Artificial Intelligence.

[12] Liang. G.-S and Wang. M.-J. J(1991), "Fuzzy multi-criteria decision making method for facility site selection," International Journal ofProduction Research, vol. 29, no. 11, pp. 2313–2330.

[13] Liang. G.-S(1999), "Fuzzy MCDM based on ideal and anti-ideal concepts," European Journal of Operational Research, vol. 112, no. 3, pp. 682–691.

[14] Marden. J. I (1995), Analyzing and Modeling Ranking Data. Chapman & Hall.

[15] Noor.T. H and Sheng. Q. Z(2011), "Trust as a service: A framework for trust management in cloud environments," in Web InformationSystems Engineering (WISE), pp. 314–321.

[16] Noor.T. H and Sheng.Q. Z(2011), "Credibility-based trust management for services in cloud environments," in Int'l. Conf. on Service Oriented Computing (ICSOC), pp. 328–343.

[17] Srivastava. A and Sorenson P. G(2010), "Service selection based on customer rating of quality of service attributes," in IEEE International Conference on Web Services (ICWS), pp. 1–8.

[18] Wang. Y, Qu. L, and Orgun. M. A(2013), "Cloud service selection based on the aggregation of user feedback and quantitative performance assessment," in IEEE International Conference on Services Computing(SCC), pp. 152–159.

[19] Wang. Y, Zhang.H, and Zhang. X(2011), "Transaction similarity-based contextual trust evaluation in e-commerce and e-service environments," in IEEE International Conference on Web Services, pp. 500–507.

[20] Zheng. Z, Wu. X, Zhang. Y, Lyu.M.R, and Wang. J(2013), "QoS ranking prediction for cloud services," IEEE Trans. Parallel Distrib. Syst., vol. 24, no. 6, pp. 1213–1222.