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Multi Objective Service Selection Using Web Service Composition

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Abstract- The Web is a distributed, dynamic, and large information repository. However, a major drawback in this is that the Web contains much human consumable contents. The flaws that can be incurred are the user is ineffectual to incur his archetype data. To achieve an effective utilization of the multiple websites simultaneously, we go for Web services. Though, there are multiple web services available, the user is still inferior to his required data using a methodology called web service composition that facilitates users in accessing their desired services to retrieve their much required information to his need using queries. Genetic algorithms is used to adaptive heuristic search algorithms premised on the evolutionary ideas of natural selection used in solving various computational problems that demands optimization and adaptation to changing environments. Here, we provide access to multiple websites through web services where we can furnish all the required data.

Keywords---Web Service Composition, Multi Objective Service

I. INTRODUCTION

A Web service is a set of related functionalities that can be programmatically accessed through the Web. If no single available Web service can satisfy the functionality required by a user, there should be a possibility to combine existing services together to fulfill the request. The problem of Web service composition is the process of selecting, combining and executing existing services to achieve a requestor's objective, which is a highly complex task.

Web service can be captured by two key properties: functionality and quality. Functionality is about what the service can offer, and it is typically represented by a set of operations provided by the service. Each service operation can be described by using input, output, precondition, and effect. Quality is about how well a service provider delivers the service, and it is usually captured by a set of quality parameters, such as response time, price, reputation. Examples of Web services include online reservation, ticket purchase, stock trading, and auction.

Using Web services generally consists of invoking operations by sending and receiving messages. However, for complex applications accessing diverse Web services (e.g., a travel package), there is a need for an integrated and efficient approach to manipulate and access Web services functionalities. This should also be performed in a user-transparent manner.

Another major challenge is finding the "best" Web services and their combinations with respect to the user expected quality, such as price, response time, and reputation. example, service composition enables the combination of multiple simple services to generate a value-added service package

Nowadays many enterprises publish their applications functionalities on the Internet. This new generation of applications allows greater efficiency and availability for business. In fact, more and more applications make functionalities available using a web service format. However there are many services around the web, each one, taken alone, has a limited functionality. In many cases, a single service is not sufficient to respond to the user's request and often services should be combined through services composition to achieve a specific goal.

For example, if a user wants to travel, it is not sufficient to book a flight, but she should also take care of reserving a hotel, renting a car, getting entertained, and so on. Such composition is carried out manually today, it means that the user needs to execute all these services one by one and these tasks can be time and effort consuming .For that reason, the notion of composite services is starting to be used as a collection of services combined to achieve a user's request. In other word, from a user perspective, this composition will continue to be considered as a simple service, even though it is composed of several web services.

Service Composition can be defined as the process of creating customized services from existing services by a process of dynamic discovery, integration and execution of those services in a planned order to satisfy a request from a client.

The main objective of the test was to find a set of compositions from which a user can select her preferred solution. First to analyze the same number of services and tasks, then to execute the performance of the services based on the budget and user requirements and finally all the selected services are grouped.

II. LITRATURE SURVEY

A web service may have many implementations, all of which have the same functionality, but may have different Qos values. It is about how to build a new value added web service using existing web services. This is also called as Web service Composition [2]. Assume the scenario of our travel agency wants to co-operate with eternal specialized service providers that offer hotel flight

and car rental reservations. The process is now no longer a closed-world solution, but requires to re organize the entire processing of customer requests. New services have to be integrated and all services must correctly interact with each other. A composition of the discrete services is needed to solve the problem.

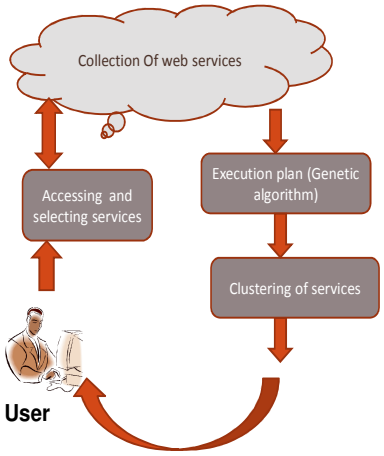

Fig. 1 Flow Diagram of Proposed System

Web service discovery and selection are important for the composition to take place. But there are many techniques and algorithm for the optimal web service selection problem; different from the existing algorithms[7]. This new genetic algorithm is a hybrid utilizing a local optimizer to improve the service of the individuals in the population at the end of each generation, including the initial service. The local optimizer can improve the Overall Qos Values. Computation time is slightly longer than that of the Algorithm.

This web services is mainly used for fetching records from the multiple web databases. We need to create the individual database for the individual web service. The user do not know the query format they give request only in there known format like name of place where the customer want to departure (source) place and where the customer wants to reach (destination) place and which date. By using these information we generate the query in the form of date wise search query and source wise and designation wise and route wise and combination of given information . And searched in different travelling based web site and collected those information from all the site and we sort listed the all the result and get the exact result belong to the user requirement and show one by one in our site.

The multiple web services can be attached from multiple sites. Those sites information will get from service providers. Those providers will send the details about the searching details. That web services provide the details for your selected requirements. The main functionalities is focused on simplify the work for the users. The multiple web services easily get the multiple sites information and database contents. So user level process is max reduced.

The overall execution working process based on multiple services from multiple web services. Our services depend on multiple databases in a particular site. Those particular sites deliver the data for the requirements. Our site receives the result, combines and shows the result. This overall information will be shows the better result from single click from multiple web database.

The clustering service is combination of multiple services. The multiple selection property is focused on multiple processes based on multiple services. The services working principles based on multiple user requirements and functionalities. Those processes are working based on different area and different environment. Those details will be accessed different web sites.

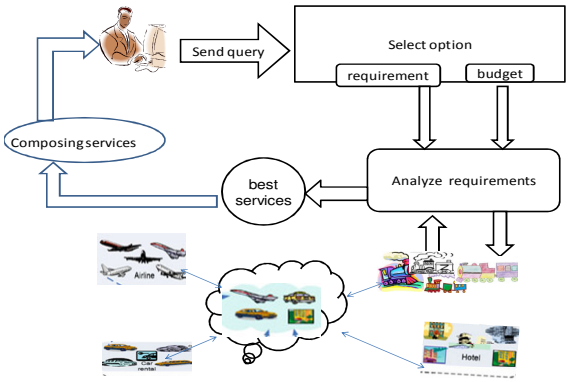

Fig. 2 Detailed Architecture Diagram

The next step is to select the appropriate services. He would send further queries to get more information about the bus, hotel, ship, train, flight). The challenge he needs to face is to make a selection from a large space of options combining his own situation. Manually selecting the more suitable services would be a process. The service selection process may become more complicated since these services may be related to each other. Selection of one service may affect the selection of another. Services need to be composed and collectively.

For example, the arrival date, time, and location of the bus service will determine the date, time, and location of hotel check-in. Therefore, feasible combinations of these services need to be identified. It is obvious that the large number of combinations makes any ad hoc approach infeasible. These pose additional challenges for the service selection problem. Because of a lack of an efficient query mechanism, the above scenario points to the difficulties in an optimal strategy for Web service selection. To summarize, in this hypothetical scenario, he would have to first select service from a large number of candidates that provide similar functionalities.

Second, the selected services may also affect one another. This makes the decision-making process more painstaking and time-consuming. Third, he may still miss

some better plans because his manual analysis is performed in an ad hoc manner.

III GENERATING SERVICE PLANS

Selection is the stage of a genetic algorithm in which individual genomes are chosen from a service set. A generic selection procedure implemented as follows:

1. The selected service evaluated for each individual, providing all services, which are then normalized. Normalization means dividing all services of each individual by the sum of all services so that the sum of all resulting selected service equals 1.
2. The service set is sorted by descending selected service values.
3. Accumulated normalized fitness values are computed (the accumulated selected service of an individual is the sum of its own plus the selected service all the previous individuals). The accumulated selection of the last individual should be 1 (otherwise something went wrong in the normalization step).
4. A random number *R* between 0 and 1 is chosen.
5. The selected individual is the first one whose accumulated normalized value is greater than *R*.

If this procedure is repeated until there are enough selected individuals, this selection method is called Best proportionate selection

1. Best proportionate selection is a genetic operator used in genetic algorithms for selecting potentially useful solutions for recombination. In best proportionate selection, as in all selection methods, the fitness function assigns a. This fitness level is used to associate a probability of selection with each individual chromosome. If *fi* is the fitness of individual *i* in the population, its probability of being selected is

$$Pi=\frac{fi}{\sum_{j=1}^{N} fi} \qquad (1)$$

where*N* is the number of individuals in the population.

2.Stochastic universal sampling (SUS) is a technique used in genetic algorithms for selecting potentially useful solutions for recombination.

SUS(**service set**, **N**)

F := total fitness of **service set**

N := number of offspring to keep

P := distance between the pointers (**F/N**)

Start := random number between 0 and **P**

Pointers := [**Start** + **i*****P** | **i** in [0..**N**-1]]

return RWS(**service set**,**Pointers**)

Keep = []

i = 0

forP in**Points**

while fitness sum of **service set [1~i]<P**

i++

add**service set[i]** to **Keep**

return**Keep**

3.pool selection is a method of selecting an individual from a service set of individuals in a genetic algorithm.
choose k (the tournament size) individuals from the service set at random
choose the best individual from pool with probability p
choose the second best individual with probability p*(1-p)
choose the third best individual with probability p*((1-p)^2)
and so on...

Deterministic pool selection selects the best individual (when p=1) in any pool. A 1-way tournament (k=1) selection is equivalent to random selection. The chosen individual can be removed from the service set Type equation here.that the selection is made from if desired, otherwise individuals can be selected more than once for the next generation.

4.Valid selection is a technique used in evolutionary algorithms for selecting potentially useful solutions for recombination.
Valid selection can be used within Multi-objective optimization to obtain a better approximation of the Pareto front.
The new born $\mathbf{a}^{r(g+1)}$and its parents receive a valid $\mathbf{r}^{(g)}$, if $\mathbf{a}^{r(g+1)}$ was selected for new service set $Q^{(r+1)}$, otherwise the valid is zero. Several reward definitions are possible:

1. $\mathbf{r}^{(g)}_{=1}$, if the new born individual $\mathbf{a}^{r(g+1)}$ was selected for new sevice set $\mathbf{Q}^{(g+1)}$.
2. $\mathbf{r}^{(g)}_{=1} - \text{rank}\ \frac{(\mathbf{ar(g+1)})}{\mu}$ if$\mathbf{a}^{r(g+1)}$, where rank $\mathbf{a}^{r(g+1)} \sum \mathbf{Q}^{(g+1)}$is the rank of newly inserted individual in the service set of **μ** individuals. Rank can be computed using a well-known non-dominated sorting procedure.

Valid based selection can quickly identify the most fruitful directions of search by maximizing the cumulative service of individuals.

IV.CONCLUSION

In existing system even though the strategy select the service, execution plan does not achieve user's quality requirements. In this paper using web service composition user sent a query to easily access services in the collection of services. To get a best desired quality of

service In an expected large service space using genetic algorithms. In feature work is to address any Security issues and to get more performance of service based on the quality and functionality.

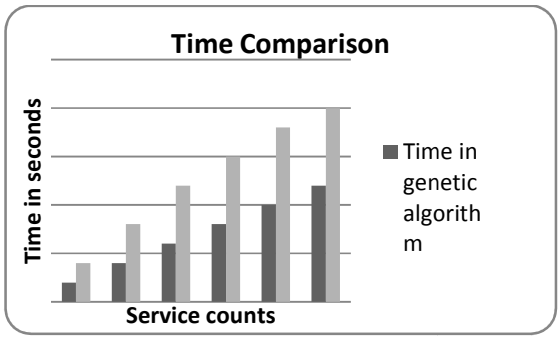

Figure3: Performance comparison of genetic and greedy algorithm (Graph).

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R.Sudhareceived her B.E degree in Information technology Engineering from Anna University, India, in 2010 and the M.E degree in Information technology from Abdul Rahman University, Chennai, India, in 2012.She is working as Assistant Professor in the Department of Information Technology, Apollo Engineering College from 2012. Her research interests include, Data mining, Computer networks and Web Programming.