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Rank Based Web Service Aggregation

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***Abstract* - Without doubt, Web is known as a source of information whatever, be the domain. With increasing unexpected experimental growth of web image, web service retrieval and selection be the one of the major issues. In the present scenario, ontology is applied for knowledge description and formalization especially in aggregating personalized web information. In this paper, a proposed ontological model is developed for service publication, discovery, and selection using Software as a Service (SaaS). In order to solve this with evident results, consider a airline reservation site, (i.e.) It's not an ordinary site but focusing and specializing in matching the users or clients queries related to jobs and displaying the information even by giving options of updating their information which is needed for this job domain. This paper implements the cloud ontology technique to make cloud service discovery system efficient for user query in site. This concept has been upcoming demand in all the careers.**

***Keywords* - Software-as-a Service (SaaS), Ontology, Service Selection & Discovery, Ranking, Web Services**.

I. INTRODUCTION

A. Cloud Computing

Cloud Computing deals with the techniques that provide software, computation, data storage services, but they do not need the end user knowledge and physical, configuration of the system that delivers the services. This concept can be drawn with the electricity grid, but the end users consume power and the infrastructure requires providing the service [1]. Cloud computing describes delivery model of IT services which is based on internet protocols; it may be dynamically scalable and often with virtualized resources [3]. Cloud providers publish cloud services over the Internet, and the customers or users normally access these services which has been provides by the cloud application layer through web portals.

B. Software-as-a-Service (SaaS)

The "Cloud Computing Confusion Leads to Opportunity," defines cloud computing as a style where massively scalable IT-related capabilities are provided as a service to multiple external customers. SaaS, also known as Software as a Service here the software provider offers an application in the form of license for the consumers to utilize on the demand service. The different number of application has been offered by the software providers. The application here in which the software providers offer is Job Careers, which has been indulged with the cloud ontological techniques, clustering. The new technological concepts focuses on the publication of service, discovery and selection on dynamic attributes which express the current cloud services and resources called as the Easy use of Service. It is a model in which the application is hosted as a service to the customers or users via Internet [12]. When this software is hosted off the site, the customer doesn't wants to maintain it or support it. On the other hand it is out of customers hand in when hosting service decides to change it. The provider does all the patching, upgrades and keeps the system running [11].

Cloud Ontology provides a shared understanding of a domain of interest to support communication among human and computer agents. Cloud Ontology focuses on the application that developed by the cloud software environments and it composed as a service from other cloud services using the ontological Techniques. Ontology contains a set of concepts and relationship between concepts, and can be applied into information retrieval to deal with user queries.

The following figure 1 represent how query processing agent access the information from cloud ontology.

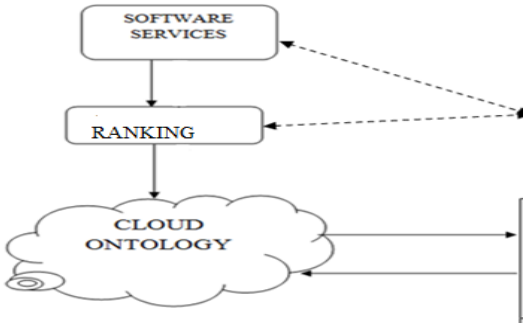

Figure 1: System Architecture

II. SYSTEM ARCHITECTURE

A. Cloud Service Reasoning Agent

The Cloud Service Reasoning Agent (CSRA) depends on mainly two concepts

1. Similarity Search
2. Rating.

B. Reasoning

The CSRA deals with the cloud ontology for performing service reasoning. The information which provided to the user is used to analyze and determine the similarity.

C. Similarity Search

Similarity reasoning is to calculate similarity between two services [6]. One of the reasoning methods which can be considered for this paper is Similarity Reasoning. This helps the easy selection and search of materials which the queries asked by the customers.

D. Rating

The rating acts as a service utilization that helps to determine and rate the highest service utility which has been taken place while this process occurs. This service helps of the CSRA. This leads to the process the rating of information [6], which has been clustered and according to the users' queries and finally it has been published with the rating results. The customers or users can justify according to the rating results and they can choose the needed information which they got as the reply for their queries which is highly rated or according to the users needed interest and expectation. The rating will be accurate. This helps in the success rate of the rating concept in the cloud. In the Cloud Ontology, users are more successful in the discovery of cloud services. The Cloud Ontology Concepts and Rating leads to the success and it can be a demand for this application.

E. Query Processing Agent

The Query Processing Agent (QPA) shows the sources, information for publication by searching through the Resources, Services, and Providers. The block diagram for QPA shown in figure

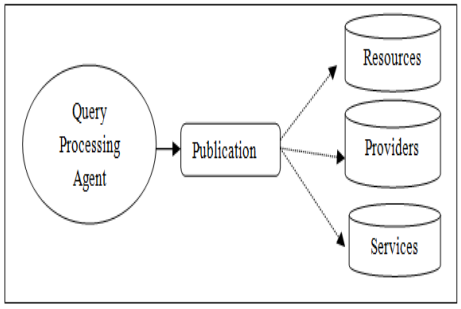

Figure 2: Query Processing Agent

The information kept in the query processing Agent is useful for the users or customers, (i.e.) Customers are able to identify the required services, Resources, and providers by querying in the query processing agent. The queries related regarding the Job Careers are easily accessed and proper and needed information can be carried out with respect to each other [10]. The customers only need to communicate with the query processing agent and make use of the require services and resources. The Customers can only get the list of services from the Discovery Services and then analyze which satisfies the customer requirements.

The customers submit the queries, matching attributes from services has been filtered. Even there is an option allocated for the customers to directly specify the attributes which has been needed for Reasoning or Similarity Search.

F. Cloud Ontology

In Cloud computing uniform views has been provided by virtualizes various resources. Cloud services are defined using cloud computing ontology, and it shows the inter dependency between the different services in the clouds [7]. This paper defines the methods, concepts of applying ontology to cloud computing is not tangible. There is research that produces a global ontology by merging each of the ontology existed in the resource groups. Currently, this research is at an early stage and is hard to provide interoperability among organizations because of

merging resources from only static concepts in existed researches. This work provides the ability of re-scheduling requests based on their priorities and considering advanced reservations.

The cloud application layer is the most visible layer to the end-users of the cloud. Normally, the users access the services provided by this layer through web-portals, and are sometimes required to pay fees to use them [2]. This model has recently proven to be attractive to many users, as it alleviates the burden of software maintenance and the ongoing operation and support costs. Furthermore, it exports the computational work from the users terminal to data centers where the cloud applications.

Our proposed ontology illustrates that cloud applications can be developed on the cloud software environments or infrastructure components. For example, a payroll application might use another accounting SaaS to calculate the tax deductibles for each employee in its system without having to implement this service within the payroll software. Similarly we are considering the Job Monitoring Applications which deals with supporting the needed information's for job careers, and support the users with easy access of jobs. This has been developed in the cloud stack layer, the flexibility of the application is limited and this may restrict the developers' ability to optimize their applications performance. The domain specific ontology's are created from concepts and terminologies that are likely to be used by Web services in a particular domain. In this concepts after the information has been retrieved it should be registered and it should be published hence we focuses (i.e.) the *Registries Ontology* is important for semantic publishing and discovery. Making this ontology highly available is critical to the performance of the infrastructure. The cloud ontology maintains the information's needed for the job careers and helps the users with easy access of this application.

G. Ontological Similarity

- Modeling of concepts in a generative ontology based on different conceptualization and dictionaries.
- We aim at reasoning by means of a "nearness" principle, where increased nearness entails increased degree of similarity.
- We can consider the similarity by considering as Properties Commonality, Difference, Identity, and Generalization. It checks out in depth and multiple paths also considered for finding the similarity.

III. EVALUATION OF SYSTEM

In the SaaS service, the interface for the client is developed is based on Web technique, and it adopts .NET, XHTML, Java Scripts. Jena API is used to implement semantic analysis and relevant item confirmation processing, because the information is stored as RDF (Resource Description Framework) type ontology files. **Virtuoso** is a free, open-source platform to construct domain models and knowledge-based applications with ontology's. Ontology's range from taxonomies, classifications, database schemas to fully axiomatized theories. Ontology's are now central to many applications such as scientific knowledge portals, information management and integration systems, and web services. The ontological language is of many here we can consider the RDF [5].

RDF is a W3C standard for describing web resources such as the title author, modification date, content and copyright information of a webpage.RDF is written in XML. It is part of the W3c's semantic web activity. It contains two elements namely, Root element <rdf> and Description element <Description>.

Root element <rdf: RDF> It is the root element of an RDF document. It defines the XML document to be on RDF document. It also contains reference to the RDF namespace.

Description element <rdf: Description> It identifies a resource with the about attribute. It also contains element that describe the resource.

Retrieve information from RDF file using **SPARQL** (SPARQL Protocol and RDF Query Language). It is an RDF query language, that is, a query language for databases, able to retrieve and manipulate data stored in Resource Description Framework format. The SPARQL language specifies four different query variations for different purposes. **SELECT query:** Used to extract raw values from a SPARQL endpoint, the results are returned in a table format.

CONSTRUCT query: Used to extract information from the SPARQL endpoint and transform the results into valid RDF.

ASK query: Used to provide a simple True/False result for a query on a SPARQL endpoint. **DESCRIBE query:** Used to extract an RDF graph from the SPARQL endpoint, the contents of which is left to the endpoint to decide based on what the maintainer deems as useful information. Each of these query forms takes a WHERE block to restrict the query although in the case of the DESCRIBE query the WHERE is optional. The following figure shows the uploading of RDF file and output of SPARQL.

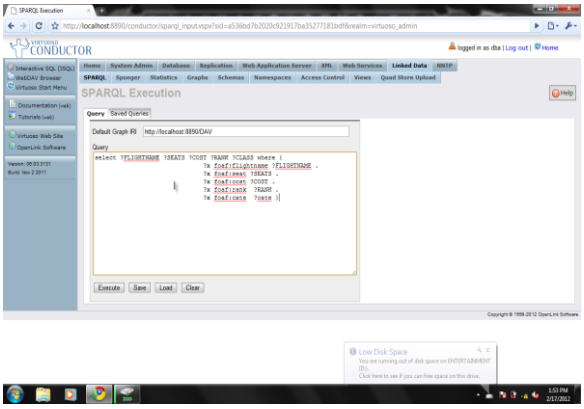

Figure 3: Uploading RDF file & SPARQL

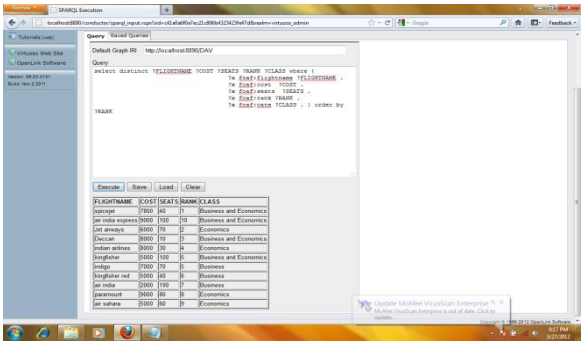

Figure 4: Output of the SPARQL

TABLE: 1 COMPARISON TABLE FOR INTERNET AND SEMANTIC ENVIRONMENT

Applications	Online Application (ms)	Semantic Environment (ms)
A1	4min	1.5 min
A2	5min	1min
A3	3.75 min	1.75min

Where,

A1- Viewing information
A2- Retrieving information
A3- Time for getting accurate information

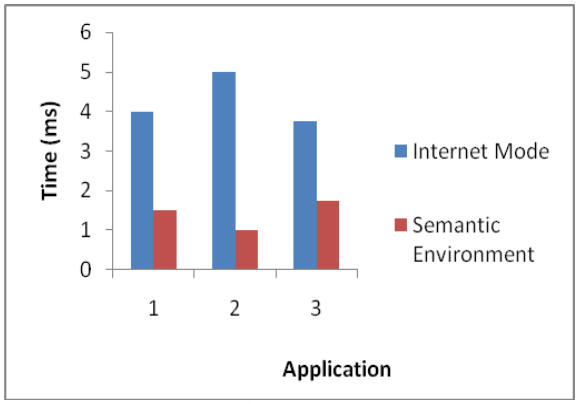

Figure: 5 Comparison Chart for Online Application (Internet Mode) and Semantic Environment.

IV. CONCLUSION AND SCOPE FOR FUTURE ENHANCEMENT

Gathering of Web services based on Ontology supports the application that is accessible through the internet. It provides computational power and storage capacity, and to solve problems related to computing. Clients are able to quickly and easily select the needed services, information about their providers and even learn of the current attributes of resources behind the service. The user retrieving information through normal search engines take much time i.e., time consuming process. Where as an similar application, which is developed under semantic environment will takes very less time for retrieving information.

In future, ranking methodology plays a vital role by the use of effective ranking algorithms. When a semantic application is developed and introduced into the web server, the server works efficiently and the server busy problems and time consuming problems will be recovered. The dynamic attributes contained in the stateful Web service are not kept current to the resources' behind the Web service, the stateful WSDL document will not show current nor correct dynamic attributes. To keep the stateful Web service current, a Connector is used to detect changes in resources and then pass them on to the Web service.

V. ACKNOWLEDGEMENT

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