Scientific Journal of Impact Factor (SJIF): 5.71

e-ISSN (O): 2348-4470
p-ISSN (P): 2348-6406

International Journal of Advance Engineering and Research Development

Volume 5, Issue 02, February -2018

ONTOLOGY REPOSITRY IMPROVE THE SPARQL BASED PERFORMANCE USING STORAGE INDEPENDENT MODEL

A.Rajalakshmi , Dr. S.Ganesh Kumar

Assistant .Professor , Department of Computer Applications, SRM IST
Assistant Professor (SG) Department of Computer Science Engineering, SRM IST.

ABSTRCT - *Ontology is a learning store in which ideas and terms are characterized and connected between the ideas. Ontology's undertakes and seeks for a comparative example of content that to be more viable, proficient and intuitive. The technique for gathering the results and recommendations is extended with determination that is planned by using Ontology based text mining method. The performance evaluation of an independency of 'Storage model' is applied in SPARQL-to-SQL Translation algorithms. In specific query language OWL is established on relational database (RDB) for scanning and managing Web Ontology data. In several recommended query languages, SPARQL is the considered with high significant. SPARQL cannot be a solution to scan information on RDB. In order to resolve the issue SPARQL query need to get interpreted to an SQL query.*

Key terms : *Semantic Web Services, ontology, mapping, ontology search engine,SPARQL*

1. SEMANTIC WEB

The Semantic Web acquaints helps for the thought process and it enables system to peruse and utilize the content of the Web. The projected idea on ODMM is straightforward i.e. semantics that is supplemented as an input to Web pages can make the present "World Wide Web" subject in logical order and language understood by the machine. The ODMM preprocess the information terms before furnishing client with an output.

This unique thought about ODMM is an augmentation to the present and this is not a substitution for the existing "World Wide Web (2.0)".Semantic availability on Web helps in discovering, translating, and to retain the data. Semantic Web will provide a critical stage to enhance and seek techniques to improve the probability of fulfilling the client by doing the modification to the client question i.e. pre-processing, subsequently constructing data to prepare reasonable semantics. This provides the output which the client sought for.

2. SEMANTIC WEB SERVICES

There are five step processes involved in Semantic Web Services (SWS) such as:

- "Advertisement" by facility providers in which the advantages about the facility is clarified
- "Discovery" is utilized to fulfill the client needs
- "Selection" alludes to picking the best alternative relying upon QoS
- "Composition" is to blend the chosen Web facility into a compound one
- "Invocation" is to callthe web administrations for execution.

3. ODMM SYSTEM ARCHITECTURE

The below chart depicts the system flow of ODMM in web administration services. This backbone is classified into two components such as

i) Creation of local ontology repository and
ii) Ontology Web Crawler

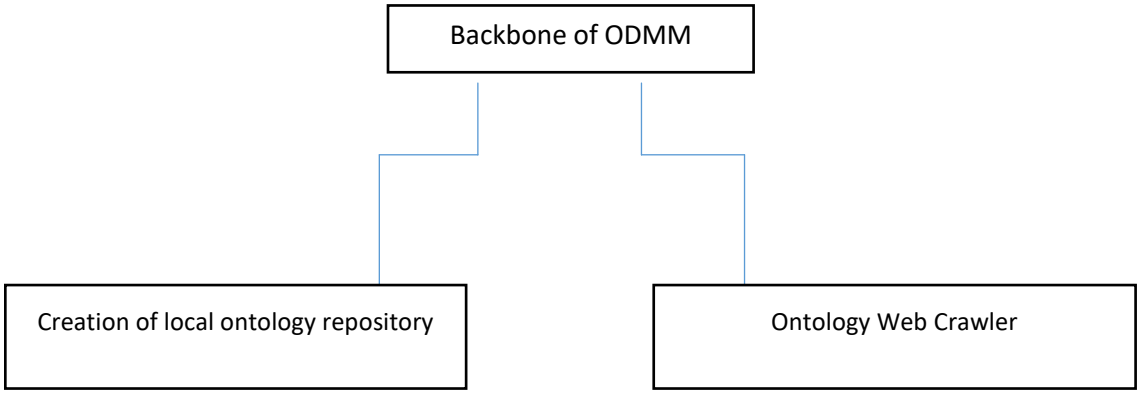

Figure 1. Backbone of ODMM

4. CREATION AND INCREASE THE PERFORMANCE OF LOCAL ONTOLOGY REPOSITORY

The aim of using local Ontology repository is to prevent problem of standardization, and to use the ontology model for focusing on Implementation to write ontology.

The below following are acknowledged for repository process in Ontology repository:

1. The Repository of Logical Structure
2. Introducing an innovative ontology into storehouse

4.1 The Repository of Logical Structure

The source (repository) is created in the Object-Oriented Paradigm (OOP) which can be taken into the account as a standout among and exceptional ways to deal with depicts in Ontology relationships. The acknowledgment and broad extent of the OOP is utilized in the arena of Web Services and this is adopted by many researchers due to its significance of Semantic Web. There are different investigates in this field which depicts how to present resemblance procedures stimulated from the field of OOP to match the ontology concept. OOP is used to adjust the existing "Object Oriented Software Design" (OOSD) strategies and to develop assignment in ontology. In a method to deny Ontology configuration is introduced and JAVA is utilized for execution and confirmation. As in OOP, OWL Ontology properties are described as an occurrence that is suitable for inherent Classes (e.g., bird: Class or bird: Object Property). This shows that the design of OWL ontology is much related to OOP.

A comprehensive review takes place on the dissimilarities and correspondences between 'Semantic Web Languages' and 'Object-oriented Languages'. The OOP has received achievement in numerous domain, comparisons among the OWL and OOP ontology models motivates the consumers to identify OOP as the Sequenced Design of Repository. In certain data Ontology, the repository receives data together and updates continuously.

The local Ontology repository maintains the clustered in grouping according to the Ontology clustering

The OWL-S gives the accompanying parts to the advancement of ODMM:

a. Portfolio – (provides) the information on service provided

b. Grounding – (supports) the mode to avail the service

c. Model – (describes) how does the service package work

4.2 Introducing a 'Innovative Ontology into Source

The key goal of introducing innovative ontology to the source process is to gather dual information:

1) Sequenced Design

2) Catchphrases related for the innovative ontology.

This information is utilized by the OSSE to react to the solicitations for the ideas.

In the wake of gathering the essential information, the time is spent on the source file and this is recorded by the system.

Figure 4.2 shows two processes: Structure Extraction and keywords Extraction

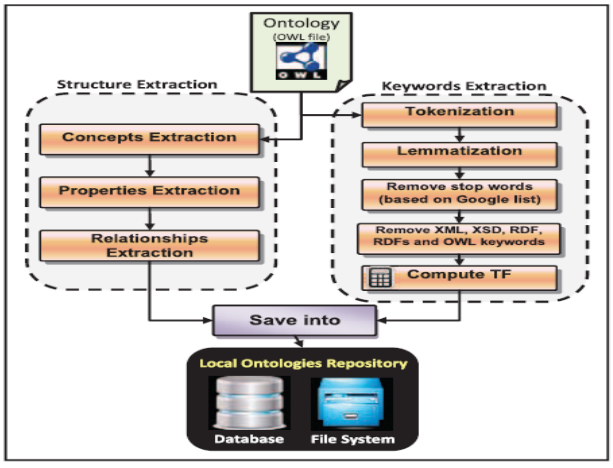

Figure 2 . Local Ontology Repository

As specified in Figure 2, two simultaneous procedures gather dual sorts of information: the main procedure is named as "Structure Extraction." This procedure starts from the information about ontology ideas (classes), assets, and connections that are gathered. Regardless of an extraordinary significance of ontology examples, aphorisms and numerous different parts of the cosmology, the information concerning them are not vital for the revelation procedure (the principle focus of our exploration). The original source of information is concerned to store the source file and it does not intend to lose these data for the purpose of ontology. The database is intended to accelerate the way toward discovering the required ontology data in Semantic Web Services SWSs revelation handle.

In this extraction there are three important extraction such as; concept extraction, properties extraction, relationship extraction. The important process of Structure extraction is to provide information about ontology ideas (classes), properties, and connection is gathered.

The procedure in Keywords Extraction comprises of five stages:

1. Tokenization: Are the way to part the content into extremely straightforward tokens, for example, numbers, accentuation, and expressions of various sorts. In this unique circumstance, one can focus on word tokens as it is
2. Lemmatization: is the way toward diminishing inflectional structures that is derivationally related to types of a word to form a typical base. Ie. (be ,are, is, am, parks, park's, parks', bar, chest, butter, badd). WorldNet is used for toper to form this process
3. A considerable rundown of vocabulary can expel to a great degree of basic vocabulary and that is called as "stop words" ie. (b, an, am, shall, be, she, their)
4. The word can be expelled as 'hat' shows up in catchphrases rundown in dialects used to compose the ontology, for example, (RDFS; OWL, XSD, RDF,. . . , etc)
5. The term frequency computation: The term frequency is computed for each vocabulary in the rundown.

4.3 PERFORMANCE EVALUATION

Ontology query languages SPARQL as well as numerous explanations on languages are planned in the semantic Web environment. SPARQL , is suggested by W3C, is the most symbolic explanation in a language. On the basis of efficient data management numerous Web Ontology storage systems are developed with the assistance of relational database (RDB). There are some questions connected to practice of RDB and SPARQL. The RDB is a SQL to progress SPARQL-to-SQL translation algorithm. This can be adopted for well-organized information recovery from RDB by utilizing SPARQL. A general descriptive SPARQL-to-SQL translation algorithm comprises the sparql2sql of Jena

Table 1 . Main factors

Relative items	**Factors**
Translation Query time	Storage Device used
	Translation Algorithm using in model

	Types of Query
	Network setting
Transmission Query time	Storage Device used
	Types of Query
	Network setting
	Structure of Storage
	Data Set Size

The above table shows the primary factors that affects the performance evaluation. Translation Query Time and Transmission Query Time that are used on Storage Systems as main factors to measure the performance as given in table 4.3

Table 2. Description of notations

Notations	**Description**
SS	Set Of Storage
t(TSTS)	Translation time of SPARQL to SQL
n(TS)	Storage used in Model
t(NTM)	Translate Query transmission time

n(TA)	Translation algorithm Used in each model
QTB	Operation based Query type
n(TQ)	Total queries used in model
V_{SS}	Translation time SPARQL to SQL
V_{TT}	Transmission time
V_{RA}	Values of random ($0 < V_{RA} < 1$)

The Dependency of Storage model and Independency of Storage Model were evaluated based on the following parameters as given in Eq.1.

Performance =

$$\sum_{i=1}^{n(TQ)} \left\{ \sum_{J=1}^{n(TA)} t(TSTS) + \sum_{K=1}^{n(TS)} t(NTM) \right\} \quad (1)$$

$$= \sum_{i=1}^{n(TQ)} \{ n(TA) \times t(TSTS) + n(TS) \times t(NTM) \} \quad (2)$$

$$= \sum_{i=1}^{n(TQ)} \{ n(TA) \times (V_{SS} \times V_{RA}) + n\,(TS) \times (V_{TT} \times V_{RA} \} \quad (3)$$

The query conversion period, t(TSTS), is disturbed individual by the number of algorithms, n(TA), since the quantity of storages, n(TS), is equivalent to n(TA) as given in Eq 2 .

The query conversion period, t(TSTS)that is disturbed by network location, is $Vss*V_{RA}$. Here Vss is the definite conversion period of the query type . V_{RA}value($0<V_{RA}<1$) is derived through random number generator.

The query transmission period, t(NTM) that is disturb by network location, also is $V_{TT}*V_{RA}$ as given in Eq4.6 .

V_{TT} is the SQL that describes storage transmission period.

4.4 CONCLUSION

This chapter focuses on ODMM which strength the ontology repository of logical structures and inserts a new ontology repository, and ontology Web crawler. The performance evaluation on items is to associate with time of query translation and transmission. The results show that the Independency of Storage Model needs minimum time than the Dependency of Storage Model and it is identified through that analysis that it is more efficient

4.5 FUTURE WORK

Since the proposed system is for text clustering only at present, once the proposed system is Implemented, ODMM intends to extend its scope for animated images, moving frames and other non-string contents also.

REFERENCES

[1]. Aviv Segev, Member, IEEE, and Iuan Z. Sheng, Member, IEEE –" Bootstrapping Ontologies for Web Services"- IEEE Transactions On Services Computing, VOL. 5, NO. 1, January-March 2012
[2]. B. Medjahed, A. Bouguettaya, and A. K. Elmagarmid. Composing Web Serviceson the Semantic Web. The VLDB Journal, 12(4), November 2003.
[3]. B. Raman, S. Agarwal, Y. Chen, M. Caesar, W. Cui, P. Johansson,K. Lai, T. Lavian, S. Machiraju, Z. Morley-Mao, G. Porter, T. Roscoe, M. Seshadri, J.S. Shih, K. Sklower, L. Subramanian, T. Suzuki, S. Zhuang, A.D. Joseph, R.H. Katz, and I. Stoica, "The SAHARA Model for Service Composition Across Multiple Providers," Proc. First Int'l Conf. Pervasive Computing, pp. 1-14, May 2002.
[4]. C. Peltz, "Web Services Orestrestration and Choreography," Computer, Vol. 36, No. 10, pp. 46-52, Oct. 2003.
[5]. Cai M., Zhang W.Y., and Zhang K.,"ManuHub: A semantic web system for ontology-based service management in distributed manufacturing environments," IEEE Trans. Syst., Man, Cybern. A, Syst.,Humans, vol. 41, no. 3, pp. 574–582, May 2011.
[6]. E. Sirin, J. Hendler, and B. Parsia. Semi-automatic composition of Web Services using semantic descriptions. In Proceedings of Web Services: Modeling, Architecture and Infrastructure workshop in conjunction with ICEIS2003, 2002.
[7]. Elena Simperl, Dieter Fensel,RetoKrummenacher "An Ontology-Driven Approach To Reflective Middleware" in 2007 IEEE/WIC/ACM International Conference on Web Intelligence.
[8]. F. N. Souza, T. C. Silva, D. J. M. Cavalcanti, N. S. Rosa, and R. M. F. Lima, "A meta-model for qos monitoring in a dynamic service-component platform," in Proceedings of the 2015 IEEE International Conference on Services Computing (SCC'15), 2015, pp. 459–466.
[9]. F. Naumann, U. Leser, and J.C. Freytag, "Quality-Driven Integration of Heterogenous Information Systems," Proc. Int'l Conf. Very Large Databases (VLDB), pp. 447-458, 1999.
[10]. Fong, A.C.M. Senior Member, IEEE, Baoyao Zhou, Siu C. Hui, Jie Tang, Member, IEEE, and Guan Y. Hong, Member, IEEE-" Generation of Personalized Ontology Based on Consumer Emotion and Behavior Analysis"- IEEE Transactions On Affective Computing, vol. 3, no. 2, April-June 2012
[11]. G. Meditskos and N. Bassiliades, "Object-Oriented Similarity Measures for Semantic Web Services Matchmaking," Proc. Fifth European Conf. Web Services (ECOWS '07), 2007.
[12]. G. Meditskos and N. Bassiliades, "Structural and Role-Oriented Web Services Discovery with Taxonomies in OWL-S" IEEE Trans.Knowledge and Data Eng., vol. 22, no. 2, pp. 278-290, Feb. 2010.
[13]. S. Ganesh Kumar, K.Vivekanandan 2015. "ODMM – An Ontology Based Deep Mining Method to Cluster the Content from WEB Servers" in Journal of Theoretical and Applied Information Technology (JATIT), Vol 74, 10th April 2015, E-ISSN 1817-3195 / ISSN 1992-8645.

