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An Architecture for Efficient Data Retrival Through Semantic Web

KEYWORDS: Resource Description Framework (RDF), Resource Description Framework (RDFS), Extensible Markup Language (XML), Ontology Web Language (OWL), Knowledge Management

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ABSTRACT *The confidence and knowledge gained in importance as a source of clarity as a valid method is not emphasized enough in today's world can be web-enabled. Net Explosion is currently attributable to the abundance of information accessible with the appropriate trust. Determinative of the issue whether the connected loads. UN agencies such as provenance information are responsible for the information or the information come from sustentative the correctness of this information within the help system. Semantic Web technologies such as Resource Description Framework (RDF) for the reification of the method adopted by the ability to record information such as the source. Mother RDF visualization tools for quality and resulted in much demand. In this paper, R2D called, during the work of a new net technologies like RDF innovatively integration with related systems such as current, stable technology by trying to deal with this demand. Adding support for this idea by RDF reification to add to this paper extends our previous work. Reification allows grades of trust and confidence with RDF triples the corner, there is an optional A / ranking triples the correctness of authenticity.*

1. Introduction

The Semantic Web is a "man-made woven web of data" that facilitates machines to understand the semantics or meaning of information on the World Wide Web. The basic concept of Semantic Web use the methods beyond linear presentation of information (Web 1.0) and multi-linear presentation of information (Web 2.0) to make use of hyper-structures leading to entities of hypertext.

The idea that early sixties within the network model of linguistic science, a semantic representation of structured information. The word World Wide Web and W3C column, which organized the event linguistics, oversees the Internet standards were established by the director of research and they have "knowledge of the Internet or by machines can be processed directly and indirectly" as defined by the Internet linguistics.

The WWW is an information resource with virtually unlimited potential. However, this potential is comparatively unused as a result of it's troublesome for machines to method and integrates this data meaningfully. Recently the researchers, they have begun to explore the potential of associating website with express that means. Instead of trust process to extract, that means from existing documents, this approach needs authors to explain documents employing a data illustration language.

Although information illustration will solve several of the Web's issues, existing analysis cannot be directly applied to the linguistics net. Not like most cognitive content bases, the net is much localized, changes chop-chop, and contains a staggering quantity of data. This thesis examines however information illustration should modification to accommodate these factors. It presents a brand new technique for group action net knowledge sources supported ontologies, wherever the sources expressly decide to one or additional autonomously developed ontologies. Additionally to specifying the linguistics of a group of terms, the ontologies will extend or revise each other. This system permits automatic integration of sources that decide to ontologies with a standard descendant, and once acceptable, of sources that decide to totally different versions of constant metaphysics.

Semantic Web Technologies

Semantic web is to spot a group of technologies, tools and standards that kind the fundamental building blocks of a system that might

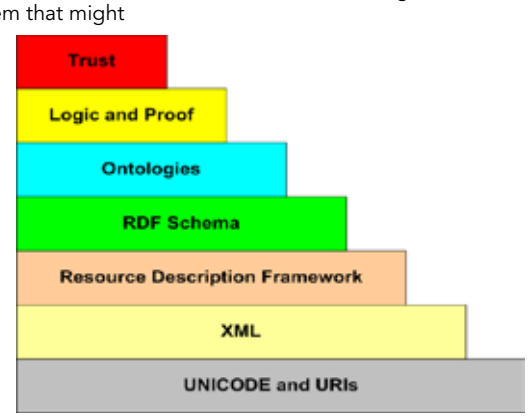

Figure 1: Semantic Web Layered Architecture.

Support the vision of an internet imbued with that means.

While necessarily a simplification which has to be used with some caution, it nevertheless gives a reasonable conceptualization of the various components of the Semantic Web. We define briefly these layers.

- ✓ **Unicode and URI:** Unicode means the standard for computer character representation, and URIs means the standard for identifying and locating resources (such as pages on the Web), provide a baseline for representing characters used in most of the languages in the world, and for identifying resources.

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World Wide Web is such a thing: anything that has a URI is considered to be "on the Web". All data object and data schema/model in the Semantic Web must have a unique URI.

- ✓ **XML:** XML and its related standards, such as Namespaces, schema and form a common means for structuring data on the Web but without communicating the meaning of data. Those data are well established within the Web already.

A record of design decisions and their rationales was compiled by Michael Sperberg-McQueen on December four, 1997. James Clark served as Technical Lead of the Working Group is note down as contributing the empty-element "<empty />" syntax and the name "XML".

Figure 2: XML

XML Declaration: <? Xml version="1.0" encoding="UTF-8"?>

- ✓ Resource Description Framework: RDF is a representation of simple metadata framework. Using URIs to identify Web -based resources and a graph model for defining relationships between every resource.

rdf: Resource - the class resource, everything.

Figure 3: RDF XML Serialization.

rdfs: Literal - the class of literal values, e.g. strings and integers.

rdf: XML Literal - the class of XML literal values.
rdfs: Class - the class of classes
rdf: Property - the class of properties
rdf: Datatype - the class of RDF datatypes
rdf: Statement - the class of RDF statements
rdfs:Container - the class of RDF containers
rdfs:ContainerMembershipProperty - the class of container membership properties, rdf: _1, rdf:_2, ..., all of which are sub-properties of rdfs:member
rdf:List - the class of RDF Lists
rdf:nil - an instance of rdf:List representing the empty list.

- ✓ RDF Schema (RDFS) is a set of classes with certain properties using the RDF extensible knowledge language, providing basic elements for the description of ontologies, otherwise called RDF vocabularies, intended to structure RDF resources.

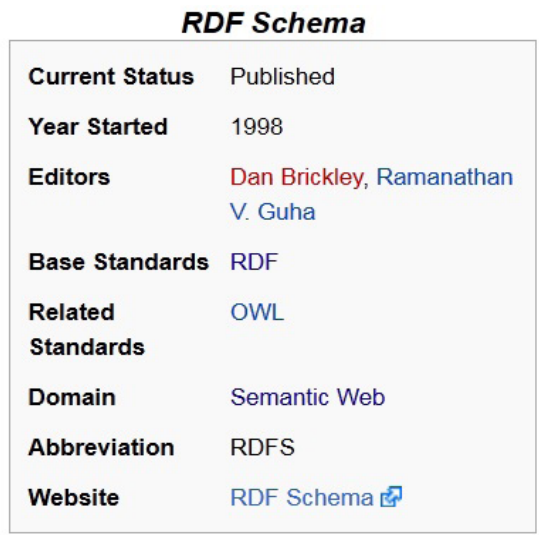

Figure 4: RDF Schema

- ✓ Ontologies are a richer language for providing more complex constraints on the types of resources and with their properties.
- ✓ Logic and Proof is an automated reasoning system provided on top of the ontology structure for create new inferences.
- ✓ Trust: The final layer of the stack addresses problems with trust that the linguistics net will support. This element has not progressed so much on the far side a vision of permitting individuals to raise queries of the trustiness of the knowledge on the online, so as to supply Associate in nursing assurance of its quality.

2 Literature Survey

Some researchers and web developers have proposed that we augment the Web with languages that make the meaning of web pages explicit. Those inventors has coined the term Semantic Web to describe this approach.

1. "The Semantic Web interface is not a different Web interface but an extension of the present one in which information is given with well-described meaning and excellent enabling computers and users to work in cooperation."
2. "Semantic Web interface is applying methods beyond linear representation of information (Web 1.0) and multi - linear representation of information (Web 2.0) to generate use of hyper-structures leading to entities of hypertext."

3. Challenges

- ✓ **Vastness:** The World Wide net contains a minimum of twenty four billion pages as of this writing (June thirteen,

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2010). The SNOMED CT medical nomenclature metaphysics contains 370,000 category names, and existing technology has not nevertheless been ready to eliminate all semantically duplicated terms. Any automatic reasoning system ought to trot out really vast inputs.

- ✓ **Vagueness:** These are imprecise concepts like "young" or "tall". This arises from the vagueness of user queries of concepts are represented by content providers, which are matching with query terms to provider terms and of trying to combine different knowledge bases on overlapping but it is different concepts. Fuzzy logic is very common technique of dealing with vagueness.
- ✓ **Uncertainty:** These are precise concepts with uncertain values. For eg, a patient might be present a set of symptoms or disease which requires a number of different diagnoses each with a different probability. Different probabilistic reasoning techniques are generally used to address uncertainty.
- ✓ **Inconsistency:** These area unit logical contradictions which can inevitably arise throughout the event of huge ontology's, and once ontology's from separate sources area unit combined. Abstract thought fails catastrophically once visages with inconsistency as a result of "everything is follows from a contradiction".

4. Conclusion and Future Direction

Semantic metadata

Nowadays, within the search and retrieval space, we have a tendency to still perform most legal searches in on-line or application databases exploitation keywords (that we have a tendency to believe to be contained within the document that we have a tendency to area unit looking for), perhaps in conjunction with a mixture of mathematician operators, or supported with a collection of predefined classes (metadata relating to, for instance, date, style of court, etc.), an inventory of pre-established topics, thesauri (e.g., EUROVOC), or a synonym-enhanced search.

These searches rely mainly on syntactic matching, and with the exception of searches increased with classes, synonyms, or thesauri they'll come back solely documents that contain the precise term explore for. To perform a lot of complicated searches, to travel on the far side the term, we tend to need the computer program to know the linguistics level of legal documents; a shared understanding of the domain of data becomes necessary.

Although the search for the illustration of legal ideas isn't new, these efforts have recently been driven by the success of the globe Wide net (WWW) and, especially, by the later development of the linguistics net. Sir Tim Berners-Lee delineate it as associate extension of the online "in that data is given well-defined that means, higher enabling computers and other people to figure in cooperation."

The linguistics internet (including connected information efforts or the net of Data) is envisaged as AN extension of the present internet that currently conjointly includes cooperative tools and social networks (the Social internet or internet a pair of.0). The linguistics internet is typically conjointly remarked as internet three.0, though there's no widespread agreement on this matter, as totally different visions exist concerning the improvement and evolution of the present internet.

Figure 5: Semantic Metadata.

The Semantic Web (including Linked Data efforts or the Web of Data) is envisaged as an extension of the current Web, which now also comprises collaborative tools and social networks (the Social Web or Web 2.0). The Semantic Web is sometimes also referred to as Web 3.0, although there is no widespread agreement on this matter, as different visions exist regarding the enhancement and evolution of the current Web.

The task of developing practical technologies has been concerned by the planet Wide net association (W3C). These technologies were organized within the linguistics net Stack consistent with increasing levels of complexness (like a layer cake), within the sense that higher layers depend upon lower layers (and the latter square measure hereditary from the initial Web). The languages embrace XML (extensible Markup Language), a superior of hypertext markup language sometimes wont to add structure to documents, and therefore the supposed metaphysics languages: RDF (Resource Description Framework), OWL, and `OWL2 (Ontology web Language). Currently, a specification to support the conversion of existing taxonomies or subject headings into RDF has been discharged.

Although there are totally different views within the literature relating to the scope of the definition or main characteristics of ontologies, the utilization of ontologies is seen because the key to implementing linguistics for human-machine communication. Several ontologies are designed for various functions and data domains

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