A Survey On The Web Services Composition Based On The Fuzzy Semantics With Petri Nets

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Abstract: Web Services is an open, Standards based approach for a higher level business process. Web services becomes the choice of service oriented implementation. With the Internet technology, the most important model used in the distributed computing is the web services. When a single web services fails the requester multiple functional requirement, multiple web services are needed. Petri Nets is becoming one of the important technologies in the distributed system. In this paper, we are going to discuss about the Fuzzy Semantics with the Petri Nets, the Quality-of-Service of the Petri Nets and finally gives the reliable process for the Petri Nets in the web services.

Keywords: Web Services, Petri Nets, Fuzzy Semantics, Quality-of-Service.

INTRODUCTION:

The main concept in the distributed computing environment is the web services. The web service providers publish their invocation interface using the description language called web service description language. The providers registered in the UDDI. Then the application needs the web services and requests send through the invocation interface. The providers gives the offers to the web service to establish their service connection. The performance of the web service are evaluated as functional and non-functional units. In the functional, the service for the web service can be provide under certain circumstances and completely matches the users’ request. In the non-functional, the cost and quality-of-service was evaluated for the configuration and selection of services. The Qos attributes and the functional requirements are available in many web services.

The semantic web is used to give the content and capability of web, enables the many tasks. A web services are the key applications of semantic technologies. Examples of web services includes the buying a book from a different sites. There are many different ways created by the web service composition. Some of the compositions are created manually. From validation, database lookup program are the web accessible programs.

The development of web application needs the high cost, time consuming process of various reasons. Now-a-days, for the development of web applications the main choice is the web services. The universally accessible software applications are the web services. It uses the open-standard Internet protocols.

By using the Internet protocols, the software components are integrated in the Service oriented architecture. The core standards of web service description is web service description language, simple object access protocol, universal description, discovery and integration.

Petri Nets are the graphic modeling method used to analyze and model the discrete event systems as manufacturing, communication, and transportation systems. Artificial intelligence and Petri Nets are combined to perform many goals. For a uncertainty problem, the Petri Nets and artificial intelligence uses different fuzzy Petri Nets. Based on the notations, it will be used.

Ontology is a one concept of domain in to the machine-readable, human understandable format. This ontology consisting of entities, axioms, relationships and attributes. The semantic web uses the ontology. The fuzzy logic with the ontology to perform and handle the uncertainty data. So, the fuzzy ontology is used in the search engines, text retrievals. The concept hierarchy was used to evaluate the simulation.

The editing tools was introduced. These tools are used to help the users to create and edit the ontology from the data. The ontology can be formed from the different data types such as dictionary, relational schemata, knowledge-based semi structured schemata, and textual data. The
important technique in the learning of ontology is Clustering.
For the computation, the Petri Nets was preferred by many researchers. The behavior of the web service is a set of operations. The casual relations are specified by the places and transitions. The Petri Nets represent the behavior of a service has the input and the output.

For graphical oriented design, the Colored Petri Nets used. The specification, simulation and verification of a system are also uses the Colored Petri Nets.

LITERATURE SURVEY:
In authors [1] analyze the reachable and proper termination. It is a complex process. To reduce the verification of complexity, models the colored petri nets using the web services. The reachable termination is satisfies the verifying behavioral compatibility of well-structured web services. Then, When the composition is valid, the similar behavior act as a substitute. To analyze the web services similarity, the effective approach was developed. A new context independent similarity used as a alternative of similar behavior without the interference of the other web services. It reduces the cost of verifying services. A new algorithm was developed as a tool to verify the behavior compatibility. Using the tool, the verification will be performed automatically.

In authors [2] analyzed the business process execution language in the web services. The existing work focuses on the verifying the deadlock freeness. The process will be repeated until no deadlock found. So, we develop the multiple web services interaction call the composition net (C-net). The C-net has the deadlock structure problem. The behavioral compatibility in the web services was transferred to the C-net. A policy based additional information channels proved a god solution that mapped the BPEL models automatically. After the channels added in the Petri net element, transform the BPEL channel and the new services was obtained.

In authors [3] the fuzzy reasoning petri nets(FPN) model for a fuzzy rule-based system. The negative literals are addressed in the Petri Net model. The proposed model for a fuzzy reasoning algorithm was automatic fuzzy reasoning. The matrix equation was expressed in the Petri Nets, allows the maximum of potential embedded. The proposed algorithm adopts the fully parallel reasoning ability. The rule-based fault diagnosis was analyzed.

In authors [4] analyses the difficulties and tedious task in the fuzzy ontology. We proposed the fuzzy ontology generation framework (FGOA) for the generation of fuzzy ontology. This framework has the concept hierarchy generation., fuzzy ontology generation, fuzzy formal concept analysis. The approximating reasoning technique was also proposed. The machine service ontology was generated by the FGOA for semantic help-desk. In this, the semantic web environment is supported by the semantic web-based information system.

In authors [5] analyze the development in the enterprise and cross-enterprise application integration. The web service configuration net based on the Petri Nets is the proposed work that builds a in a formal way. With the highest Quality of Service, the optimal algorithm is implemented for the users non-functional requirements. This algorithm easily integrates the existing web service environments. It gives the QoS for a whole configuration.

In authors [6] analyze the web service in the multiple QoS. We propose the web services with the different QoS. We introduce the functional configuration of web service using the Petri Nets. The service configuration based on Petri Net for the module and the component services are described with the disassembly Petri Nets. A service configuration models a set of components for a particular business function. This paper proposes the business process sequence and related QoS.

In authors [7] Presents the Petri Net model for the Horn Clause of propositional logic of the predicate logic of the first order. We propose the logical inconsistency of a net model. Algorithms are used for the T-invariants of the Petri Net. This algorithm gives the idea of resolution and splitting cause, pure-literal for a faster computation.

FUZZY SEMANTIC ON PETRI NETS:
Semantic web has the binomial content and meaning [8]. By adding the semantics to the web resource, the machine can be easily understandable. Petri Nets are growing the interest both in the Artificial Intelligence for a reasoning process in a dynamic event system. The design and implementation of a system are the Fuzzy Petri Nets.

In the Petri Net, firing is an automatic process. It is a non-interruptible, non-deterministic execution. In this multiple transitions can be performed at a same time. Multiple tokens presents anywhere in the net. The Petri Net is a well-suited model for a behavior compatibility in the distributed systems.

Petri Nets is the most applicable class in the Artificial Intelligence is the Fuzzy Petri Nets. To represent a product with the related disassembly
rules and the uncertainty in a Fuzzy Reasoning Petri Nets (FRPN). To perform the automatic fuzzy reasoning, a formal algorithm was used.

The problem understanding in the semantic has many formal enquirers. It takes a long period of time. But if we used the semantic with the fuzzy in the Petri Nets, the time period will be reduced. The process will become faster. The formal semantic fields are pragmatics, syntax and others. The formal study of the semantic is a complex process.

APPLICATION OF PETRI NETS:
- In the field of manufacturing, manufacturing systems like controlling, modeling, and the performance analysis.
- Performs the intelligent task.
- In the Timed Petri Net, the performance and the scheduling is a dynamic process.
- The reachability problem is carried out by using the Fuzzy Petri Nets.

CHALLENGES IN PETRI NET:
- The main challenge in the Petri Net is a industrial oriented process.
- By using the Horn Clause and T-invariants technique the input and the output behavioral compatibility can be analysed.
- In the business environment, for the marketing, the Fuzzy Petri Nets can be used.

CONCLUSION:
The Fuzzy Petri Nets was discussed in this paper. By using the many technologies like semantics, web ontology the web services composition uses the Fuzzy Semantic in the Petri Nets. The Quality of Service has been increased by using the various techniques.

REFERENCES: