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To cite this article: P Soundarya *et al* 2017 *IOP Conf. Ser.: Mater. Sci. Eng.* **263** 042064

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# Dynamic user data analysis and web composition technique using big data

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**Abstract.** In the existing system, a reliable service oriented system is built which is more important when compared with the traditional standalone system in the unpredictable internet service and it also a challenging task to build reliable web service. In the proposed system, the fault tolerance is determined by using the proposed heuristic algorithm. There are two kinds of strategies active and passive strategies. The user requirement is also formulated as local and global constraints. Different services are deployed in the modification process. Two bus reservation and two train reservation services are deployed along with hotel reservation service. User can choose any one of the bus reservation and specify their destination location. If corresponding destination is not available then automatic backup service to another bus reservation system is carried. If same, the service is not available then parallel service of train reservation is initiated. Automatic hotel reservation is also initiated based on the mode and type of travel of the user.

## 1. Introduction

Various organizations develop complex distributed systems in a service-oriented environment by discovery and integration of web services. Service oriented architectures (SOA) are considered as a major support for the development of information technology infrastructures due to the need to construct service oriented systems which are reliable in nature. However, service-oriented systems face many challenges in comparison to the traditional stand-alone software systems which are specified as follows: (1) Web services are distributed across the impulsive Internet; (2) Providers established and hosted web services without revealing the interior design and details of implementation; (3) Dynamic change in the performance of Web services due to load change of servers and internal web service updates; (4) Unavailability of remote web services without any prior information.

System reliability can be increased by the following approaches namely fault avoidance, fault elimination, tolerating and forecasting the fault. The development of fault-free service-oriented systems is difficult if the source codes and internal designs of web services are inaccessible to service users (SOA developers). Critical systems alone deploy diversity of design due to the high cost for building components which are redundant in nature.

Multiple web services are developed and deployed by different organizations over the Internet. Web services replace the service-oriented systems which are fault tolerant in nature. There



are two categories of fault tolerance namely passive and active replication. The request by employing a primary service and invoke an alternative backup service if there is a failure in the primary service is known as passive replication. All functionally correspondent services invoked in parallel is known as active replication. Hence this paper investigates the process of developing reliable service-oriented systems by choosing a fault tolerance strategy which is optimal in nature. The approach analyses both the performance of Web services with regard to Quality of Service (QoS) and also the requirements of the customers individually who utilize the service. Any service-oriented system consists of a set of tasks. The functionality of these tasks is achieved by suitable web services. Constraints are known as local if they are provided by the service users for a single task. One example is the response-time of a single task which should be less than one second. Global constraints are those which can be provided for the complete service oriented system by the service providers namely accessibility must be more than 99% for the service-oriented system. Identifying an ideal fault tolerant approach considering the constraints locally and globally for service-oriented system is the novelty of this paper. A methodical and extensible framework is analysed in this paper and the following are studied: (1) an extensible QoS model of the Web services (2) several policies tolerating the fault, (3) QoS composition model for web services (4) examining consistency for composite service-oriented systems, and (5) numerous algorithms which are QoS-aware for identifying an ideal fault tolerance policy.

## 2. Related Work

A wide study has been conducted on web service QoS for commission composition and repair choice [2]. Service providers or third party organizations achieve the QoS values easily is a presumption by the earlier research investigations. However it is tougher in the reality. The QoS values are strongly dependant on the dynamic nature of the network, response time and failure rate. Thus the values change among various users over a period of time and are unreliable.

Several researchers [2] have analysed a mechanism to identify the unknown QoS values. The values of QoS for internet services can be identified by two approaches namely memory based or neighborhood-based and cooperative filtering (CF). Neighbor based approaches are simple to implement but the prediction accuracy can be very low if the information density is sparse. The historical invocation information of comparable neighbors is utilized by cooperative filtering for prediction. However, if the information density is very less, then there is a possibility for dangerous prediction accuracy. The time complexity of all these approaches is quadratic in nature to the information size. Thus large datasets cannot utilize these approaches.

Heng Liu [1] presented a novel approach for representing the geographic scene of the current image through visual localization ie. Associating with a rough GPS position. The proposed approach provided precise parameters about the scene geographically containing the exact locations of the captured scene and the mobile user in the direction to be observed. The approach analysed three novel applications such as self localization, rendezvous routing using localization in a collaborative manner and routing for photographing. These applications ease the perfect meetings for mobile users and are very effective is shown in the investigations.

Yang et al.†[6] specified that the investigation is rare for location inclination model of users however the check-in behaviour is continually observed. The location recommendation is improved by enhancing the user location preference model and the recommendation algorithm. In the first stage, a hybrid user location inclination model is proposed by utilizing sentiment analysis which integrates the text-based tips and preference mined from check-ins. In the second stage, a location centred social matrix factorization procedure is developed which considers the influence of users socially and venue similarity in recommending the location. Foursquare which is a location based social network dataset is utilized in this approach. The experiment results illustrate that the developed hybrid preference model analyses the user inclination in a better manner by preserving the consistency of the preference, and the proposed algorithm out performs the traditional approaches.

Jitao Sang [2] developed a mobile phone which has been considered as a terminal for recommendation tailored for individuals. Most of the current research primarily emphasizes on recommendation in a single stage ie. the succeeding single phase is recommended based on the current context whereas the authors recommended a sequence of events namely a set of successive Points of Interest (POIs). The suggested POIs are personalized based on his/her check-in history and also appropriate to user context with regard to current time, locality and check-in. A probabilistic approach is presented to estimate the POI transition probability based on history of check-ins and present context and is analysed as a Markov chain. The problem of sparsity and discretization error is alleviated by introducing collaboration of context and integrating prior information. The experiments were conducted on 20k point of interests and over 100k checked-in real-world records to authenticate the efficiency of the proposed technique.

Zheng et al. [3] described that people are enabled to log the location histories utilizing spatio-temporal data due to the increase in availability of location-acquisition technologies such as GPS and GSM networks. The users interests in places is revealed by real-world location histories and also explore the opportunities to analyze the correlation between locations and users. A hierarchical-graph similarity measurement (HGSM) framework is built to prototype the locality history of an individual in an uniform manner and to measure the similarity among users effectively. Resemblance measures namely similarity-by-count, cosine resemblance, and Pearson resemblance measures are outperformed by HGSM. In comparison to the random recommendations and item-based CF approach, attractive locations to the user and improved user experiences for reference are provided by the proposed technique.

Monica.S [4] developed an itinerary for travel which is the initial stage to plan his/her trip for a tourist. The authors facilitated the travel plan by focusing on scheduling the travel path automatically. Geo-tagged photos deliver the tourist an enhanced trip strategy with various details in a collaborative manner. The particulars given are the popular destinations to visit, awareness about the weather conditions, travel routes and hotel particulars to direct the user of the system. The user is provided with the option of tagging the photos of the locations which are visited by the user.

Shi et al [5] presented a novel approach for personalized landmark recommendation according to the geotagged photos of users is analysed as a collaborative filtering problem. A category regularized matrix factorization approach is developed which is a fusion of user-landmark preference and similarity of category-based landmarks. The geotagged photos are collected from Flickr and landmark categories from Wikipedia for the experimental analysis. The investigational results show that the proposed approach outperforms popularity-based landmark recommendation and basic matrix factorization technique for recommending personalized landmarks that are rarely visited by the entire population.

### **3. Proposed System**

In the proposed system, the fault tolerance is determined by using the proposed heuristic algorithm. There are two kinds of strategies active and passive strategies. The user requirement is also formulated as local and global constraints. Different services are deployed in the modification process. Two bus reservation and two train reservation services are deployed along with hotel reservation service. User can choose any one of the bus reservation and specify their destination location. If corresponding

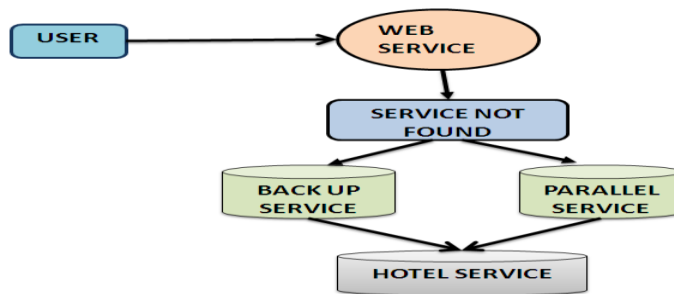


Figure 1: System Architecture

destination is not available then automatic backup service to another bus reservation system is carried. If same, the service is not available then parallel service of train reservation is initiated. Automatic hotel reservation is also initiated based on the mode and type of travel of the user. The advantages of the proposed system are:

- Waiting time is decreased
- Reliable
- High data transmission rate
- More effective

The proposed system is analyzed depending on the user requirements and a feasibility study is done based on the given requirements and it has been found that the system is feasible to be developed. The user requirements are as follows.

- The system is required to be reliable with providing privacy policy to the user authentication.
- The tickets are booked securely with keys to ensure privacy and security.

Figure 2: Sequence Diagram for the final system

The different modules of the system are:

1. User Registration

2. Web Server Deployment
3. Backup Web Service
4. Parallel Web Service
5. Automatic Web Service Composition

### *3.1. Modules Description*

#### *3.1.1. User Registration*

In this module, a user can access the data from the server by creating an user application. The user creates an account initially for logging in to the application. The server will respond according to the request of the user. The database of the server stores all the user details. The user interface frame is designed to interconnect with the server through network programming languages like Java/ .Net.

#### *3.1.2. Web Server Deployment*

The entire user information stored in the database is monitored by the server and verification is also done if required. The server has to initiate the connection to transfer data with the users. All the activities of the user are updated by the server in its database. The user will be authenticated by the server each time before the application is accessed thus unauthorized access is prevented by the server.

#### *3.1.3. Backup Web Service*

In this module, different services are deployed. Two bus reservation and two train reservation services are deployed along with hotel reservation service. User can choose any one of the bus reservation and specify their destination location. If corresponding destination is not available then automatic backup service to another bus reservation system is carried.

#### *3.1.4. Parallel Web Service*

In this module, if same service is not available then parallel service of train reservation is initiated. It contains AC or Non AC tickets. Then user will select the ticket to reach the destination based on the representation of topic and list is generated for recommendation of personalized travel package

#### *3.1.5. Automatic Web Service Composition*

In this module, user can choose mode of travel either by bus or by train(AC or Normal)based on the user's selection of travel, Boarding or Hotels will be recommended by the server automatically.

## **4. Results and Discussion**

This paper investigates the process of identifying an optimal fault tolerance technique for the development of trustworthy service- oriented systems with native and global constraints. The selection of atomic services is combined along with fault tolerance approaches in this paper to improve the dependability of the subsequent service oriented system. Identifying an ideal fault tolerance approach is modelled as an optimization problem and the problem is solved efficiently by proposing a heuristic

algorithm. The service plan tasks were considered independent in the previous efforts and therefore the selection of web services can also be modelled separate for these tasks.

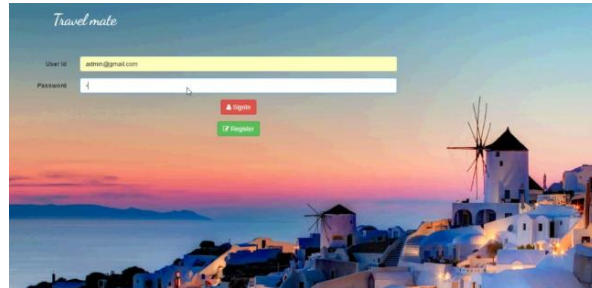


Figure 3: Login Page

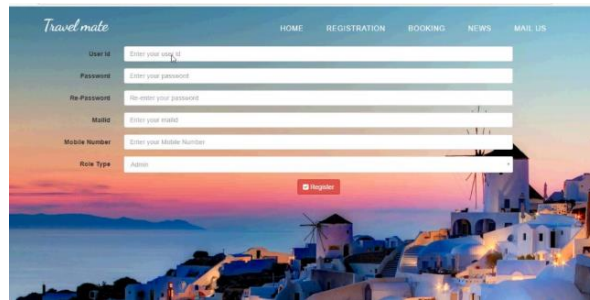


Figure 4: New User Registration

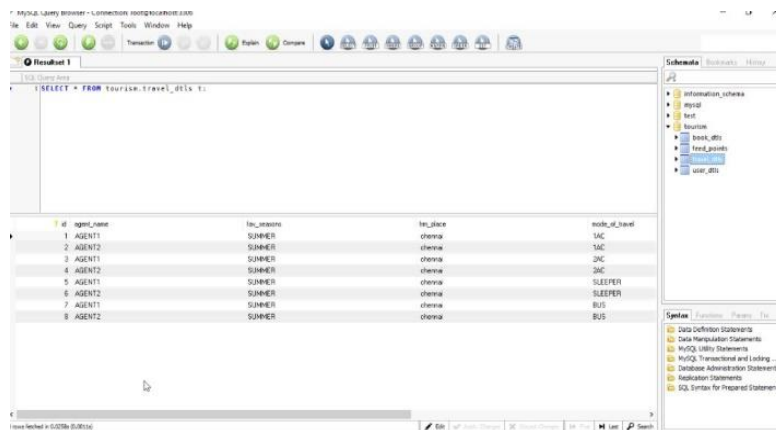


Figure 5 : Registration Details updated in Database

IMPERIAL HOTEL

HOME LOGIN REGISTRATION UPDATE

Registration Page:-

User Id

Password

Re-Password

Mailid

Mobile Number

Register

Figure 6 : Registration for Hotel Rooms

IMPERIAL HOTEL

HOME LOGIN REGISTRATION UPDATE

Update Details:-

Hotel Type: HIGH

Hotel Name:

Location:

Address:

Cost:

Submit

Figure 7: Updation of Hotel Details

Travelmate HOME BOOKING FEEDBACK LOGOUT

BOOKING

From:

To:

Departure:

Class:

Backstop Booking Finalize Booking

WE ARE PROVIDE

QUISQUE LECTUS IPSUM, FERMENTUM EU SODALES NON, AUCTOR IN MAURIS NULLA PRETIUM CURSUS NULLA, AC RUTRUM MAGNA LAOREET EU.

Maecenas ultricies molestie efficitur. Maecenas bibendum tristique nulla at scelerisque. Fusce sodales nibh et. Proin vel commodo neque. In congue neque ac venenatis aliquam. Sed vestibulum cursus velit faucibus tempus. Maecenas posuere pellentesque erat, vel auctor mauris fringilla ac. Proin euismod orci nec felis efficitur, a pulvinar nisi viverra. Etiam eu tribus posui, et molestie nunc.

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Figure 8: Ticket Booking Module



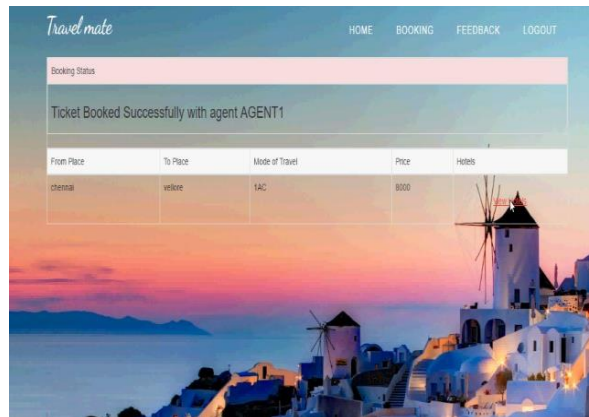


Figure 9: Successful Booking

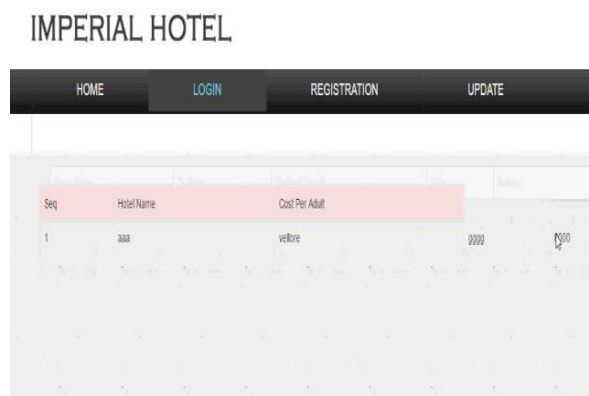


Figure 10: Allocation of Hotel Service

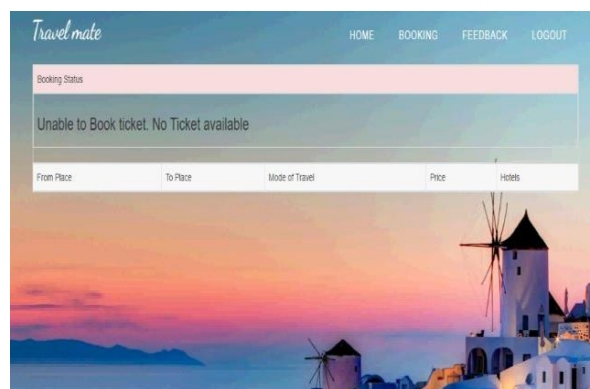


Figure 11: Unavailability of Tickets

line_id	mode_of_travel	price	agent_name	to_place
1	TMC	8000	0	veloka
2	TMC	8000	0	veloka
3	SIC	8500	0	veloka
4	SIC	8500	0	veloka
5	SLEEPER	7000	10	veloka
6	SLEEPER	7000	10	veloka
7	BUS	5000	10	veloka
8	BUS	5000	10	veloka

Figure 12: Availability of Tickets in Database

## 5. Conclusion

In this paper, an investigation is done in the matter of choosing Associate in Nursing optimum fault tolerance approach for building reliable service oriented models with native and international constraints. This paper combines the choice of atomic services at the side of associated fault tolerance methods to enhance responsible ness of ensuring service oriented system. This paper analyses the role in choosing the optimum fault tolerance approach as Associate in Nursing optimisation problem and a heuristic rule is proposed to expeditiously resolve the matter. The earlier efforts consider that tasks of a service arrange square measure freelance of every alternative and internet services is hand-picked individually for these tasks.

A reliable service minded system is built in comparison with the standard stand-alone system within the unpredictable web service and it conjointly a difficult task to create reliable we have a tendency to service. Within the planned system, the fault tolerance is discovered by victimization heuristic rule that is planned. There are two styles of methods active and passive methods and that the user demands as native and international constraints. Within the modification method, completely different services area are deployed. A tendency to deploy two bus reservation and two train reservation services in conjunction with building reservation service. User will select anyone of the bus reservation and specify their destination location. If corresponding destination is not out there then automatic backup service to a different bus reservation system is carried. If same the service is not out there then parallel service of train reservation is initiated. Automatic building reservation is additionally initiated supported the mode and sort of travel of the user.

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