

An Improved Banking System – Service Management

Mrs.Subhagriya.P¹ V.Vaishnavi² E.Bhuvaneshwari² P.Priyanka²

¹Associate Professor, Department Of Banking Technology, Pondicherry University, Puducherry.

²UG Student, Department of Computer Science Engineering, Sri Manakula Vinayagar Engineering College, Puducherry.

Abstract: In today's world services plays a major role in various organizations and business applications. For each and every process there is a service requestor and service provider. This in turn leads to service management. The concept behind this is providing the services based on priorities by using Service Level Agreement among the clients among the clients and the servers. It is used in various services like banking, airline, internet, corporate, railways, and libraries to communicate with each other and with clients. In this service Level Indications and Service Level Agreement are major one to be used. Most of the work tells that providing service to the client at the time of indication which decreases the availability and reliability of services. Due to this process and the task can be terminated which leads to Service outages. The idea behind our work is to improve the effectiveness of service provided to the client based on contractual instruments such as Service Level Agreement (SLA), Operational Level Agreement (OLA) and underpinning contracts (UC). Our proposed system is based on allocating priority during SLAs by decreasing the outages, Shorter outages are preferred than fewer in order to minimize variance. Therefore, availability and reliability are improved.

Keywords: SLA, SLI, availability, web service, client, service.

1. INTRODUCTION

A method of communication between two electronic devices over the World wide is called Web service. It is another important concept in utility computing to describe the services provided by the web based on the request and response service mechanism. W3C defines a "web service" as a Software system design to support interoperable machine-to-machine interaction over a network. By involving two or more services coordinating some activity or by simply passing the information the communication are involved between the services.

The Service management is focused on managing various services. It aims in providing high availability, reliability of services. The majority of Service Management publishing is focus on the multiple business services implementation. They were introduced to provide service dynamically. It is a process-based practice intended to deliver the information

technology services with needs of giving importance to the benefits to customers.

The structure of the paper is organized in the following manner. The chapter 2 contains the detailed description about web services and its major features and characteristics. Chapter 3 deals with service management, significant role of service management in web services and types of Interactions involved. The chapter 4 contains existing system and work done so far in that system. Finally chapter 5 contains our proposed system named as improved Banking system for providing services with high availability.

2. WEB SERVICES

Web services helps in various business applications, educational services and various internet services which allows different users to involve in the same environment. There are innumerable advantages and these software tools are moving towards the more advanced technology. In this business world web services is assured as a promising growth area. Web services allow organizations to easily communicate with their business clients, both internally and over the Internet. They can create various profitable methods such as cost-effective, flexible for conducting B2B transactions. Figure 1 shows the basic model of web services and its basic Components.

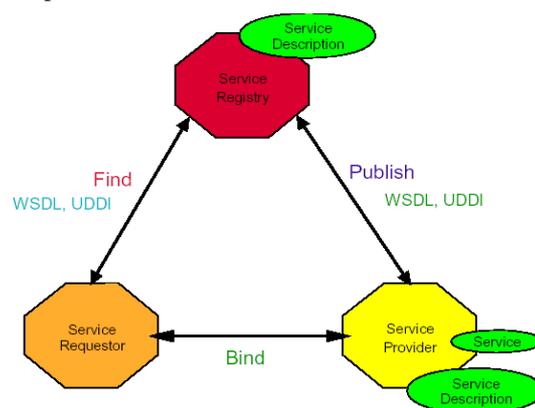


Fig1. Architecture of web services

By using web service architecture, communication of software components takes place between each other without knowing their technical details. By referring various definitions we infer that, there are four particular components as follows.

Service Requestor: The service requestor will search the service in registry after finding them. They send request to service provider for providing those services and they get services from other components by requesting them.

Service Contract: The service consumer identifies the services from the service provider by getting permission from the service contract. The functionalities of service provider can be accessed using this contract. It sends the details to consumer about the format of request to acceptable.

Service Provider: The service provider is a network-accessible application. This application publishes the services on the service registry and provides the requested services to the service consumer.

Service Registry: It stores the service contracts in the registry which is obtained by the service provider and identified by the service consumers. There are two types of service public and private service. Public service allowed used over Internet. Only limited role based consumer uses Private Service.

2.1 Features of web services

Every system as new advanced techniques developed by the designers. Web services system architecture consists of these features

- Self contained
- Self describing
- Published
- Located
- Reusable.
- Network-addressable interface.
- Interoperability.
- Stateless.
- Coarse-grained interfaces.
- Loosely coupled.
- Management of services

Apart from these many characteristics are available. To make any web services reliable the important character needed is service Management. Since various services are requested by clients there are possibilities of service unavailability. In this paper we mainly focused on the role of service management in a banking application to provide the requested services efficiently.

3. SERVICE MANAGEMENT

Services represent the common functionalities required by different applications they are self-built and reusable. Services are expected to be platform-independent. This feature allows the enterprises to satisfy the business processes by managing existing web services, which is offered by different providers. An XML based language called WSDL provides the descriptions for the services. There arises a need of managing

the web service. A new standard is introduced to provide dynamic service management. Service Management is a process-based practice intended to align the delivery of information technology services with needs of the enterprise, giving importance to the benefits to customers. ITSM involves a managing IT as a number of individual components of focus on the delivery of end-to-end services using best practice process models. Service management is an intermediate between the client and the server. The aim is to provide high performance and optimize the complexity problems. This provides more advanced information about the service request and service flow. The inconsistent and uncertain demand services are managed. The various challenges in providing services include Defining and improving quality of services, accommodating fluctuating demand and Ensuring the delivery of consistent quality of services. If we want to develop a new enterprise – it should comprise of enormous service management techniques and satisfy the traditional roles associated with these terms.

Service management provides the benefits such as: Less investment and utilization-growth and value. Involves optimization of available funds and avoiding unnecessary expenditures-budget adherence which involves identifying and evaluating the consequences of risks taken or avoided-risk impact which involves examining customer feedback and fulfilling the customer satisfaction-Communication effectiveness.

- **Faster time to market:** The services are available at many levels along with a technique for administering them that allows the new services and solutions can be developed with minimum time and less effort.
- **Improved audit ability and security:** The service management represents basic services and it provides easy way of managing service invocation contracts and permitting the access to the component services.
- **Improved modifiability:** If any changes done on the services the particular implementation are made available to all clients using this service.

Service Management is mostly used for more software development process and it increases the growth value by lowering its risk and also the customer satisfaction. It is used in the area like Management, Hospital, Bank, Airline, etc .So, we are going to develop an enhanced banking interface by managing the various services dynamically by taking the following scenario. In this paper, we are using service management technique to manage many banking services to avoid difficulties faced by the client. He / She can request for particular service and transact the amount between two or more accounts. Customer can get the requested service when it is available ,in case insufficient services they are given based

on the priority of the users on agreements with the banks in which he/she has the account. These are all the services we are providing to client in single interface with single username and password.

4. EXISTING SYSTEM AND ISSUES

The existing system deals with a banking system in which services are provided based on the request. They proposed a system where the users can get into bank with security elements like username, password. By using this things user allows to get information of different services of the bank which user has provision of online banking system. The architecture of Existing system is consists of Server which is responsible for providing various banking services to various users at a time for remote user authentication, numerous database, mobile service provider and mobile device. Initially server will verifies the customer and then it provides the services to the user. Else illegal/unknown user will access the information. So, the server should give alert to user and bank that some illegal user is accessing. Here various users from various ends can able to communicate with authentication server. Remote Authentication Server plays a major part in authentication. Only if the username and password are matched, the database present in the database server can be accessed. By using the combination of algorithms and some set of programs information are matched. After verifying only it will allow the user to access database else he/she will be blocked. Now this database consists of b username and various details of the user etc., and this makes the transaction to happen between authentication server and banks.

4.1. Interfaces of the Existing System

Initially using registration server user will register his/her personal details for storing in a database. After providing the required details they are provided with user identification and secure password for the user. After this they provide some services to select by the user. Then the user has to provide the biometric. Then have to insert the given card in a secure card reader and the retrieved data is providing to the server, the encryption function will encrypt the data. This encrypted data will pass to the verification server. As soon as it received it perform the identical operation for the received data. If the data is same, then verification code will be created and dispatch to the user, else verification failed or other error message will be sent.

4.2. Modeling the Process

The modeling phase has divided into two processes:

1. Registration phase
2. Login phase

Registration phase poses the details about the user where as the login phase allows the user to access the services

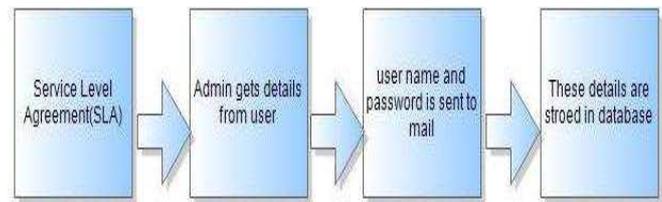


Fig. 2. Modeling of Registration Phase

Figure 2 shows the Registration Phase will contain these steps that are involved:

- Step 1.** Administrator server receives documents and understands the particular request.
 - Step 2.** After verifying all the details Administrator accepts password and user identification.
 - Step 3.** Administrator gets the authentication from user.
 - Step 4.** Then initial details were verified by the administrator.
 - Step 5.** The mail with username and password is sent to user.
 - Step 6.** The SLA agreement is created and documents were managed.
 - Step 7.** Gathered details will be saved in the database table.
 - Step 8.** Important details are written on smart card after compositions.
 - Step 9.** The customer will receive the user id and password.
- In the login phase the following steps would be taking place:

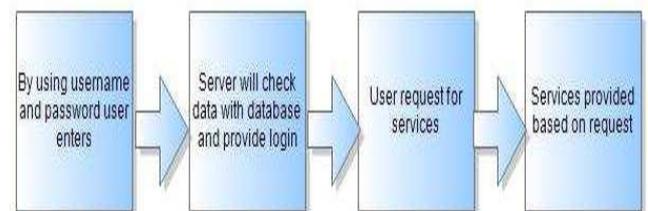


Fig.3. Modeling of Login Phase

- Step 1.** Initially users enter the user name, password and then submit to the remote authentication server.
- Step 2.** By using the interface user provides the information's.
- Step 3.** User puts his username and password.
- Step 4.** Using the encrypting device the captured data is encrypted and provided to server.
- Step 5.** The necessary action done by the server.
- Step 6.** Server verifies that the data are correct it generate the 6 digit authenticated tan number and send to user
- Step 7.** By using this tan number and username user can access the data.
- Step 8.** User can't able to access services directly because it will check for authentication for user and then user can able to access his/her accounts.

In Existing system it describes only about the security given to secure the user details. Security gives to data given by the user during registration phase. For security they have used the biometric device such as thumb impression, and image capture. For login purpose they used card reader. In our proposed system we are going to add few more services like dynamic composition of detecting and transacting money from various banks to other banks and also to the client requested account.

5. PROPOSED SYSTEM

In Today's world online-banking plays a major role. Each and Every user uses online banking services. The various services are provided to the user based on their service request. When users request for a service they are authenticated with user name and password. In this way when many user request for a service at a same time there may be delay in providing the services. In this paper we proposed an enhanced banking model with advanced reliability and availability by which services are provided based on the Service Level Agreement (SLA). When multiple user request for the same service which is not available, it will lead to deadlock. When a service level indication of the new user comes first than the initially registered user may lead to starvation. This results in outages. The aim of this Banking Interface is to increase the availability and reliability of providing services. This interface is designed in such a way that corporate and individuals are authenticated separately. The corporate are given higher priority as they visited regularly. The availability of services is managed using Prudent Decision making and nonlinear hourly outage cost strategies. Prudent Decision making is used to make optimal decisions. Lowest net cost is chosen between the alternatives based on the minimized net cost without considering the variance and considering the worst outcome among the alternatives we minimize the maximum net cost. By using this interface several transactions can be done at the same time. We are providing various services like loan which include educational, home, vehicular loans. Customers who are requested for loan service are given priority based on transactions; deposit and SLA were also taken into consideration. Fixed deposit service is also provided and the interest of amount are calculated periodically and credited to the account. During the agreement email are sent to the user for notification. In case of debt, periodical reminders were sent. For every transaction SMS alerts are notified. In addition to this when n number of users request for same service at a time they are provided where as when more than n user request for the same service they are given based on the priority. At this stage the lower priority are shown with service under maintenance. Priorities plays a major role in availability of services for the users were generated based on their type, transactions made and number of times they visited.

5.1 Process involved in proposed system

- Step 1.** The SLA agreement is made between the user and administrator by collecting the details of the user.
 - Step 2.** The user Id and password is maintained by the administrator by storing them in database.
 - Step 3.** A priority number is generated for each agreement and is send to user's mail id.
 - Step 4.** The user enters in to the integrated environment by using this user name and password.
 - Step 5.** The various operations that a user can perform are
 - a) Transaction process
 - b) Transaction history
 - c) Loan
 - d) Insurance
 - e) Billing process
 - f) Fixed deposit
 - Step 6.** In transaction process he/she can allow to transfer his/her money to other users.
 - Step 7.** The minimum of 10 transactions can be seen in transaction history.
 - Step 8.** In loan process user can request for
 - a) Education loan
 - b) Home loan
 - c) Vehicular loan
 - Step 9.** These loans are provided to the user based on their priority, SLA, number of transactions they made.
 - Step 10.** The insurance are managed and SMS alerts are sent to user periodically.
 - Step 11.** The billing process includes paying of basic bills like electricity, telephone.
 - Step 12.** In fixed deposit the interest is calculated and it is added to the account automatically and details will be notified to the user.
- **Authentication & verification Process:** Here username and password are verified before entering to the interface. If username and password is wrong then it will give the error message.
 - **Services:** Here various services are created and added. User request for a service and the services are provided by the server. The various services included are
 1. Transaction
 2. Loan
 3. Fixed deposit
 4. insurance
 - **Verification:** Bank will verify the query that enters to bank server for security purpose.
 - **Database:** Both administrator and bank will contain the database for storing the data.
 - **SLA: Service Level Agreement**

This is an agreement between the user and the service provider. The contract is made between them about the users details along with various services requested and the services given are recorded. This agreement maintains details of the

activities made by the user and when the services are disconnected.

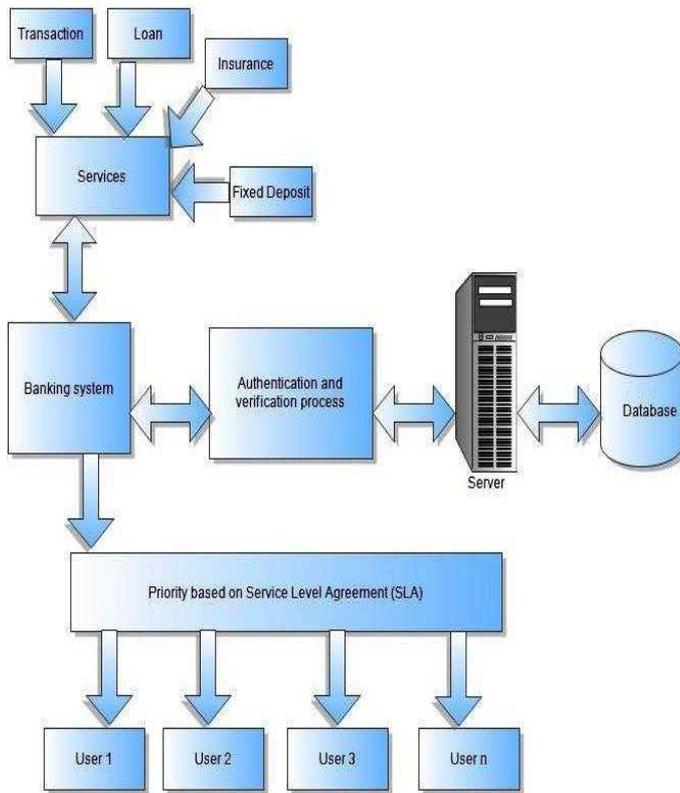


Fig. 4. Architecture of banking system.

Comparison with service management and without service management in internet banking scenario.

Scenarios	With service management	Without service management
Reliability	Available	Not Available
Availability	More	Less
Time complexity	Less	More
Login complexity	Less	More

CONCLUSION& FUTURE WORK

Our banking system provides a solution to the user to access services anytime they need. If the client needs one more services he/she can request for any time. These services are provided based on the priority generated based on the Service Level Agreement. Nowadays various sectors like Internet banking, electronic-billing in various sectors etc., are facing the security problem regarding in several perspectives like in

transaction and database related query and responsiveness. We introduced an enhanced Banking System for the user to access more than one services by improving the availability of services. Future By doing this service management, security and interoperability are two main features to focus on when combining more number of business application services.

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