Comparative study of mechanisms for discovering the most appropriate web service and proposing an efficient web service discovery mechanism

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Appendix – I

Glossary of relevant terms

- **Web Service**: A Web service is a reusable software component designed to support interoperable machine-to-machine interaction over a network.

- **RPC**: Remote Procedure Call (RPC) is a protocol that one program can use to request a service from a program located in another computer in a network without having to understand network details.

- **SOA**: Service Oriented Architecture (SOA) is an application architecture in which all functions, or services, are defined using a description language and have invokable interfaces that are called to perform business processes.

- **DCOM**: Distributed Component Object Model (DCOM) is a proprietary Microsoft technology that allows Component Object Model (COM) software to communicate across a network.

- **CORBA**: Common Object Request Broker Architecture (CORBA) is a specification developed by the Object Management Group (OMG) which describes a messaging mechanism by which objects distributed over a network can communicate with each other irrespective of the platform and language used to develop those objects.

- **UDDI**: Universal Description Discovery and Integration (UDDI) is a set of specifications defining a registry service for Web services and for other electronic and non-electronic services. A UDDI registry service is a Web service managing information about service providers, service implementations and service metadata. Providers advertise their Web services on the UDDI registry. Consumers then use UDDI to discover Web services suiting their requirements and obtain the service metadata needed to consume those services.
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- **WSDL**: Web Services Description Language (WSDL) is an XML-based language that describes Web services and their uses. It describes the abstract functionality of a service and provides a framework for describing the concrete details of a service description.

- **SOAP**: Simple Object Access Protocol (SOAP) is a protocol for implementing Web services. SOAP allow communication via the Internet between two programs, even if they run on different platforms, use different technologies and are written in different programming languages.

- **QoS**: Quality of service which specify the non-functional properties of service.

- **ebXML**: Electronic business extensible markup language (ebXML) is an extensible markup language used to perform electronic business over the web. Enterprises conduct standard business by using ebXML over the Web through exchanging business messages, conducting trade relationships, communicating data in common terms and defining and registering business processes.

- **businessEntity**: A businessEntity entity contains descriptive information about a business or organization.

- **businessService**: A businessService contains descriptive information about a group of related technical services including the groupname, description and category information.

- **bindingTemplate**: A bindingTemplate contains information needed to invoke or bind to a specific service including the service URL, routing and load balancing facilities.

- **tModel**: A tModel is used to represent technical specifications such as service types, bindings and protocols. Also used to implement category systems that are used to categorize technical specifications and services.
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Appendix – II

jUDDI database ERD
Appendix – III

Pilot Study Questionnaire

Questionnaire – 1

Questionnaire on the Quality of Web Services from Service Engineer’s perspective

Based on your experiences as a service engineer who needs to find appropriate web services available over the internet, while designing and developing software applications, please provide information on how you perceive the quality of service you use in comparison to your expectations.

1. How many years have you been with the organization?
   - Less than a year
   - 1 - 3 years
   - 4 - 6 years
   - More than six years

2. What is the employee strength of your organization?
   - Less than 100 employee
   - 100 - 500 employee
   - 501 - 1000 employee
   - More than 1000 employee

3. Your organization is providing services in which domain?
   - Retailing
   - Tourists and Traveling
   - Healthcare
   - Insurance
   - Banking
   - Any other, please specify ________________________________

4. Has your organization adopted web services?
   - Yes
   - No
5. Adapting web service has reduced the cost of developing an application.
   - [ ] Strongly Disagree
   - [ ] Disagree
   - [ ] Agree
   - [ ] Strongly Agree

6. Applications are developed in-house and not outsourced from other company.
   - [ ] Yes
   - [ ] No

7. How many hits does your website record in a day?
   - [ ] Above 10000
   - [ ] Between 5001 - 10000
   - [ ] Between 1000 - 5000
   - [ ] Below 1000

8. How frequently customers complaint of slow response while performing transaction through your system?
   - [ ] Often
   - [ ] Sometimes
   - [ ] Rarely
   - [ ] Never

9. How frequently customers complaint of ‘Service temporarily unavailable’ issue through your system?
   - [ ] Often
   - [ ] Sometimes
   - [ ] Rarely
   - [ ] Never

10. How frequently customers complaint of ‘Transaction not completed successfully’ issue through your system?
    - [ ] Often
    - [ ] Sometimes
    - [ ] Rarely
    - [ ] Never
11. How frequently customers complaint of ‘System is too slow’ issue?
   - Often
   - Sometimes
   - Rarely
   - Never

12. An average cost of web service integrated in an application is acceptable as compared to developing the whole application.
   - Strongly Disagree
   - Disagree
   - Agree
   - Strongly Agree

13. Suggestion if any –

   Name of Company:

   Your Name:

   Designation
Questionnaire – 2

Questionnaire on the Quality of Web Services from Service Consumer’s perspective

Based on your experiences as an end user who uses online services available over the internet, please provide information on how you perceive the quality of service you use in comparison to your expectations.

1. For What purpose/purposes, you have used online services available over the internet from the following?
   - □ Shopping Books, CDs, Cloths, Footwear etc.
   - □ Railway Ticket Booking
   - □ Air Ticket Booking
   - □ Bus Ticket Booking
   - □ Internet Banking
   - □ Payment Gateway

2. How frequently you use online services available over the internet?
   - □ Daily
   - □ Weekly
   - □ Monthly
   - □ Rarely
   - □ Never

3. Are you happy with online services available over the internet?
   - □ Yes
   - □ No
   - □ Can’t Say

4. Which websites you prefer for using online services?
   - □ www.amazon.in
   - □ www.easybillindia.com
   - □ www.makemytrip.com
   - □ Bank Portals
   - □ Any other, please specify ____________________________________________
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5. The response time of the most recent online services used by you was low.
   □ Strongly Disagree
   □ Disagree
   □ Agree
   □ Strongly Agree

6. While evaluating your most recent online service experience, the success rate of completing the transaction was high.
   □ Strongly Disagree
   □ Disagree
   □ Agree
   □ Strongly Agree

7. While evaluating your most recent online service experience, you find that online services were always readily available.
   □ Strongly Disagree
   □ Disagree
   □ Agree
   □ Strongly Agree

8. The charges incurred for using online services are nominal.
   □ Strongly Disagree
   □ Disagree
   □ Agree
   □ Strongly Agree

9. Rate the following parameters for online service selection on the scale of 1 to 5
   (1 – Least significant, 5 – Most significant).

   1. Response Time  1  2  3  4  5
   2. Reliability     1  2  3  4  5
   3. Availability   1  2  3  4  5
   4. Throughput     1  2  3  4  5
   5. Price          1  2  3  4  5
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10. Do you want to give equal weightage to all the parameters for service selection?

- Yes
- No
- Can’t Say

11. Suggestion if any –

___________________________________________________________________

Name :

Gender : □ Male   □ Female

Age :

Qualification :

Profession :

Thank you for your feedback. I sincerely appreciate your honest opinion.
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Appendix – IV

Research Paper Repository

- Published a paper in International Journal of Computer Science and Application, ISSN 0974-0767, Issue-III, December 2012 Edition on "Assessment of UDDI and ebXML Registry for e-Business Application".

- Published a paper in International Journal of Computer Applications, ISSN 0975-8887, January 2011 Edition on “Comparative Study of mechanisms for Web Service Discovery based on Centralized approach focusing on UDDI”.

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- Published a paper in “International Journal of Computer Science and Communication Volume-I, Number-II of September 2010”, ISSN 0973-7391 on “Ranking Web-services based on QoS for best-fit search”.

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