

Selection of Web Services Based on Provider's Reputation

M.Mohammed Sha, K.Vivekanandan

Abstract— Web services are being considered an excellent tool to solve distributed computing challenges in business integration. Business-to-business integration has become a critical issue as organizations find a greater need to consistently interact with new partners in a global business environment. Picking a service of an organization from the services having similar properties, capabilities, interfaces, and effects is a difficult task and necessitates the use of an intelligent decision making system. So the quality related aspects are also considered for the selection of a best service. Measuring the QoS of a web services for a customer is not an easy task. Selection based on Non- Functional parameters is always be a wrong choice because of false projection and advertisement by the service providers. Here, the challenge is to check the actual reputation for the service provider. In this paper, we are proposing a method to measure the actual reputation of a services provider by considering various reputation measures of few reputed service providers.

Index Terms—Web Service, Service Provider, QoS, Reputation.

I. INTRODUCTION

Web services are developed and published by the service provider and are consumed based on customer's functionality requirement. To select a best one among the web services with the same functionality, a method for trust and reputation management is needed [9]. Most people think that the provider's reputation is based on customer feedback. Even though, it is true in some cases it does not fulfill the customer requirements. So, if a customer wants a web service in any field that satisfies the user, first of all they have to concentrate on information gathering regarding that particular web service provider. It is also an important issue for service composition as some of services may not provide what they promised. The reputation management is an assessment on a web service based on the customers' own experience and recommendations from others using the same type of functionality web services. The reputation of a web service represents a general opinion about how good a service has been rated based on its various characteristics [7]. This paper proposes a reputation evaluation method for web services based on the measures that indicate the reputation of the provider. For this evaluation the Weights are assigned to the factors line life span, financial status, success rate, etc...that improve the trust worthiness and reputation of a service provider.

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II. FACTORS THAT INFLUENCE THE REPUTATION OF A WEB SERVICE PROVIDER

A. Life Span

The life span of a particular web service reveals that they can able to withstand in the market place by attracting their target customers. This shows that they are still in the minds of customers. In this paper we have considered the top 10 web service in order to analyze the reputation. The life span of a chosen 10 web service is living in online sector about 7-33 years.

B. Financial Status

Starting a business is easy. People do it every day. Maintaining a business, keeping it strong and making wise financial decisions is quite a bit more difficult. According to some research, 50 percent of new businesses will fail within their first five years of operation, and 70 percent will flop within 10 years. There are many reasons for these failures, but one area that most businesses desperately need to consider is following best practices for financial growth [1].

The more balance of cash in the account, the more healthy the person financially, and the more trustworthy is the organization. The business progress depends upon the financial status of a company.

C. Branches

A company expands its business by opening up its branch offices in various parts of the domestic country as well as in other countries. A branch office refers to an establishment which carries on substantially the same business and activity as is carried out by its Head Office. Such offices help the company in:-

- i. Spreading its business to diverse locations and thus increasing the customer base
- ii. Bringing its product closer to the customers by increasing their accessibility to it
- iii. Making the distribution and marketing of its goods and services easier and more effective.

In other words, branch offices help in expanding the size of the market for a company's product by attracting more customers; widening the scope of its trading and manufacturing activities as well as bringing more opportunities and opening unexplored avenues for it. Thus, these offices help to fuel the growth of the company and enhance its profitability on a sustained basis.

D. Employees of an Organization

The human resources are the most important assets of the organization. The success or failure of an organization is largely dependent on the caliber of the people working therein.



Without positive and creative contributions from people organizations cannot progress and prosper. In order to achieve the goals or perform the activities of an organization, therefore we need to recruit people with requisite skills, qualification and experience. While doing so, we have to keep the present as well as the future requirements of the organization.

E. No. Of Services

A company's reputation is only as good as the customer service it provides. Please a customer and your client base will swell with relatives and neighbors who catch wind of your top-notch representatives. But upset one, and brace yourself for disaster. The experience that individuals have with a company and then what they hear from friends and family influence their perception to do business with a company. Though a teetering economy may tempt executives to cut corners, improving service is your best chance for survival. "Companies of any size should understand what the customer experience is," Fromm stresses that companies should streamline their resources without sacrificing the essentials. "Understand what's important to customers. Speed and availability of service are universal truths."

F. Brand Value

A brand is a symbol. Symbols are designs which represent something else, and a brand is meant to package all of the associations, experiences and characteristics into an abstract construct. Brand Values are the code by which the brand lives. The brand values act as a benchmark to measure behaviors and performance [1].

G. Success Rate

The achievement of something desired, planned, or attempted is called a success. It reveals that to have direct influence on the customer satisfaction with the service provider. This parameter is successful to measure the service company's growth.

H. Advertising

Advertising or advertizing is a form of communication for marketing and used to encourage or persuade an audience (viewers, readers or listeners; sometimes a specific group) to continue or take some new action. Most commonly, the desired result is to drive consumer behavior with respect to a commercial offering, although political and ideological advertising is also common.

The purpose of advertising may also be to reassure employees or shareholders that a company is viable or successful [4]. Advertising messages are usually paid for by sponsors and viewed via various traditional media; including mass media such as newspaper, magazines, television commercial, radio advertisement, outdoor advertising or direct mail; or new media such as blogs, websites or text messages.

Commercial advertisers often seek to generate increased consumption of their products or services through "branding," which involves associating a product name or image with certain qualities in the minds of consumers. Non-commercial advertisers who spend money to advertise items other than a consumer product or service include political parties, interest groups, religious organizations and governmental agencies. Nonprofit organizations may rely on free modes of persuasion, such as a public service announcement

III. EVALUATION OF REPUTATION

The reputation of a web service represents a general opinion about how good a service has been rated based on its various characteristics [8]. Always the reputation of a web service depends on the reputation of Service Provider. To analyze the service provider reputation, we have collected the details of reputed web service companies based on eight different parameters namely, Year, Financial Status, Branches, Employees, No. of service, Brand Value, Success rate & Advertising [10]. Here we are proposing a reputation system based on the measures that improve the reputation of a company.

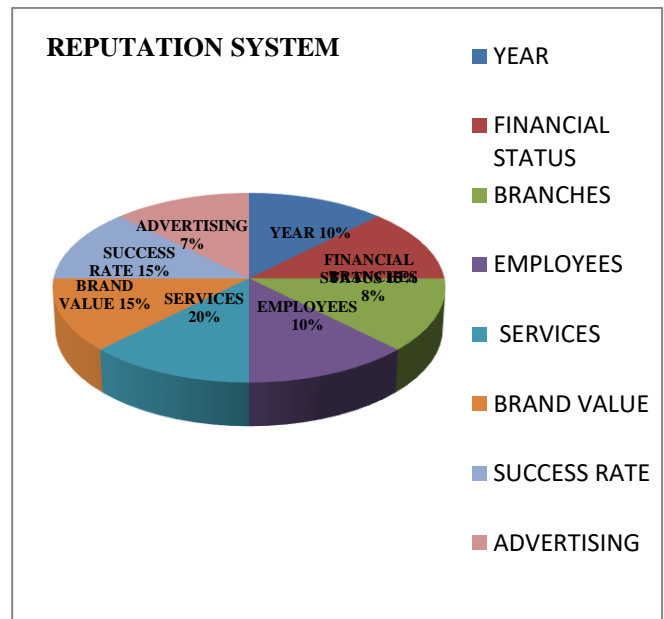
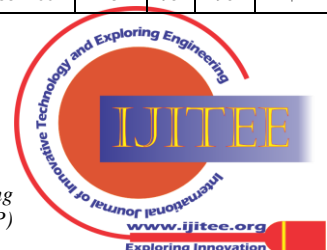


Fig. 1 Reputation System

The measure that taken into consideration for reputation is normalized to the values between [0,1]. The overall reputation can be calculated by Reputation of a Company = Measure that influence the Reputation x Weight of each factor in the Reputation System. Here the measures that influences the reputation of the companies that mentioned are collected from their official web sites and the other relevant sources available on internet. The values are then normalized to the value in between [0,1] and multiplied with the weight assigned for each factors that are considered in the proposed reputation system. The aggregate value of all the measure will result the overall reputation of Service Provider.

Table I. Measures that influence the Reputation of a Provider

Companies	Year	Financial Status (\$ billion)	Branch	Employees	No. of service	Brand Value(%)	Success Rate(%)	Advertising(billion)
Oracle	1977	200	2855	554166	1134	95	98	\$ 2



Google	1995	180	2800	521388	1062	93	96	\$ 1.5
IBM	1911	176.91	450	433362	1041	91	95	\$618.5
Microsoft	1975	73.72	350	124050	879	90	93	\$ 1.6
OASIS	1991	62.5	324	125000	852	96	91	\$37
Amazon	1994	60.07	318	61100	833	94	90	\$ 1.8
Flipkart	2007	50.5	287	51234	812	90	95	\$ 4
Linkedin	2003	500	4000	136500	781	85	85	\$3650

The normalized values for all the eight parameters of the companies for ranking the reputation based on different parameters are shown below.

Table II. Normalized values of Reputation System

Companies	Year	Financial Status	Branch	Employees	Services	Brand Value	Success Rate	Advertising
Oracle	0.31	1.00	0.69	1.00	1.00	0.91	1.00	0.10
Google	0.13	0.90	0.68	0.93	0.80	0.73	0.85	0.02
IBM	1.00	1.00	0.40	0.76	0.74	0.55	0.77	0.13
Microsoft	0.33	0.37	0.20	0.14	0.28	0.45	0.62	0.04
OASIS	0.17	0.31	0.10	0.15	0.20	1.00	0.46	1.00
Amazon	0.14	0.30	0.01	0.20	0.15	0.82	0.38	0.10
Flipkart	0.10	0.25	0.02	0.10	0.09	0.45	0.77	0.70
Linkedin	0.04	0.02	1.00	0.17	0.20	0.10	0.20	0.60

Table III. Reputation (Influence Factor) of Companies

Companies	Year	Financial Status	Branch	Employees	Services	Brand Value	Success Rate	Advertising
Oracle	0.03	0.15	0.06	0.10	0.20	0.14	0.15	0.01
Google	0.01	0.13	0.05	0.09	0.16	0.11	0.13	0.01
IBM	0.10	0.15	0.03	0.08	0.15	0.08	0.12	0.01
Microsoft	0.03	0.06	0.02	0.01	0.06	0.07	0.09	0.01
OASIS	0.02	0.05	0.01	0.01	0.04	0.15	0.07	0.07
Amazon	0.01	0.04	0.01	0.02	0.03	0.12	0.06	0.01
Flipkart	0.01	0.04	0.01	0.01	0.02	0.07	0.12	0.05
Linkedin	0.01	0.01	0.08	0.02	0.04	0.02	0.03	0.04

The overall reputation is calculated from the above table and is shown in the following graph.

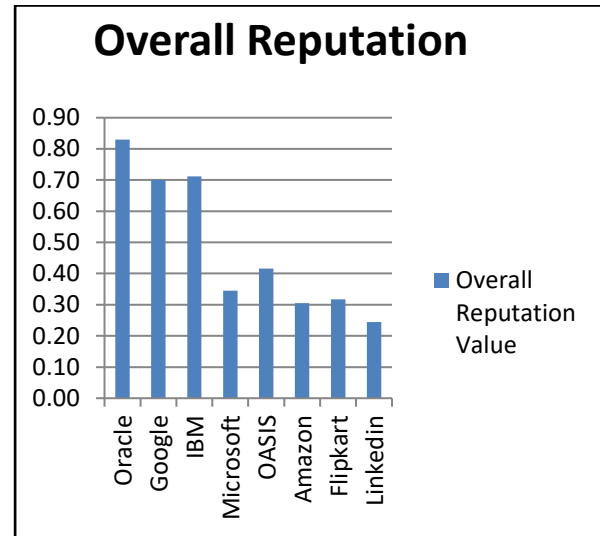


Fig. 2 Comparative Reputation of Providers

IV. CONCLUSION

This paper proposes a method for trust and reputation based web service selection of a service provider. The feedback mechanism from the user and false rating by the provider leads to confusion and always creating problems in reaching customers requirement. So the Trust and reputation management for service provider plays an important role in trustworthiness evaluation. Here the estimation of service's trustworthiness based on history information and the actual measures that influence the provider reputation. The experimental results have shown that the proposed method overcomes the dependency of users' feedback, and it also dynamically determines the reputation values of web services. This approach overcomes the limitations of existing models that evaluate the reputation focusing on satisfying users preferences on different QoS attributes and assessing rater credibility in an appropriate way. The experimental result shows that the proposed model can provide good results so that the consumer can select the best web service that suits its requirements.

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Publications :

- [1] Automatic Pricing of Web Services Based on QoS, International Journal of Engineering Research & Technology (IJERT)
ISSN: 2278-0181, Vol. 1 Issue 10, December- 2012
- [2] WSLA Based Dynamic Monitoring and Pricing of Web Services, International Journal of Scientific & Engineering Research, Volume 4, Issue 1, January-2013, ISSN 2229-5518



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