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Cloud Computing Based Transactions and Services

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ABSTRACT: this paper presents new approach cloud computing based transactions and services. The proposed numerical results analysis of cloud computing for transactions and services approach is based on e-commerce computational model. In this paper we have used transactions and services calculations for cloud computing results. The experimental results are evaluated using the numerical computing MATLAB 7.14. The Experimental results show the proposed approach optimistic solution for business growth.

Keywords: Cloud, Transactions, Services, commerce and security.

I. INTRODUCTION

There are many cloud computing services provider based on: Accountability, Agility, Assurance of Service, Performance, Security, Cost, Privacy, and Usability show in figure 1.

M. Cusumano, Cloud computing and SaaS as new computing platforms[9], W. Sobel, S. Subramanyam, A. Sucharitakul, J. Nguyen, H. Wong, S. Patil, A. Fox, D. Patterson, Cloudstone: multi-platform, multi-language benchmark and measurement tools for web 2.0[1]. Saurabh Kumar Garg, Steve Versteeg, Rajkumar Buyya :A framework for ranking of cloud computing services [24], R. Buyya, C. Yeo, S. Venugopal, J. Broberg, I. Brandic, Cloud computing and emerging IT platforms: vision, hype, and reality for delivering computing as the 5th utility[10]. R. Calheiros, C. Vecchiola, D. Karunamoorthy, R. Buyya, The Aneka platform and QoS-driven resource provisioning for elastic applications on hybrid Clouds [23].

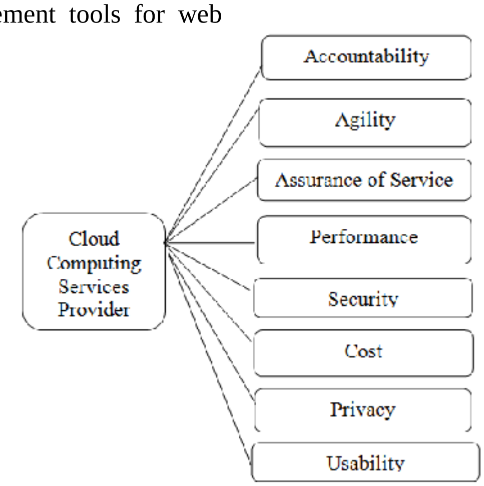

Fig.1. Cloud Computing Services Provider.

R. Ramanathan, A note on the use of the analytic hierarchy process for environmental impact assessment[17]. D. Menascé, TPC-W: a benchmark for e-commerce[4], J. Varia, Best practices in architecting cloud applications in the AWS cloud[7], J. Cochrane, M. Zeleny, Multiple Criteria Decision Making[5], E. Ciurana, Developing with Google App Engine[8]. A. Iosup, S. Ostermann, N. Yigitbasi, R. Prodan, T. Fahringer, D. Epema[11], J. Figueira, S. Greco, M. Ehrgott, Multiple Criteria Decision Analysis: State of the Art Surveys[18], J. Schad, J. Dittrich, J. Quiane-Ruiz, Runtime measurements in the cloud: observing, analyzing, and reducing variance[13].

M. Zeleny, Multiple Criteria Decision Making[20],V. Tran, H. Tsuji, R. Masuda, A new QoS ontology and its QoS-based ranking algorithm for web services[15], C. Binnig, D. Kossmann, T. Kraska, S. Loesing, How is the weather tomorrow?: towards a benchmark for the cloud[2].

T. Saaty, Theory and Applications of Analytic Network Process [16], J. Dyer, Mautmultiattribute utility theory, Multiple Criteria Decision Analysis: State of the Art Surveys [19]. A. Li, X. Yang, S. Kandula, M. Zhang, CloudCmp: comparing public cloud providers [21], B. Cooper, A. Silberstein, E. Tam, R. Ramakrishnan, R. Sears, Benchmarking cloud serving systems with YCSB [3]. A. Iosup, N. Yigitbasi, D. Epema, On the performance variability of production cloud services [12], S. Oh, H. La, S. Kim, A reusability evaluation suite for cloud services[22]. D. Kossmann, T. Kraska, S. Loesing, An evaluation of alternative architectures for transaction processing in the cloud[6], J. Karlsson, K. Ryan, A cost-value approach for prioritizing requirements[14]. The paper is shows in Section-I described the introduction and review of literatures. In Section-II, Calculation for cloud computing services provider is described. In Section-III, Methodology of cloud computing services provider is described. In Section-IV, Experimental results are described.

II. CALCULATIONS FOR CLOUD COMPUTING SERVICES PROVIDER

Cloud computing services provider accuracy indicator is the accuracy value which is defined by:

$$\sum_i \frac{(\alpha_{t-} \alpha_i)}{\alpha_i T_i}$$

Where can be computational, network or storage unit of the service and is service time for user [24].

III. METHODOLOGY

In Cloud computing services provider different methods are used. These methods cloud computing services provider are[24]:

A. Accountability: This group of QoS attributes is used to measure various Cloud provider specific characteristics. This is important to build the trust of a customer on any Cloud provider.No organization will want to deploy its applications and store their critical data in a place where there is no accountability of security exposures and compliance. Functions critical to accountability, which SMI considers when measuring and scoring services, include auditability, compliance, data ownership, provider ethicality, sustainability, etc [24].

B. Agility: The most important advantage of Cloud computing is that it adds to the agility of an organization. The organization can expand and change quickly without much expenditure. Agility in SMI is measured as a rate of change metric, showing how quickly new capabilities are integrated into IT as needed by the business. When considering a Cloud service's agility, organizations want to understand whether the service is elastic,portable, adaptable, and flexible[24].

C. Assurance of Service: This characteristic indicates the likelihood of a Cloud service performing as expected or promised in the SLA. Every organization looks to expand their business and provide better services to their customers. Therefore, reliability, resiliency and service stability are important factors in selecting Cloud services[24].

D. Performance: There are many different solutions offered by Cloud providers addressing the IT needs of different organizations. Each solution has different performance in terms of functionality, service response time and accuracy. Organizations need to understand how their applications will perform on the different Clouds and whether these deployments meet their expectations[24].

E. Security and Privacy: Data protection and privacy are important concerns for nearly every organization. Hosting data under another organization's control is always a critical issue which requires stringent security policies employed by Cloud providers. For instance, financial organizations generally require compliance with regulations involving data integrity and privacy. Security and Privacy is multi-dimensional in nature and includes many attributes such as protecting confidentiality and privacy, data integrity and availability[24].

F. Cost: The first question that arises in the mind of organizations before switching to Cloud computing is whether it is cost effective or not. Therefore, cost is clearly one of the vital attributes for IT and the business. Cost tends to be the single most quantifiable metric today, but it is important to express cost in the characteristics which are relevant to a particular business organization[24].

G. Usability: For the rapid adoption of Cloud services, the usability plays an important role. The easier to use and learn a Cloud service is, the faster an organization can switch to it. The usability of a Cloud service can depend on multiple factors such as Accessibility, Installability, Learnability, and Operatibility[24].

IV. EXPERIMENTAL RESULTS

Cloud computing services provider accuracy percentages are shows in graphical format from Figure 1 shows.

Cloud computing services provider accuracy percentages is shown in tabulation format.

Table 1 : Cloud computing services provider accuracy percentages.

Cloud computing services Provider	*Accuracy Percentages*
Accountability	87
Agility	89
Assurance of Service	85
Performance	90
Security	95
Cost	95
Privacy	96
Usability	82

Table 2 : Cloud computing services provider accuracy percentages by transactions T1,T2,T3,T4,T5,T6,T7,T8.

Cloud computing services Provider by transactions	*Total Accuracy Percentages*
T_1	95
T_2	94
T_3	96
T_4	90
T_5	95
T_6	91
T_7	96
T_8	92

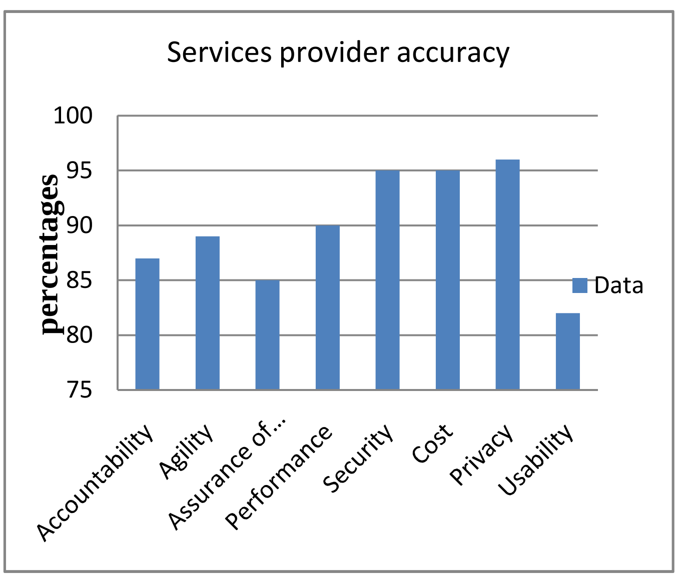

Fig. 1. Cloud computing services provider accuracy percentages.

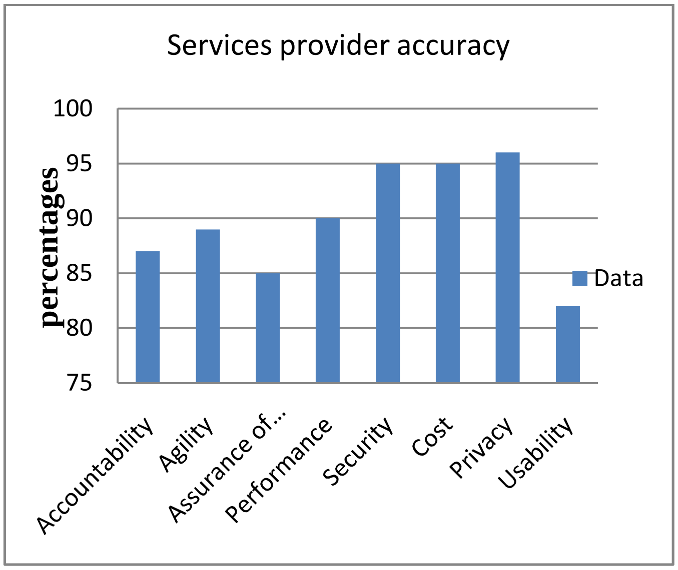

Fig. 2. Transactions accuracy percentages.

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