RESEARCH ARTICLE OPEN ACCESS

Cross-Cloud Testing Strategies Over Cloud Computing

Mr. Nageswararao, Dr. M B Khetmalas.
Department of Bioinformatics and Computer Science, Dr. D.Y. Patil Biotechnology & Bioinformatics Institute, Tathawade, Pune-411033, India.
Dr. D.Y. Patil Vidyapeeth, Pimpri, Pune.

Abstract
Cloud computing is the new paradigm to deliver all the hosted services over internet on demand. The ultimate goal of cloud computing paradigm is to realize computing as a utility. The cloud is rapidly maturing towards its goal to support a wide variety of enterprise and consumer services and real-world applications. Recently a movement towards cross cloud also called as multi-clouds or inters clouds or cloud-of-clouds has emerged which take advantage of multiple independent cloud provider offers for cloud resilience and dependability. This cross cloud represents the next logical wave in computing, enabling complex hybrid applications, cost and performance optimization, enhanced reliability, customer flexibility and lock-in avoidance. Providing testing as a service (TaaS) in cross clouds become hot topics in industry. Testing heterogeneous e-commerce sites, Software as a Service solutions, and Cloud based applications is extremely challenging. Many vendors are offering cloud testing services to support cloud-based applications. However, there is a lack of clear understanding about cloud testing in terms of concepts, issues, challenges, and needs. This paper surveys recent research related to testing of cross clouds applications and also simulates multilayer testing, service level agreement based testing on the large scale commercial testing environment. One of the key aspect of the existing approach is it does not perform cross-cloud testing procedures in cloud based software applications. This paper proposes to build, integrate and implement an application prototype that initiates some of the above stages on a cross cloud platform. This cloud environment achieves more flexibility to the users and providers. This collaborative system will apply the concept of the cloud testing to reduce the mitigations in cloud data and loss of the service availability and data integrity aspects. Our experimental results show efficient data protection of cross cloud testing.
Index Terms: cloud testing, performance testing and evaluation, and scalability is testing. Data-as-a-service (DaaS), platform-as-a-service (PaaS).

I. INTRODUCTION

Cloud computing is an expression for combining a variety of computing concepts that are connected through a real time communication network i.e. internet. Cloud computing is the acronym for distributed computing over network that means it maintain facility to run a program/application connecting to various network services at the same time[1][2]. Testing of cloud based software applications is the main consumption in dynamic software development applications in cloud computing. Cloud computing provides various types services like Infrastructure as a service, Data as a Service etc. In this services cloud computing provides as a pay per use business model and cost effective performance resource utilization [3]. These services are shifted us into various undertaking services with different" product oriented activities to service-oriented reuse" and composition and online renting feasibilities. Cloud computing is the acronym for distributed computing over network that means it maintain facility to run a program/application connecting to various network services at the same time[4]. To verify application's support for various browser types and performance in each type can be accomplished with ease.

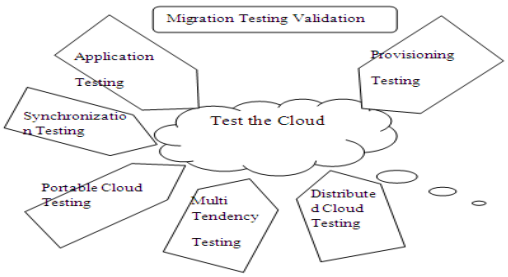

Figure 1: Cloud testing architecture.

For enhancing these applications in different types of services with more flexibility, scalability, portability and false tolerance capabilities of the software systems present in our cloud computing infrastructure as a service.

Cloud Testing: Some organization pursuing testing in general and load, load performance testing and other production service monitoring in particular challenged by the limited test budgets and meeting

deadlines efficiently [3]. Cloud testing is the one of the key solution of all the above challenges and all the problems discussed in real time applications. Different type of testing applications is discussed for solving above considerations efficiently. Stress testing is used to determine the ability of application to maintain a certain level of effectiveness beyond breaking point. To verify application's support for various browser types and performance in each type can be accomplished with ease. Various tools enable automated website testing from the cloud. Cloud testing is a process of testing in which web applications uses cloud computing environment and architectural aspects present into simulate real world user traffic by using cloud technologies and solutions.

Figure 2: Cloud Testing process geneation in real time cloud applications.

As shown in the above figure we have to develop application testing, Provisioning testing, Synchronization testing, Distributed cloud testing, Portable Cloud Testing etc. We perform multiple testing strategies (tools) present in cloud computing. In this cloud testing process a service level agreement was used to authorize the cost effective service with different cloud based applications. Cloud testing issues have been addressed testing tool, they developed testing tool for support cloud testing with multi-layer cloud testing, simulation testing and SLA based testing. Traditionally more number of commercial tools were developed for test the dynamic web applications in cloud based software systems. SOASTA is one of the testing tool developed for testing dynamic web applications in cloud[1][13]. SOASTA repository was responsible for test categorization with recording and performance data. In this testing tool many thousands of virtual users visiting website simultaneously using cloud infrastructure provided by their individual service, also performs memory based analytical techniques are implemented in real time and huge data produced by large scale testing. Some of the other tools were developed for initiating the performance with aim to support cross cloud browser and its functionalities [8]. For developing cloud web applications in cross cloud platform in heterogeneous virtualization environment across multiple cloud platforms have varied resource management and scheduler.

Cross cloud Testing: For maintaining heterogeneous cloud platforms we propose to develop Cross cloud application management platform (CAMP) to administrate heterogeneous clouds in order to control the application's life cycle [14] [15]. In this we establish Cloud Test Platform test the software cloud environments automatically. CAMP can be integrated closely with other systems/platforms in industrial application environment, which provides cross platform services for different industrial requirements with large amount of resources in short time.

Remaining of this section explains overall view of this paper. Section II explains the overall literature review of the process view section III explains background work of the proposed work development with comparison with recent work propagations. Section IV describes proposed work progression with semantic relations in commercial event generation. Section V explains overall experimental setup of the proposed cross browser testing with equivalent data progression. Section VI describes the results analysis of the cross browser format and results when you will be used these services efficiently.

II. LITERATURE REVIEW

Cloud computing environments seek to simulate the real world user traffic as we load testing and stress testing websites [7][8]. Compared to software testing cloud testing has several advantages: Reduce the cost leveraging the resources of the cloud computing operations present in the real time applications.

Forms of Cloud Testing: There are several type of the cloud testing applications present in cloud web site applications. There are three different type of cloud testing environments present in the real time cloud applications.

Cloud/SaaS-oriented testing: This type of testing applications arrives specified with semantic relations in cloud testing operations. This testing can be performed inside the cloud by user and other SaaS service venders [8][10]. The primary objective is to assure the quality of the provided service functions offered in a cloud. Since clouds and SaaS usually provide certain service APIs and connectivity interfaces to their customers, it is required task for engineers to validate these APIs and connectivity in a cloud environment [7][8]. In addition, testing cloud-based or SaaS-based security services and functional features must be tested.

Online-based application testing on a cloud: This type of testing activities is performed to check online application on cloud by using with cloud-based large-scale traffic and user accesses.

Cloud-based application testing over clouds: This type of testing refers to the engineering activities performed to assure the quality of a cloud-based application crossing different clouds. This suggests that the system-level integration, function validation, performance evaluation, and scalability measurement must cope with different cloud technologies.

Test Type	SaaS Oriented Testing	Cloud based application testing
Service function testing	SaaS based testing operations	Applications based functionalities
Performance testing	SaaS/Cloud performance and scalability testing	End-to-end system-level performance and scalability

Table 1: Cloud testing Operations

According to the processes of the cloud testing applications follow the efficiency of the real time applications other resources of the user activities.

III. EXISTING SYSTEM

For increasing the today's dynamic software application development testing faces a challenge of cost and scalability assurances[11]. In this context we have to develop conventional cloud server with extended features checkout process by adding just in service testing, evaluation and ranking capabilities present in the below diagram.

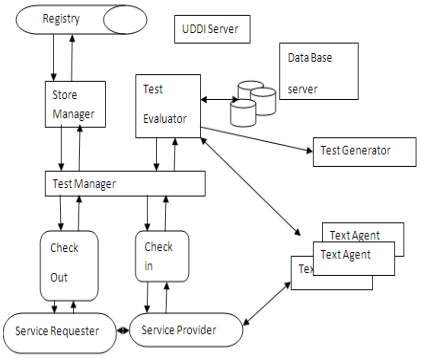

Figure 3: Testing broker architecture.

As shown in the above diagram the cloud test service enables scalable and flexible collaborations among test participates. A tester carries published test case generations and simulate those test cases on different services, in that both provider and tester can be any party including services present in cloud computing[12][13]. Testing as a service operated as a public service in the business applications present in the cloud based software applications. These testing services are applicable for accessing external users with test environment of the publication present in the cloud computing. As mention in the description of the existing testing tool, it was developed only for testing multilayer and flexible and scalable testing results with efficient data processing in cloud computing.

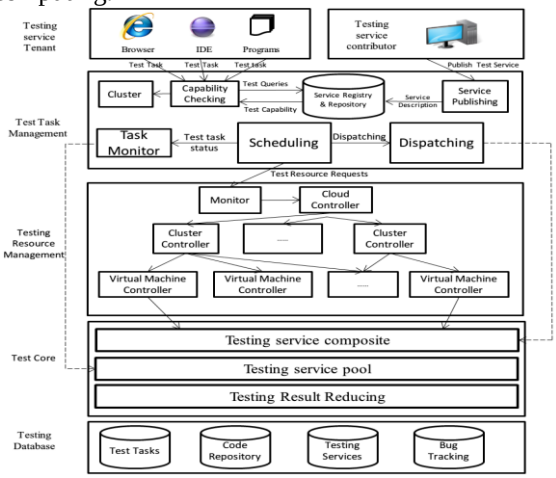

Figure 4: Testing as a Service in test case generation.

To decrease the analysis of cost estimation and testing design for application execution and maintenance traditionally developed Testing as a Service frame work[16][17. It provides static dynamic on demand testing in, on and over clouds for the third party at any time and all time interval processes in cloud computing.

Testing as a service operated as a public service in the business applications present in the cloud based software applications. These testing services are applicable for accessing external users with test environment of the publication present in the cloud computing. A self test harnesses' is developed to manage the scripting process present in the cloud computing software application system [17]. One of the key concept of the existing approach it was developed in the efficient data testing procedure in cloud computing using testing as a service architecture processing.

IV. PROPOSED WORK

As mention in the description of the existing testing tool, it was developed only for testing multilayer and flexible and scalable testing results with efficient data processing in cloud computing[15] [16]. One of the research concept of the Trusty worthy clouds, in that construct several clouds to build trusted cloud services using resources from different public clouds, implementing a cloud-of-cloud able to tolerant faults and intrusions on upto a certain number of providers.

Figure 5: Cross browser testing applications.

This is the process can be done in real time cloud web applications. In this paper we propose develop an Cross-Cloud Testing. This is the procedure for doing operations different type of cloud applications at a time[14][15]. If cloud applications are developed in real time cloud format. It specifies the information of all users' data effects. Cross cloud application format can be specified with systematic procedures in cloud computing operations efficiently

V. EXPERIMENTAL SETUP

Cross Cloud system model contains three specific continuers for providing and accepting applications efficiently as follows: readers, writers and cloud storage providers. Where readers and writers are the client cloud processes[15][19]. It defines cloud storage process on each cloud present in the cross cloud (multi cloud application).

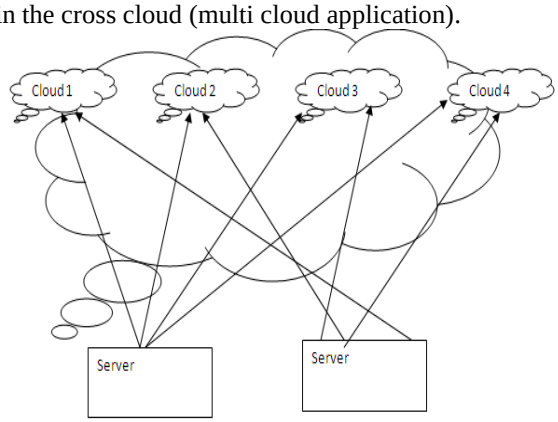

Figure 4: Cross cloud architecture

The cross cloud system addresses the system availability and confidentiality of data in their cloud data storage system by using multi cloud providers, combining Byzantine quorum system protocols [14] [17]. In addition, any subset of (n – f) storage cloud creates byzantine quorum protocols.

VI. RESULTS ANALYSIS

The main concept of the purpose to move from cross cloud is distributed reliability with sequential data storage applications [9] [13]. In addition to this approach reliable distributed storage utilizes subset of the Byzantine protocol fault tolerance applications/techniques suggestion in cross cloud software applications [12]. For security considerations present in the proposed work by using multi cloud secret message sharing algorithm.

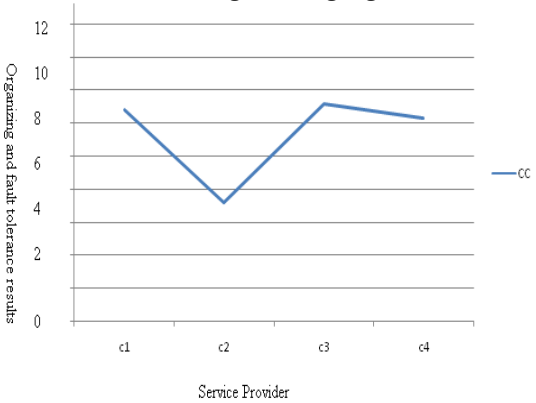

Figure 5: Organizing results of the service provider with equivalent results

As shown in the above discussion of cross cloud data storage with secret message sharing is developed as follows: Upload the cloud server application server into online software application [14][16]. This service provider sharing information into other cloud applications present in the online service processing. Service provider access all the data present in the single cloud in online cloud service. We will provide security and testing of the individual cloud data sharing of the cross cloud application. Our experimental results show efficient cloud client operations on service provider of the cross cloud application.

VII. CONCLUSION and FUTURE SCOPE

Cloud computing is the natural term for any of the services that involves delivering the hosted services over internet. In this service providing applications some of the services are free and some are cost based approaches present in the cloud computing. We propose to build, integrate and implement an application prototype that initiates some of the above stages on a cloud platform. This type of cloud environment achieves more flexibility to the users and providers. One of the key solution of the is a set of read/write protocols based on Byzantine Quorum replication 3*f*+1 clouds to tolerant upto available comprised clouds present in cross cloud platform. For developing this simulation process in each cloud using cloudSim tool, it defines efficient data accessing between each cloud. Further improvement of our proposed work can be specified with semantic relations of different cloud testing techniques for performing cross-clod operations

efficiently. And also we extend cross cloud testing for heterogeneous applications.

REFERENCES

[1]. Cong Wang, Qian Wang, Kui Ren," *Towards Secure and Dependable Storage Services in Cloud Computing*", *A preliminary version [1] of this paper was presented at the 17th IEEE International Workshop on Quality of Service (IWQoS'09).*

[2] TClouds — *Trustworthy Clouds Cloud-Of-Clouds Storage Service*.

[3] Mi. Rabin. Efficient Dispersal of Information for security, load balancing and fault tolerance. Journal of the ACM, 36(2), pages 335-348. 1989.

[4] K Chandra Mouli* U Sesadri," *Singleto Multi Clouds for Security in Cloud Computing by using Secret Key Sharing*", Journal: International Journal Of Computers & Technology Vol 10, No 4 editor@cirworld.com www.cirworld.com, member.cirworld.com.

[5]. G. Chockler, R. Guerraoui, I. Keidar and M.Vukolic, "*Reliable distributed storage*", Computer,42, 2009, pp. 60-67.

[6]. C. Cachin, R. Haas and M. Vukolic, "*Dependablestorage in the Intercloud*", Research Report RZ,3783, 2010.

[7] Xiaoying Bai_ y, Muyang Li_, Bin Chen_, Wei-Tek Tsai_ z, Jerry Gao_ x" *Cloud Testing Tools*", Proceedings of The 6th IEEE International Symposium on Service Oriented System Engineering (SOSE 2011).

[8] W. Tsai, Y. Huang, and Q. Shao, "*EasySaaS: A SaaS development framework,*" in SOCA '11, 2011.

[9] Amazon Web Service. [Online]. Available: http://aws.amazon.com/

[10] "*News Briefs*," Computer, vol. 44, pp. 18–20, 2011.

[11] J. Gao, X. Bai, and W. T. Tsai, "*Cloud-Testing:Issues, Challenges, Needs and Practice*," Software Engineering: An International Journal, vol. 1, no. 1, pp. 9–23, 2011.

[12] James Cowling1, Daniel Myers1, Barbara Liskov1, Rodrigo Rodrigues2, and Liuba Shrira3 "*HQ Replication: A Hybrid Quorum Protocol for Byzantine Fault Tolerance*", Appearing in the 7th USENIX Symposium on Operating System Design and Implementation (OSDI), Nov 2006.

[13] Md Kausar Alam, Sharmila Banu K," *An Approach Secret Sharing Algorithm in Cloud Computing Security over Single to Multi Clouds*", International Journal of Scientific and Research Publications, Volume 3, Issue 4, April 2013 1 ISSN 2250-3153.

[14] http://www.cloudtesting.com/

[15] http://crosscloud.org/

[16] http://testingbot.com/

[17] http://html.adobe.com/edge/inspect/.