# IDENTIFYING THE ISSUES ON SOFTWARE TESTING ON CLOUD

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## ABSTRACT

Cloud computing has surfaced as a relief technology across organization and cooperates that impacts several different study fields, including software testing. to supply a cloud service and sharing resources successfully, the cloud must be validated before it offers services. Testing the usages has their own testing tools and testing methodologies. during this paper we offer an summary regarding cloud computing trends, types, challenges, tools and thus the comparison of tools for cloud testing.

**Keywords:** Software Testing, Functional Testing; Cloud Migration, Issues And Challenges, Cloud Testing.

## I.     INTRODUCTION

Traditional approaches to software testing became expensive in terms of effort, cost and expenditures. Hence testing practices have shifted gears to strategies that might profit the associations in terms of business and gains. Leading companies similar as IBM, Microsoft, Google, and Amazon have a vested interest within the biz word " CLOUD". As computations, storage and client interactions have already started migrating to cloud environment, software testing is additionally getting migrated to Cloud. Testing new software requires expensive server, storage and network devices just for a limited time. These computing resources aren't used after testing, therefore incurring excess cost on budget. To insure a trustworthy service, providers need to test their services on all platforms. cloud Testing consists security, availability, interoperability, performance, disaster recovery & multitenancy testing.
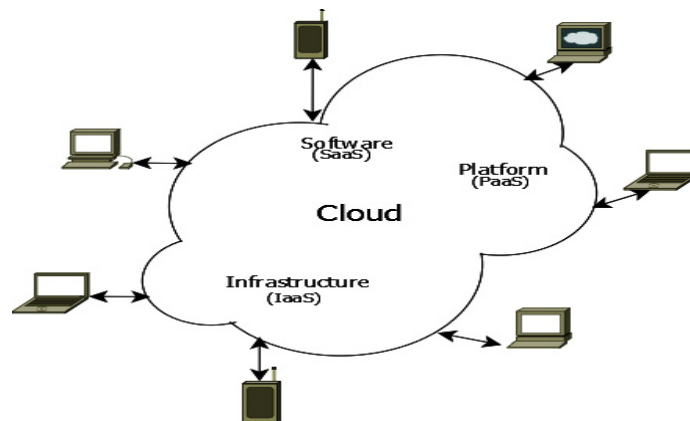


Cloud testing are challenged by several problems like as limited budget, meeting deadlines, High cost per test, sizable amount of test cases, little exercise of tests and geographical distributions of users. the top of cloud testing is to ensures top quality service delivery and avoiding data outages requires testing inside data centre or outside the info centre or in both places.

## II.     METHODOLOGY

This paper give a background on cloud computing and software testing on the cloud. In this research paper, we conducted a survey on software testing associated Risks, challenges & tools in cloud computing. Then, they classified the activities performed within the cloud-based testing area, defined the terminology that they used. However, both of them didn't discuss the tools utilized in cloud testing.

The authors in  defined cloud computing and cloud testing then analysed which software testing projects are often done on the cloud, why the need for software testing on the cloud and therefore the way it are often done. They didn't mention the sorts of cloud testing. The researchers in  presented a classification within the present

research studies and investigated the correlation of software testing with different deployment models of cloud computing. They believed that interoperability testing presents opportunities for further research while acceptance testing has not been studied thoroughly intrinsically must be structured so on take advantage of the cloud. Defined cloud testing, enumerated on cloud testing environment and sorts of cloud testing, why cloud testing is required and tools for completing testing on the cloud. They also elaborated on the challenges of testing on the cloud; however, they didn't suggest ways of overcoming the challenges. It's observed that in the last years several well-founded studies that approach solutions and means to automate and accelerate the software testing process are developed . Nevertheless, because the computer systems grow larger and more complex, software testing requires more effort. Various automatic distributed software testing systems or large scale systems are proposed in recent years, since this system exploits the characteristics of wide parallelism and extensive heterogeneity of environments so as to limit the consequences of the event environment on the test results . Some studies that relate to our solution are discussed below. The authors in  gave a fast review of cloud testing techniques. The authors also mentioned about what cloud computing is and what are cloud testing challenges. They made a comparison between cloud testing and traditional software testing. Here in this paper it is summarized and compared some different tools and solutions that support the cloud testing approaches. Some researchers  focused on the challenges of cloud testing. This explains some challenges with cloud testing as security and integrity of testing data, understanding and interpreting test results and selecting testing tools. This study also highlighted the recent cloud testing architecture, tools and research issues.. Assert that software testing are often deemed as a service rather than be seen as a line of responsibility in software development. they're of the view, TaaS has two major aspects: a service to developers and a service to end-users. In their study, we have discussed software testing as a service from software quality assurance view.

## III.     TESTING CHALLENGES

### 3.1. Creating Test Environment

For On Demand Testing For an on demand testing service, what are the steps to be taken to make a testing environment which is systematic or automatic? although this technologies in cloud support instinctive delivery of needed computing resources for each Software as a Service (SaaS) or for an application within the cloud, for fixing the needed test domain during a cloud there are not any carrying solutions to help engineers employing a beneficial way.

### 3.2. Security Measures of Testing

In current script, software testing is been converting to a profound content with lot of openqueries. Meanwhile security come a most vital demand within the clouds and security services converted into a mandatory measure in present Software as a Service (SaaS) and cloud technology, the issues and challenges in security validation and quality assurance for SaaS and clouds got to be alliance by the architects.

### 3.3. Integration Testing

Even though we saw various articles describing software integration testing problems and schemes, but not enough research outcomes are there within the real engineering system. The main cause is that the present software and mechanisms created without permitting technology and solution to assist organized software integration. During a cloud organization, engineers needed to be affect combination of varied SaaS and applications inside and out of doors clouds during a black-box sight counting on the offered APIs and connectivity protocols.

### 3.4. Regression Testing

The regression testing issues and challenges caused by software changes and bug-fixing must be addressed the by on- demand software validation in clouds. The multi-tenancy attribute of clouds might origin the difficulty to place on this explored add cloud testing, particularly for on- demand software regression testing service each and each time software is modified. In added, we also lack of dynamic software validation approaches and results to deal with the dynamic features of SaaS and cloud

## IV.     RISK ASSOCIATED WITH CLOUD MIGRATION

Even though cloud testing is interesting and presents a really easy and economical way of testing software, some implicit threats are associated with it. It includes.

1) Lack of Standards Vendors of public clouds earlier have their architecture, infrastructure and functional procedure with support for a limited interoperability, which produces big problems for organisations when migrating to the cloud. This is as a result of lack of unified standardisation to integrate public cloud resources with internal data centre of organisations.

2) Security of data is the most important concern of the public cloud. Since cloud testing takes place over the internet, attack (s) may happen (13). The way a software comes to its logical information and other back-end procedures will be logged-in during the test; this makes that information vulnerable to leak either by the staff of the cloud handing company or by external attackers.

3) Performance Since numerous users share public cloud, there could be a time when a user has to stay for the needed bandwidth that's being used by another user. Occasionally there could be disturbance of service due to network failure or maintenance by the service provider.

4) Architecture In some cases, some providers offer limited services like storage, configuration, technology, network and bandwidth; this creates lots of difficulties when running real- time test.

5) Operation unsuitable usage of the cloud testing environment can increase cost, like indiscriminate encryption of data as this will consume more CPU and memory usage, which in turn translates to cost.

## V.     RELATED WORK

There is a vast amount of literature regarding software testing migration from on-premise to the cloud and testing cloud services. However, to best of our knowledge, there is no comprehensive literature review that can categorizes existing body of work according to problem and solution domains. There have been previous research done in identifying issues for software testing on the cloud . These works are based on a surveys conducted with industry people, in which issues are categorized from the application perspectives. The analysis of this survey reveals that the requirements and real challenges faced on migration their testing on cloud from the industry practitioners viewpoint

## VI.     CONCLUSION

In upcoming years cloud computing is emerging in IT industry the real opportunity to cut cost of test environment in public private and hybrid environments or community clouds lies in both their management and maintenance before deploying the cloud its essential that cloud application is thoroughly tested. Though we are in starting stage of cloud testing we have identified some of the challenges through the analysis based on research papers. Based on the challenges we are planning to build a new testing framework in future to test a cloud. Cloud computing is under constant evolution, thereby continuously bringing new opportunities and challenges to the computing services, software testing included. Software testing on the cloud is active and will continue to be an active research area in the near future. This paper gives a brief explanation of Cloud computing, discusses what software testing on the cloud is all about, why it is needed, challenges associated with it, tools for the testing and few research gaps concerning testing on the cloud have been identified in the literature. Lots of concerns were identified in this paper, like the quality and security of the software being tested on the cloud. Quality of software is a subjective attribute due to varying user expectations; therefore, there is a need to develop a methodology that will guarantee the quality of overall testing on the cloud. Security, on the other hand, is very vital in today's computing services as cloud computing is gaining more momentum, as Software Testing On the Cloud.

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