An Assessment on Designing a Structure for Finding and Capturing of Association Attacks in Cloud Environment

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Abstract - With the initiation of the developments emerged in cloud computing, it has proven a cure for ever increasing thirst to expand computational infrastructure, with the rise in PAAS and IAAS scalability, and on-demand computing the sector proves economical for trade and also for the service provider. But with the new technology coming in like Content Delivery Network (CDN) and other layers of abstraction the hosting of the software or service has exceptionally known how about the actual location and the other forensic data and has to rely on the third party solutions for monitoring the servers / VPS. The system is reactive in nature and in a case of any event the cloud provider will assess the situation and act on it, the end users are unaware of the event as the fail-overs and backups will kick in. We are suggesting a system which will reside on the server application or the host operating system and allow to silently monitor the strength and other parameters of the system that are not available to the service company's system analyst and share the complete health log and also provide additional data to the remote server wherein a web-based console will be provided to monitor all the hosts at the same time. This will help the service company to monitor heterogeneous server architecture over diverse regional boundaries with a unified system along with all the logs and forensic data at the regular interval or on demand. This will also help the service availing company to be in some direct over the policy of the data and also monitor the events occurring in the cloud with the time stamp to recreate the scenario, this will especially benefit the distributed environment and CDN Associations as this will re-register the same server according to replication for CDN Associations load balancers.

Keywords - IAAS, Load balancer, CDN, Association.

I. Introduction

1.1 Cloud Computing

Cloud computing is a way to amplify the capacity or add capabilities dynamically without investing in new communications, training a new workforce, or authorized new software. It extends Information Technology's (IT) existing competence. In the last few decades, cloud Association has grown from being a promising business concept to one of the fast growing segments of the IT enterprise. But as more and more in rank on individuals and companies are placed in the cloud, apprehension is beginning to mature about just how safe an environment it is. Despite, all the type are flanking the cloud, venture customers are still diffident to deploy their industry in the cloud. Security is one of the key issues which reduces the growth of cloud computing and complications with data confidentiality and data uphold continue to pestilence the market. The initiation of a complex model should not negotiate with the required functionalities and capabilities present in the current model. A new conjure up intention at improving features of an existing model must not risk or threaten other important features of the recent model. The structural design of cloud poses such a peril to the security of the existing technologies when deployed in a cloud situation. Cloud service users need to be attentive in understanding the risks of data breaches in this new environment. In this paper, an assessment is done on Effective resource monitoring of the system (Container / Virtual Machine) in Cloud environment and convey basic forensic data to remote service for health of system and report in any case of malicious Associations or user activity is detected in the system and report to the Owner of the system or the IT Administrators.

The new cloud computing services grant us flexibility and reliability we always wanted on out IT infrastructure, the new system reduces hardware maintenance cost, scalable architecture, and accessible through the globe. Cloud computing consist of three layers viz. IaaS(Infrastructure as a Service) is the lowest layer which provides basic infrastructure support overhaul. PaaS-Platform as a Service is a middle layer which offers platform oriented servicing. SaaS- Software as a Service is the topmost layer which features a complete application offered as service on demand.

From the perception of the consumer the major anxiety that hinders the migration to cloud computing model is security because:

Enterprises outsource security management to a third party that hosts their IT resources. Co-existence of assets of different tenants in the same location and using the same instance of service while being unaware of the strength of security controls used. The lack of security guarantees in SLAs linking the cloud consumers and providers. Hosting this set of assets publically available infrastructure increases the probability of attacks on their assets.

The main objective of this paper is to provide additional insight into the hosting environment to the third party service provider about the system and to provide real-time insight the potential of the system.

1.2 Security issues in Cloud Computing.

Though there are many advantages to adopting Cloud Computing, there is also some significant blockade to espousal. One of the most significant blockades to espousal is security, pursue by matter concerning assent, privacy, and legal matters. As Cloud Computing represents a relatively new computing model, there is an immense deal of pensiveness about how security at all levels (e.g., Association, horde, relevance, and data echelon) can be pull off and how applications security is moved to Cloud environment. That uncertainty has consistently led information executives to state that security is their foremost concern with Cloud Computing. Security apprehension relates to possibility locales such as external data storage, dependency on the community internet, the need to organize, multi-contract and integration with internal security. Security controls in Cloud Computing are, for the essential part, no altered than sanctuary controls in any IT environment. However, since due to the cloud overhaul models engaged, the inoperative models, and the technologies used to enable cloud armed forces, Cloud Computing may include diverse risks to an organization than long-established IT way out. Unfortunately, amalgamate security into these solutions is often alleged as making them more rigid. Moving decisive applications and sensitive data to public cloud environments is of huge concern for those corporations that are moving beyond their data center's Association. To pick up these concerns, a cloud way out provider must ensure that customers will continue to have the same security and privacy controls over their applications and armed forces, provide substantiation to a clientele that their organization is secure and they can meet their service-level agreements, and that they can prove compliance to auditors. Prior to analyzing security challenges in Cloud Computing, we have to comprehend the relationships and dependencies between these cloud service models. PaaS as well as SaaS are hosted on top of IaaS; accordingly, any breach in IaaS will weigh the security of both PaaS and SaaS forces. However, we have to take into account that PaaS offers a platform to construct and deploy SaaS applications, which increase the security dependency

between them. As a consequence of this complex dependence, any assail to any cloud package layer can compromise the upper layers. Every cloud service model comprises its own inherent security blemish; however, they also contribute to some confront that affects all of them. These dealings and craving between cloud models may also be a source of sanctuary risks. A SaaS provider may rent an expansion situation from a PaaS provider, which might also charge transportation from an IaaS provider. Every individual provider is responsible for securing individual forces accordingly, which may upshot in a contradictory arrangement of security sculpt. It also constructs confusion in excess of which service provider is responsible once an attack happens.

We propose here a classification of security issues for Cloud Computing focused in the so-called SPI model (SaaS, PaaS, and IaaS), identifying the main vulnerabilities in this kind of systems and the most imperative threats found in the literature related to Cloud Computing and its atmosphere. A *peril* is a forthcoming attack that may lead to a misuse of information or possessions, and the term defenseless refers to the flaws in a system that allows an attack to be successful. There are some assessments where they focus on one service model, or they focus on listing cloud security issues in general without distinguishing among vulnerabilities and threats. Here, we present a list of vulnerabilities and threats, and we also indicate what cloud service models can be affected by them. Furthermore, we describe the relationship between these vulnerabilities and threats; how these vulnerabilities can be exploited in order to carry out an attack, and also current counteract channel related to these threats which try to solve or advance in identified problems. The assessment is based on the following points.

1. The paper aims to conquer the basic problem of obtaining additional forensic information of a virtual machine or a container provided by the cloud provider and in a case of attack reporting the same to a third party security provider for supplementary action.

2. The Cloud provider often deploy high availability cluster configuration to provide maximum availability for the service provided and nowadays with the advent of the CDN (Content Delivery Association) the Association has undergone additional layers of abstraction which are governed by the cloud service providers. Critical information such as IP, Physical Location of data and other Association parameters.

3. The paper aims to provide a client-server system which when installed in the cloud environment will be capable of identifying all the necessary parameters and reporting to a remote server or service for further analysis and action.
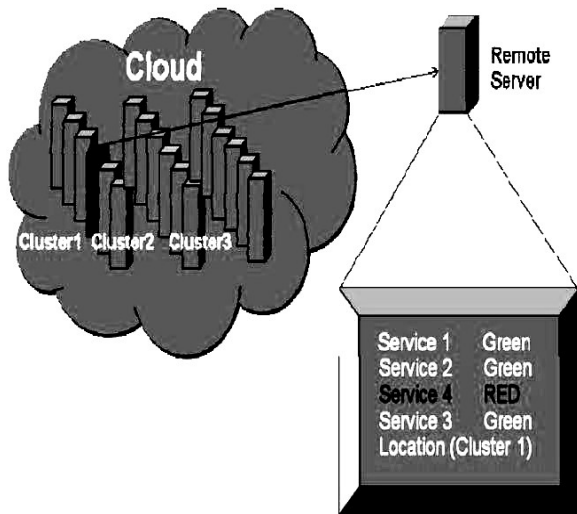
II. Proposed Work

Fig -1: Proposed Architecture

1. Implementing window's service to boot on start up and, gather data required for the project, (IP, Hostname, Ports Status).

2. Post Request to the server for logging data.

3. Analyzing vulnerabilities in the cloud and detecting Association attacks in virtualized environment

4. Reconstruct the common two scenarios DDOS, and brute force attack for application access in the cloud environment.

5. Hosting a web-based server with asynchronous connections to all the clients for logging data.

6. Design and implement a user interface for the admin to monitor abnormalities in the clients

7. Log the type of attacks on the system and suggest actions are to be taken .

8. Setup a private cloud and simulate the project along with two Association attacks on the system. Log data over the Association and analyze the output.

9. Setup distributed scenarios with a standalone system, along with public cloud and a private cloud to study the system behaviors in real scenarios.

10. Incorporate complete system to log data centrally and render final User Interface and software package.

III. Conclusion

A conclusion section is not obligatory. Even though a conclusion may appraise the main points of the paper, do not replicate the abstract as the conclusion. A conclusion might involve on the importance of the work or suggest applications and extensions.

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