International Research Journal of Engineering and Technology (IRJET) e-ISSN: 2395-0056
Volume: 05 Issue: 08 | Aug 2018 www.irjet.net p-ISSN: 2395-0072

An Adaptive scheduling based VM with random key authentication on cloud data access

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ABSTRACT— *With the tremendous growth of cloud computing, it is increasingly critical to provide quantifiable performance to tenants and to improve resource utilization for the cloud provider. Those recent proposals focus on guaranteeing job performance. In the cloud, they usually lack efficient utilization of cloud resource, or vice versa. In this paper we present cloud, which leverages the (soft) deadlines of cloud computing jobs to enable flexible and efficient resource utilization in data centers. With the deadline requirement of a job guaranteed, cloud employs both time sliding and bandwidth scaling in resource allocation. So as to better match the resource allocated to the job with the cloud's residual resource. Extensive simulations and test bed experiments show that cloud can accept much more jobs than existing solutions, and significantly increase the cloud provider's revenue with less cost for individual tenants.*

KEYWORDS— authentication, bandwidth scaling, time sliding, virtual machine, CSP, resource provisioning, key generation.

I. INTRODUCTION

Cloud computing has provision progressed from a bold vision to massive deployments in various application domains. However, the complexity of technology underlying cloud computing introduces novel security risks and challenges. From an end-user point of view the security of cloud infrastructure implies unquestionable trust in the cloud provider, in some cases corroborated by reports of external auditors. While providers may offer security enhancements such as protection of data at rest, end-users have limited or no control over such mechanisms.

There is a clear need for usable and cost-effective cloud platform security mechanisms suitable for organizations that rely on cloud infrastructure. One such mechanism is platform integrity verification for compute hosts that support the virtualized cloud infrastructure. Several large cloud vendors have signalled practical implementations of this mechanism, primarily to protect the cloud infrastructure from insider threats and advanced persistent threats. We see two major improvement vectors regarding these implementations.

First, details of such proprietary solutions are not disclosed and can thus not be implemented and improved by other cloud platforms. Second, to the best of our knowledge, none of the solutions provides cloud tenants a proof regarding the integrity of compute hosts supporting their slice of the cloud infrastructure. To address this, we propose a set of protocols for trusted launch of virtual machines (VM) in IaaS, which provide tenants with a proof that the requested VM instances were launched on a host with an expected software stack.

Another relevant security mechanism is encryption of virtual disk volumes, implemented and enforced at compute host level. While support data encryption at rest is offered by several cloud providers and can be configured by tenants in their VM instances, functionality and migration capabilities of such solutions are severely restricted. In most cases cloud providers maintain and manage the keys necessary for encryption and decryption of data at rest. This further convolutes the already complex data migration procedure between different cloud providers, disadvantaging tenants through a new variation of vendor lock-in.

II. LITERATURE REVIEW

This section reviews the literatures on the various scheduling based methods that are carried out by different researches. WeizhanZhang,YuxuanChen,XiangGao, Zhichao Mo, QinghuaZheng approached the cluster-aware VM collaborative migration scheme for media cloud, tightly integrating clustering, placement, and dynamic migration process. Evaluation results demonstrate that our scheme can effectively migrate virtual media servers in media cloud, while reducing the total internal traffic in DCN under the resource consumption constraints of media streaming applications [1].

Mohammad Al-Fares, Alexander Loukissas, Amin Vahdat carried how to leverage largely commodity Ethernet switches to support the full aggregate bandwidth of clusters consisting of tens of thousands of elements.Similar to how clusters of

commodity computers have largely replaced more specialized SMPs and MPPs, end solutions. This approach requires no modifications to the end host network interface, operating system, or applications; critically [2]. ChuanxiongGuo,HaitaoWu,Kun Tan, Lei Shi*y*, Yongguang Zhang approached the DCell, a novel network structure that has many desirable features for data center networking. DCell is a recursively defined structure, in which a high-level DCell is constructed from many low-level DCells and DCells at the same level are fully connected with one another. DCell also provides higher network capacity than the traditional tree- based structure for various types of services [3].

Timothy Wood, PrashantShenoy, ArunVenkataramani, MazinYousif investigated various approaches conduct a detailed evaluation using a mix of CPU, network and memory-intensive applications. Our results show that Sandpiper is able to resolve single server hotspots within 20 s and scales well to larger, data center environment. Server resources in a data center are multiplexed across multiple applications each server runs one or more applications and application components may be distributed across multiple servers [4]. Vincenzo De Maio, RaduProdan proposed a energyconsumption model for network transfers.Such models should take into account all the actors (e.g. VMs, physical hosts, network hardware) and activities (e.g. VM migration, powering down/off physical hosts) involved in the consolidation. [5].

UmeshDeshpande, Xiaoshuang Wang, and, KartikGopalan approached the a comparative analysis of the energy consumptionof the software stack of two of today's most used NICs in data centres, Ethernet and Inffniband. Consequently, live migration has become a key ingredient behind a number of cluster management activities such as load balancing, failure recovery, and system maintenance [6]. RajkumarBuyya,Chee Shin Yeo, SrikumarVenugopal, James Broberg presented a cloud computing and provide the architecture for creating clouds with market-oriented resource allocation by leveraging technologies such as Virtual Machine(VMs). Risk managementto sustain Service Level Agreement(SLA)-oriented resource allocation [7].

VivekShrivastava, Petroszerfos, Kangwon Lee, Hani Jamjoomyee introduces AppAware-a novel, computationally efficient scheme for incorporating (1) inter-VM dependencies and (2) the underlying network topology into VM migration decisions. Using simulations, we show that our proposed method decreases network traffic by up to 81%compared to a well-known alternative VM migration method that is not application-aware [8]. Fengwang, Jiangchuan Liu, Minghua Chen proposed CALMS (Cloud-Assisted Live Media Streaming), a generic framework that facilitates a migration to the cloud.CALMS adaptively lease and adjust cloud server resources in a fine granularity to accommodate temporal and spatial dynamics of demands from live streaming users. While each being effective in certain aspects, having an all-round scalable, reliable, responsive and cost-effective solution remains an illusive goal [9].

III. EXPERIMENTAL SETUP AND PROCEDURE

A. Management Process

The problem scales up, VMs are allocated to lower ranked servers and their happiness decreases, and servers are allocated with higher ranked VMs, due to the increased competition among VMs. Also note that Multistage DA is only able to improve the matching. In the upload a file in the cloud the admin can process the files. In the admin uploading and the user downloading the files, the admin are going to upload file between them. They can share the uploaded files. User for download files. System showed very good Performance in terms of speed, accuracy, and ease of use. The downloaded files can be automatically stored.The user can download a file details can be viewed by the admin.

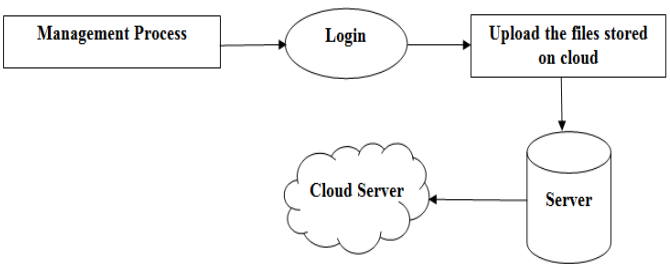

Fig.1. Management Process

B. Secure Key Generation

Secure Key Processing module generates the random keys to the users and sends those keys to the user's respective mail, whenever the user gets the key the system asks for the submission of those keys. After submitting the key to the system, it checks the identities of the users whether they are authorized user or not.

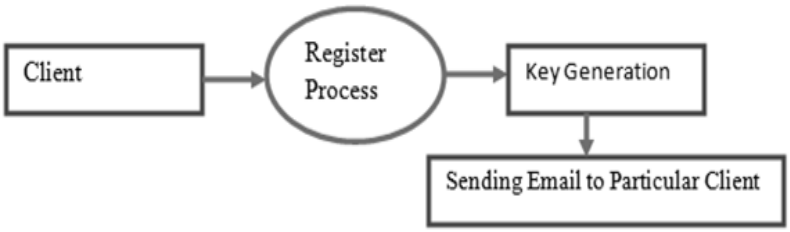

Fig.2. Generation of Secure Key (K_S)

C. Client Process

The Admin Process can upload a file, the user can search the files.Based on User requirements the admin can upload the files the user can search the files from the admin upload the files. The search time includes fetching the posting list in the index, ordering each entry.

Our focus is on top-k retrieval. As the, server can process the top-k retrieval almost as fast as in the plaintext domain. Note that the server does not have to traverse every posting list for each given trapdoor, but instead uses a tree-based data structure to fetch the corresponding list. Therefore, the overall search time cost is almost as efficient as on data.

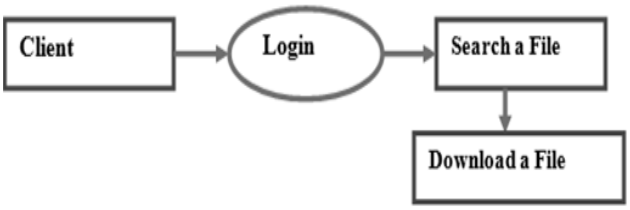

Fig.3. Client Process

D. Resource Provisioning

An aggressive resource provisioning strategy which encourages to substantially increase the resource allocation in each adaptation cycle when workload increases. The strategy first provisions resources which are possibly more than actual demands, and then reduces the over-provisioned resources if needed this paper proposes, a system that dynamically adjusting the number of virtual machine (VM) instances to ensure the QOS by accelerating the resource provisioning in virtualized cloud computing environments.

The key idea behind is exploiting an aggressive strategy, which likely provisions resources that may exceed the actual needs, satisfies the performance requirement at the very beginning of the adaptation process, and then decreases the over provisioned resources if needed. The amount of the resources to be allocated is determined during runtime according to the workload intensity and the amount of provisioned resources rather than a fixed number.

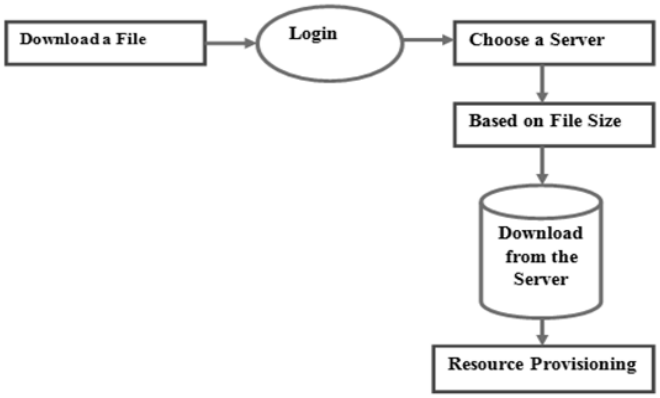

Fig.4. Provisioning the resources

IV. CONCLUSION AND FUTURE ENHANCEMENT

A. *Conclusion*

Cloud-based media streaming applications in media cloud exhibit high resource consumption on server sides and dynamic traffic flow among media servers. Such characteristics need to be fully considered during the VM placement and migration processes. In this paper, we propose a cluster-aware VM collaborative migration scheme for media cloud, which highly accommodates the characteristics of media streaming under cloud environment. In detail, the proposed scheme simultaneously considers the infrastructure of the DCN and the application resource requirements of media servers. It introduces a generic scheme of VM migration to optimize the internal traffic in media cloud, which tightly integrates clustering, placement, and dynamic migration process. Simulation results demonstrate that the scheme can effectively reduce the total internal traffic of DCN in media cloud. In this study, the proposed scheme does not fully consider the application characters of media streaming to optimize the VM migration in media cloud.

B. *Future Enhancement*

The future work should try to devise a collaborative VM migration method focusing on the user experience of media streaming application. Furthermore, due to the limitation of experimental environment, our scheme is just verified on the simulation platform with the self-generated traffic patterns, and the scheme ignores some emergencies such as the failing issue of VM migrations.

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