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Optimal Resources provisioning for Federated Cloud Load handling using Flow Fairness Scheme

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Abstract- Cloud computing allows to scale up and down their resource usage based on needs of business customers. Many of the publicized achieves through resource multiplexing in the cloud model through virtualization technology. In this paper, we demonstrate a system to allocate data center resources dynamically using virtualization technology based on application demands and support user specified constraints by optimizing the number of servers in use. This also considers various parameters for service selection. This introduces the concept of "Heuristic approach" to measure the unevenness in the multi-dimensional resource usage of a server. By minimizing workload, we can combine different types of workloads nicely and enhance the overall usage of server resources . The system proposes a new algorithm named as flow fairness algorithm.We design a set of heuristics that avoid overload in the system effectively while saving energy used. The system has been developed using Java Swing. The experiments have been developed to show the efficiency of the proposed system.
Keywords-Hybrid cloud, content distribution, dynamic migration, lyapunov optimization.

I. INTRODUCTION

The elasticity and the shortage of direct capital investment provided by cloud computing is appealing to many businesses. There is a plenty of deliberation on the benefits and costs of the cloud prototype and on how to move legacy applications onto the cloud platform. Here we explore a specific problem: how can a cloud service provider best multiplex its virtual resources onto the physical hardware. This is crucial because much of the directed gains in the cloud model come from such multiplexing. Recent research have identified that servers in many existing data centers are often severely under used due to over furnising for the peak demand. The cloud model is conventional to make such practice unnecessary by providing automated scale up and down in response to load variation. Besides reducing the hardware cost, it also saves on electricity which supplies to a powerful part of the operational expenses in large data centers. Virtual machine monitors (VMMs) like Xen provide a technique for mapping virtual machines (VMs) to physical resources.

This mapping is predominantly invisible from the cloud end users. Users with the Amazon EC2 service, for example, do not know where their VM instances run. It is up to the cloud provider to produce the underlying physical machines (PMs) have satisfactory resources to fit their needs. VM live exodus technology makes it achievable to change the mapping between VMs and PMs While applications are running. However, a problem remains as how to determine the mapping adaptively so that the resource needs of VMs are fit while the count of PMs used is reduced. This is challenging when the resource needs of VMs are heterogeneous due to the divergent set of applications they execute and differ with time as the workloads grow and shrink.

II. RELATED WORK

Migration of applications into clouds. A number of research projects have emerged in recent years that explore the migration of services into a cloud platform. Develop an optimization model for migrating enterprise IT applications onto a hybrid cloud. Their model takes into account enterprise-

specific constraints, such as transaction delays and security policies. One-time optimal service deployment is considered, while our work investigates optimal dynamic migration over time, to achieve the long-term optimality. Propose an intelligent algorithm to factor workload and dynamically determine the service placement across thepublic cloud and the private cloud. Their focus is on designing an algorithm for distinguishing base workloadand trespassing workload. Migration of content delivery services into clouds. Some research efforts have been put into migrating generic content delivery services onto clouds. In contrast, we target an optimization framework which renders optimal migration solutions for long run of the system.

Some work focuses on migrating specific types of content delivery services onto clouds, e.g., social networking service, or video streaming service. Study the partition of social data and their storage onto a number of cloud servers, to migrate a social networking application into the cloud. It focuses on balancing the data access load, by considering social relationships and user access patterns in the data storage. Advocate cost saving by partial migration of a VoD service to a content cloud. Heuristic strategies are proposed to decide the update of cloud contents, which are verified by trace-driven evaluations. Our work focuses on cost minimization in migration of a generic content distribution application, based on differentiated charging models of different data centers.

III. EXISTING SYSTEM

The existing system investigates optimal migration of a content distribution service to a hybrid cloud consisting of a private cloud and public geo-distributed cloud services.

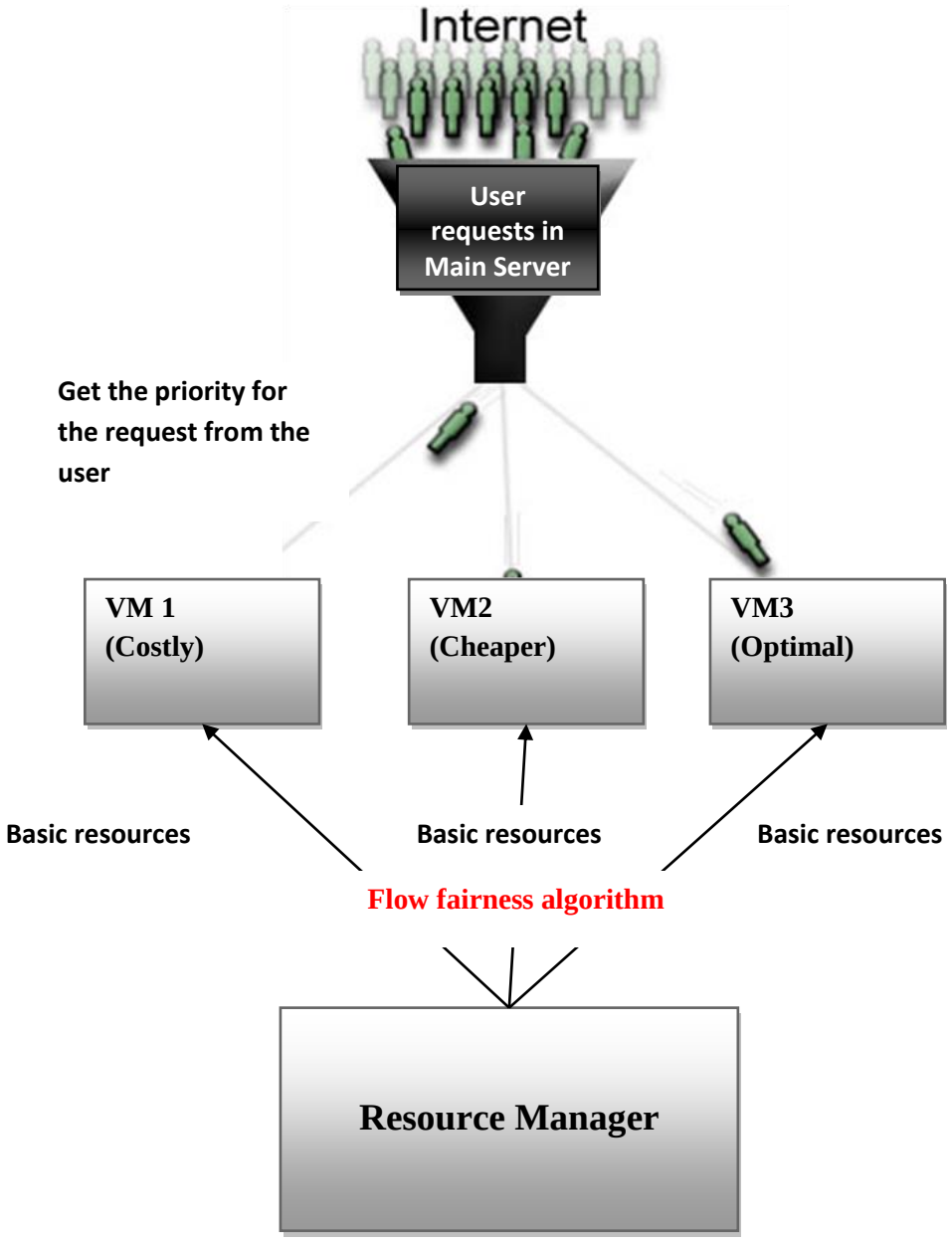
A generic optimization framework based on Lyapunov optimization theory, and designs a dynamic, joint content placement and request distribution algorithm, which minimizes the operational cost of the application with QoS guarantees.

This algorithm approaches the optimality achieved by a mechanism with known information in the future T time slots by a small gap, no matter what the request arrival pattern is. Our prototype- based evaluation verifies our theoretical findings.

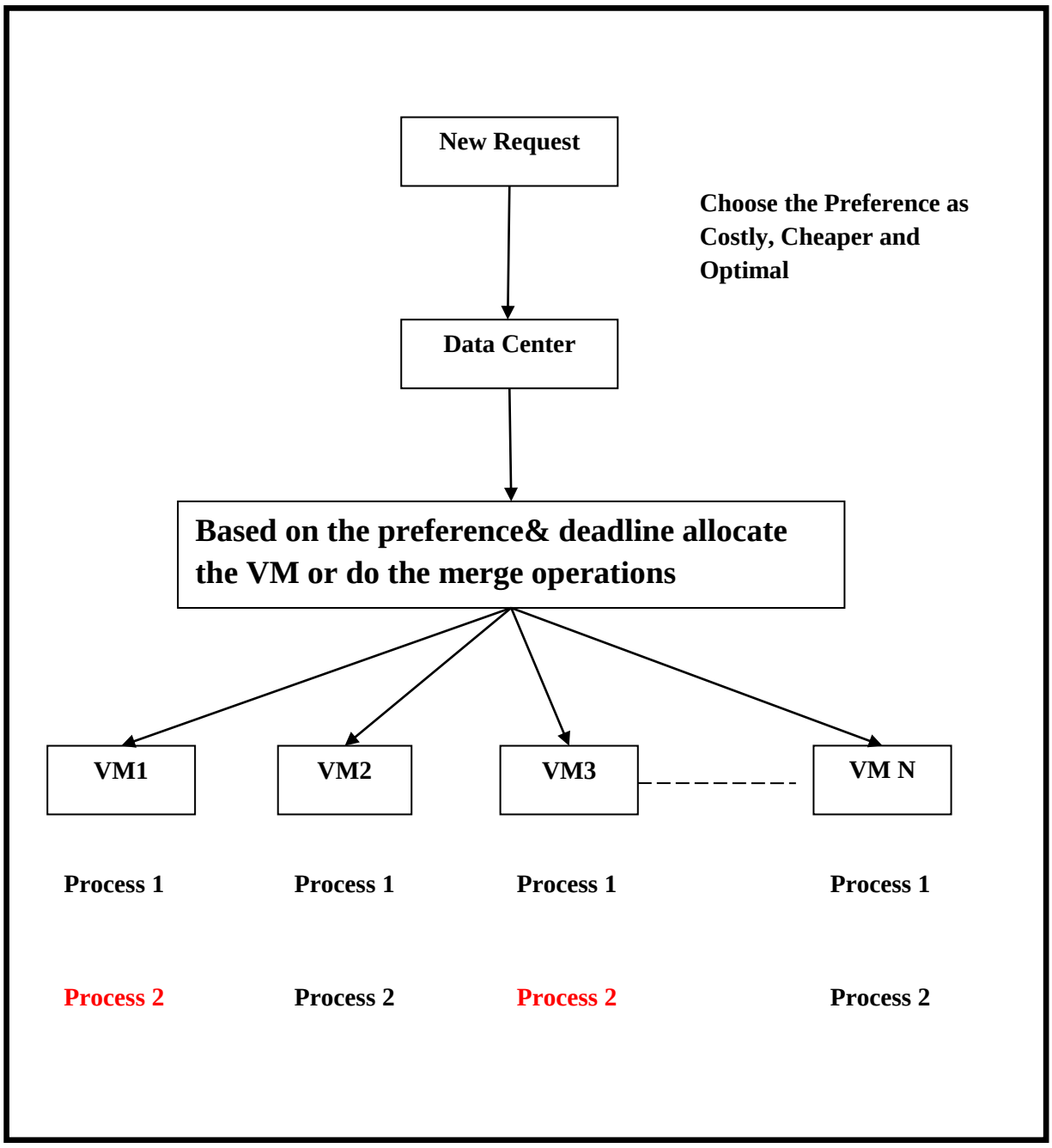
IV. PROPOSED_SYSTEM

For this problem they introduced the Heuristic Flow Equilibrium (Load Balancing) model is to overcome the existing problems. This research is going to implement **FF (Flow Fairness)** model in the proposed system. The existing approach created a NP hard and resource provisioning problem.

In this section, this formally defines the VM selection problem with personal need consideration. The original VM balancing problem is to distribute the subscripting users to different VMs so that all the VMs are kept balanced in all the time. In practice, this problem has no optimal solution because the optimal solution requires the exact leaving time for each user. Such information is of the future and can never be obtained.



This addressed the problem of dynamic VM provisioning and allocation in clouds by designing truthful mechanisms that give incentives to the users to reveal their true valuations for their requested bundles of VM instances. The proposed truthful optimal and greedy mechanisms for solving the VMPAC problem consider the presence of resources of multiple types. We determined the approximation ratio of the proposed greedy mechanisms and investigated their properties by performing extensive experiments. The results showed that the proposed greedy mechanisms determine near optimal solutions while effectively capturing the dynamic market demand, provisioning the computing resources to match the demand, and generating high revenue. In addition, the execution time of the proposed greedy mechanisms is very small. As a recommendation, G-VMPAC-II is the best choice for the cloud providers since it yields the highest revenue among the proposed greedy mechanisms.



- The main goal of the proposed system is to schedule the jobs of sub servers with the aim of reducing the server load imbalance.
- And this aims to support user constraint based VM selection with different parameters.
- Prediction of demands helps to avoid unexpected problems.
- Creating a cloud environment with different virtual machine and making the load sharable by performance based job scheduling.

V. CONCLUSION

In this proposed system in order to identify and prevent the data from unauthorized forwarders, the system proposed a new scheme which is named as **MARK (Message Authentic Routing Key)**. The proposed system utilizes the MARK which is an efficient packet marking technique to protect, prevent and avoid routing misbehaving attacks. In order to identify and halt the nodes which fling to decline or edit the data, the proposed system has been implemented the key_bit verification

algorithm. The proposed system also get back the data which are polluted and retransmits using cache based recovery algorithm.

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