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E-MART ENHANCING THE CLOUD COMPUTING

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Abstract: Emart's enhancement of cloud computing involves optimizing resource allocation, improving scalability, and implementing advanced security measures to ensure efficient and secure data storage and processing. This abstract outlines Emart's commitment to harnessing the full potential of cloud technology to elevate its operations, enhance user experience, and achieve greater flexibility in adapting to evolving business needs. In this project we are mainly concentrating about many market-based resource management strategies are been brought out to implement resource scheduling in cloud computing environment. More and more consumers rely on cloud providers to supply computing service, so economic effectiveness become crucial decisive factor for scheduling policy. In this paper we designed an economic scheduling model with business parameters. And dynamic scheduling algorithm was presented, which made a trade-off between economic effectiveness and performance. Based on the model and algorithm, we brought out market-oriented workflow management architecture for cloud, in which QoS based resource allocation mechanism was introduced to meet different consumers' demands and improve scheduling efficiency. E-MART Benchmarking the cloud .It is a multitier application written using the model-view controller design principle.

- Cloud allows for elastic scaling and on-demand resource provisioning.
- Allows users to create custom data center management algorithms.

I. INTRODUCTION

With the increasing adoption of Cloud Computing, we observe an increasing need for Cloud Benchmarks, in order to assess the performance of Cloud infrastructures and software stacks, to assist with provisioning decisions for Cloud users, and to compare Cloud offerings. We understand our paper as one of the first systematic approaches to the topic of Cloud Benchmarks. Our driving principle is that Cloud Benchmarks must consider end-to-end performance and pricing, taking into account that services are delivered over the Internet. This requirement yields new challenges for benchmarking and requires us to revisit existing benchmarking practices in order to adopt them to the Cloud

II. LITERATURE SURVEY

TPC-W is a transactional web benchmark that emulates an online bookstore. Its specification states, TPC-W represents any industry that must market and sell a product or service over the internet. TPC-W does not attempt to be a model of how to build an actual application." TPC W's performance metric, web interactions processed per second (WIPS), is not of primary importance for cloud that are more concerned with scalability

characteristics and QoS guarantees. RUBiS is an auction website modeled after eBay that is used to evaluate the performance of various application design patterns. However, there are a number of flaws in RUBiS that make it unsuitable for use as a modern application benchmark. Cloud stone's Olio is an open-source social-event calendar web application with web 2.0 features. It utilizes some modern technologies such as AJAX and Memcache. However, the application only has a limited number of functions, uses a single think time distribution, a static probability matrix for page transitions , and does not capture or emulate SQLite. SPECweb2009 is designed to measure web server performance, specifically how it relates to power efficiency. It reports transactions as a function of power usage as its primary metric. YCSB is not an application emulation benchmark, but a framework for benchmarking different databases for cloud data storage. YCSB can be configured with various distributions of database operations (e.g., reads, inserts, deletes, and so on.). In production applications, it is difficult to predict the number of database transactions required per incoming client request. Real production applications ranging from enterprise applications to large e-commerce sites share a crucial but seldom notedcharacteristic: The relative frequencies of transaction types in their workloads are Nonstationarity, i.e., the transaction mix changes over time. Accurately predicting application-level performance in business critical production applications is an increasingly important problem. However, transaction mix Nonstationarity casts doubt on the practical usefulness of prediction methods that ignore this phenomenon. This paper demonstrates that transaction mix Nonstationarity enables a new approach to predicting application level performance as a function of transaction mix. We exploit Nonstationarity to circumvent the need for invasive instrumentation and controlled benchmarking during model calibration; our approach relies solely on lightweight passive measurements that are routinely collected in today's production environments. We evaluate predictive accuracy on two real business-critical production applications. The accuracy of our response time predictions ranges from 10% to 16% on these applications, and our models generalize well to workloads very different from those used for calibration. We apply our technique to the challenging problem of predicting the impact of application consolidation on transaction response times. We calibrate models of two test bed applications running on dedicated machines, and then use the models to predict their performance when they run together on a shared machine and serve very different workloads. Our predictions are accurate to within 4% to 14%. Existing approaches to consolidation decision support predict post-consolidation resource utilizations. Our method allows application-level performance to guide consolidation decisions.

III. ANALYSIS

The initiative aligns with Emart's business goals, emphasizing efficiency, scalability, and innovation to stay competitive in the market. Emart likely conducted a thorough cost-benefit analysis to assess the financial implications of adopting advanced cloud solutions, weighing the potential benefits against the associated costs. Recognizing the importance of data security, Emart is likely implementing robust security measures to protect sensitive information and build trust with customers and stakeholders. The organization is addressing the challenge of integrating cloud technologies with existing systems, aiming for a seamless transition to minimize disruptions during the enhancement process .The emphasis on user-friendly interfaces and collaborative tools suggests a commitment to enhancing the overall user experience, promoting efficient workflows and

collaboration among teams .The adoption of scalable architecture indicates a forward-looking approach, allowing Emart to adapt quickly to changing business requirements and handle increased workloads. Incorporating continuous monitoring mechanisms reflects Emart's commitment to ongoing improvement, ensuring the system's

IV. DESIGN

We consider the problem of detecting communities or modules in networks, groups of vertices with a higher-than-average density of edges connecting them. Previous work indicates that a robust approach to this problem is the maximization of the benefit function known as “modularity” over possible divisions of a network. The systems architect establishes the basic structure of the system, this we know about the entire process which will going on after client window page. The system architecture explains each & every stage of request processing from client to destination. A major benefit of cloud computing environments is the ability to elastically scale applications to react to changes in workload levels. A benchmark application must be able to scale to utilize a large number of servers. E-MART is designed to horizontally scale at every tier. This prevents any one tier from becoming a performance bottleneck. A closed-loop generator automatically replaces an angry client leaving with a new client, holding the total user level static. This does not accurately represent the loss in profit that would occur from clients leaving the site prematurely. In real applications, the client arrival and departure rate are not directly dependent on one another. Clients leaving due to poor QoS would be reflected in a decline in workload. Using a closed-loop generator may give the impression that a resource provisioning scheme is performing well, when it would perform poorly in a production environment by causing many clients to leave the site prematurely.

Use Case Diagram

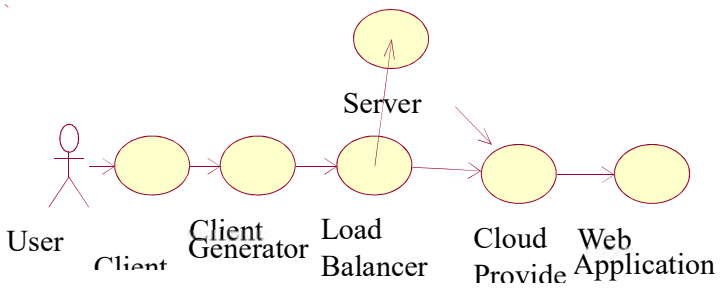


Figure:4.1

Sequence Diagram

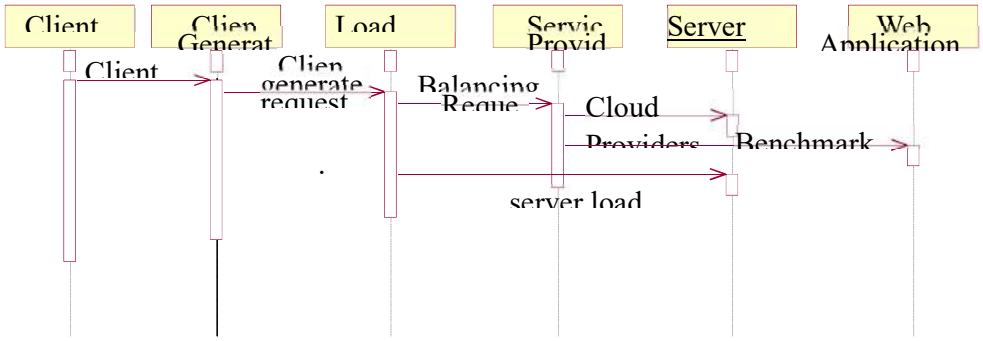


Figure:4.5

Implementation View

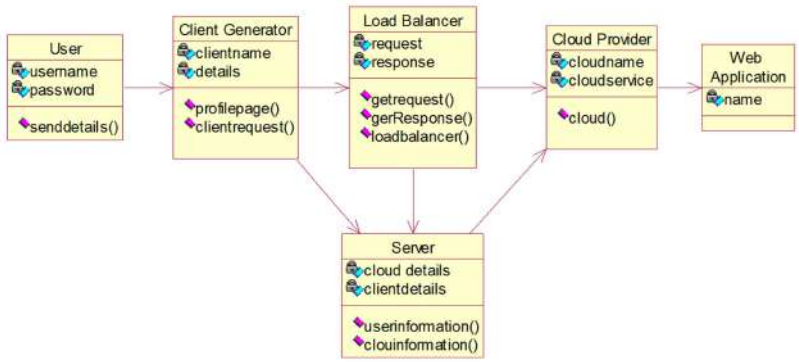
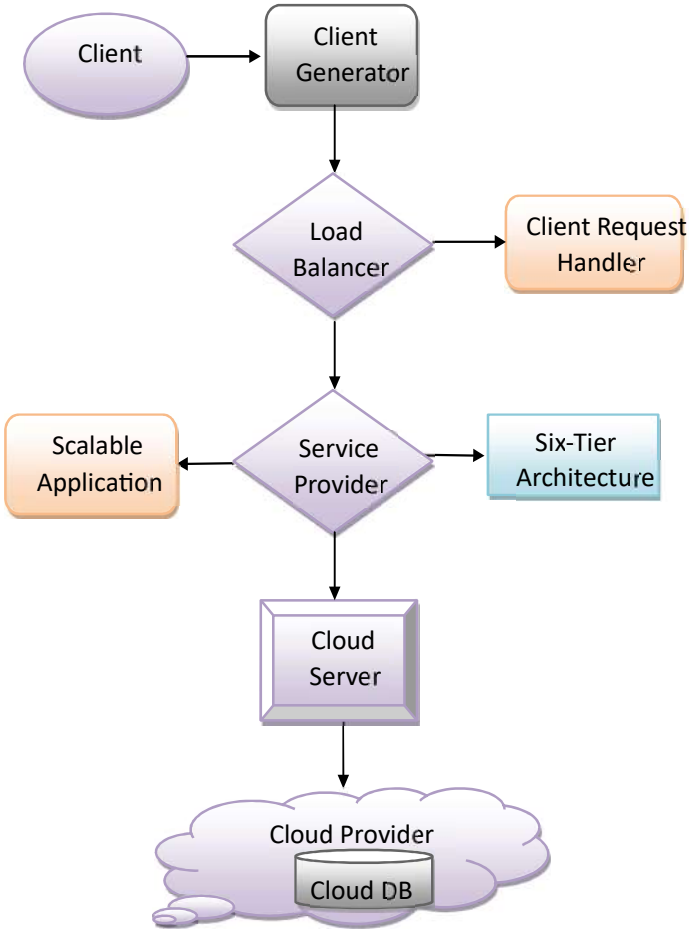


Figure:4.6

Entity-Relationship Model (ERM) is an abstract and conceptual representation of data. Entity-relationship modeling is a database modeling method, used to produce a type of conceptual schema or semantic data model of a system, often a relational database. In our ER diagram we have multiple clients ,load balancer,and cloud provider, cloud database details which are consists each and every entities of the client



IMPLEMENTATION AND RESULTS

This chapter tells us about the implementation part of the website. This section deals with the brief introduction about the important functions used to create the web application. It consists of various source codes used in building this web page. Also lists out the outputs of each section which makes it clear about the different options available to complete the successfully.

V. OUTPUT SCREENS

User Authentication

Design

CL

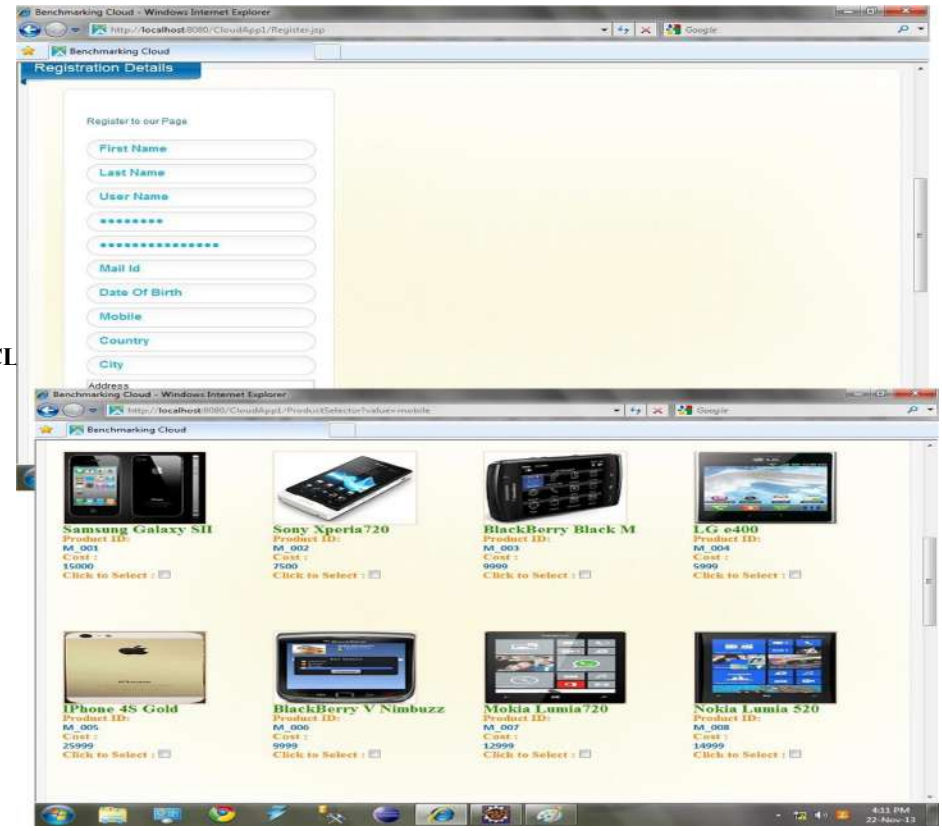


Figure 5.3

DYNAMIC SCALABILITY,TIER SCALABILITY AND DEPLOYMENT :

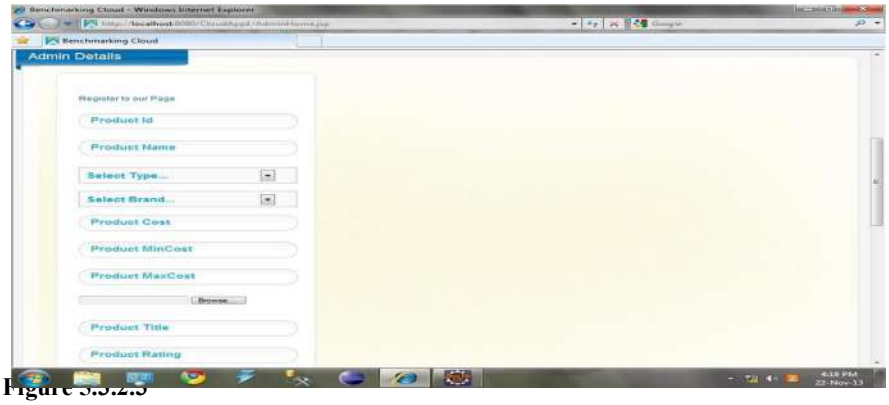


Figure 5.3.2.3

Result Analysis

Emart's strategic integration of cloud computing has yielded significant benefits. By leveraging cloud technology, the company has enhanced scalability, efficiency, and accessibility of its operations. This transition has resulted in streamlined processes, allowing Emart to adapt swiftly to market changes. Additionally, the improved data storage and retrieval capabilities have facilitated better decision-making

VI. Conclusion:

E-MART, a new benchmark application designed to emulate the behavior of modern cloud computing applications. E-MART can dynamically scale to support a large number of clients and has a flexible application design, allowing it to emulate multiple different application architectures. It uses modern web technologies such as HTML5, CSS, AJAX, and SQLite and includes a workload generator that emulates clients accessing the website. It creates unique clients that change their behavior according to page content, history, and QoS.

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