IJCRT.ORG ISSN : 2320-2882

INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

EXPERIMENTAL MODEL FOR LOAD BALANCING USING THROTTLED ALGORITHM

[1]Darshan N, [2]Mahendar Singh, [3]Nishant S, [4]Nivedita

[1]Dr. Clara Kanmani A, Bachelor of Technology, PES University, Bangalore, India

Abstract: The latest generation of networking paradigm known as distributed system appears to offer a number of services over the internet. A crucial component of distributed system is load balancing, which prevents situations in which some nodes are overburdened while others are idle or active. Their techniques are suggested as a good mechanism and more effective algorithm for allocating numerous client requests to already-existing system nodes. Results of tests performed to evaluate the load balancing efficiency algorithm use distributed system. Learn results of this study based on the total response time, the servicing of service requests, the load on the data center, and the cost information for virtual machines from the simulator utilized.

Keywords - Load Balancing, Virtual Machine, Throttled.

I. INTRODUCTION

Today's system-based services combine globally distributed resources into seamless computing platforms. Provisioning and accounting for the resource usage of these Internet-wide applications is a complex technical problem. This paper presents the design and implementation of distributed speed limiters. They work together to enforce global rate limits on multi-site traffic aggregates, enabling coordinated monitoring of network traffic for a system-based service. Our abstraction not only enforces a global boundary, but also ensures that transport layer flows responding to congestion behave as if they cross a single shared boundary.

We present two models - one general-purpose and one optimized for TCP - that allow service operators to make a clear trade-off between communication costs and system accuracy, efficiency and scalability. Both models are capable of streaming thousands of streams with negligible overhead (less than 3% in tested configuration). We show that our TCP-centric design is scalable to hundreds of nodes while being resilient to both loss and data transmission delay, making it feasible for nationwide service providers.

II. PROBLEM DEFINITION

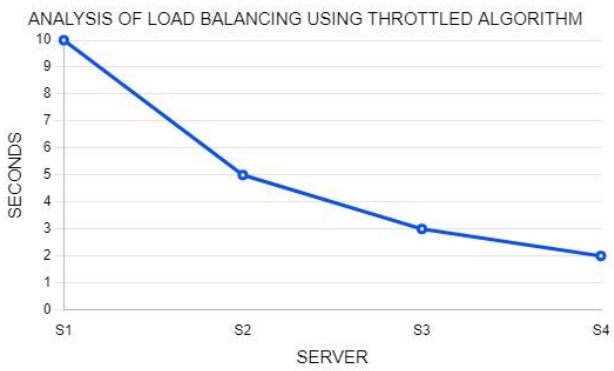
The problem is to develop an experimental model for load balancing using a throttled algorithm. Load balancing refers to the efficient distribution of incoming workload across multiple resources or servers to ensure optimal utilization and prevent any resource from being overwhelmed. A throttled algorithm involves controlling the rate or pace at which requests or tasks are processed in order to maintain stability and avoid overloading the system.

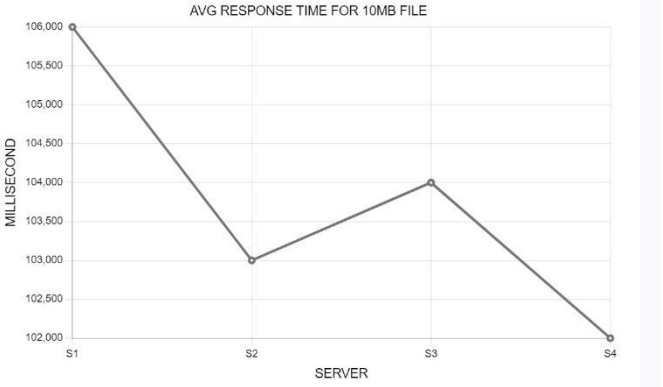
The objective of this experimental model is to create a load balancing mechanism that effectively distributes incoming workload among multiple resources or servers while utilizing a throttled algorithm to control the rate of processing. The model should ensure that the resources are evenly utilized, preventing any single resource from becoming overloaded, while also maintaining a stable and manageable pace of processing.

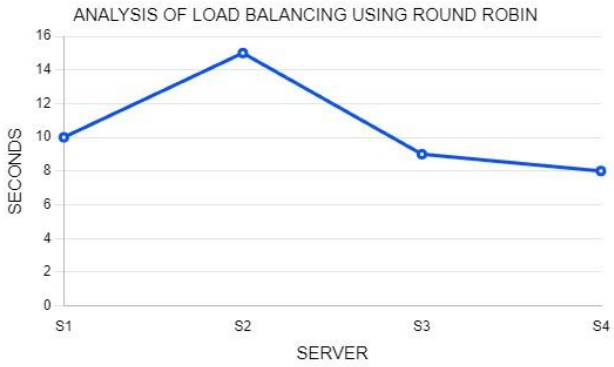
III. LITERATURE SURVEY

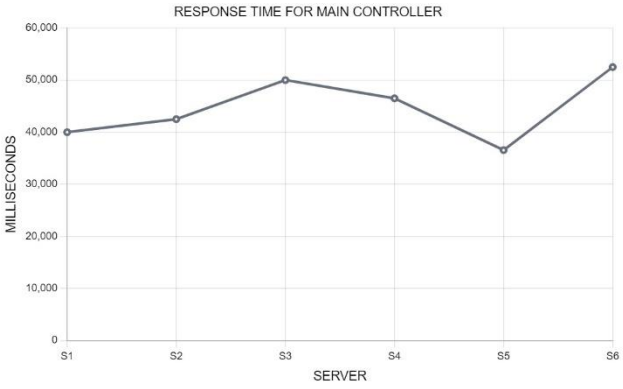
Cloud computing has revolutionized the way individuals and businesses access and utilize vast computing resources, mitigating the strain on local networks. However, the surge in user requests and the consequential decline in device efficiency pose significant challenges. To address this, load management in the cloud emerges as a pivotal solution. Researchers have delved into this issue, proposing various load balancing algorithms categorized into static and dynamic approaches. The selection of an appropriate algorithm demands careful consideration of criteria like reaction time, efficiency, energy consumption, scalability, and adaptability. Additionally, the escalating interest in cloud computing for resource sharing introduces performance concerns, including load balancing, resource sharing, and trust establishment. To address these challenges, a trust-based model incorporating user-cloud information and trust ratings for resource sharing and load balancing becomes imperative.

IV. RESULTS AND DISCUSSION









V. Conclusion

The Throttled Algorithm exhibited its capability to optimize resource utilization and enhance system performance by dynamically regulating the incoming requests. The use of VMs in this context proved to be a viable alternative for achieving load balancing objectives, showcasing the adaptability of the Throttled Algorithm in on-premises environments. This approach provides a practical and resource-efficient solution for organizations seeking load balancing strategies without the dependency on services.

REFERENCES

[1] Barath Raghavan, Kashi Vishwanath, Sriram Ramabhadran, Kenneth Yocum, and Alex C. Snoeren, Department of Computer Science and Engineering University of California, San Diego Year: 2023.

[2] Dawit Mekonnen, Alemayehu Megersa, Rakesh Kumar Sharma, Durga Prasad Sharma, "Designing a Component-Based Throttled Load Balancing Algorithm for Cloud Data Centers", Mathematical Problems in Engineering, vol. 2022, Article ID 4640443, 12 pages, 2022.

[3] Navneet Kumar Rajpoot, Prabhdeep Singh, Bhaskar Pant, "Load Balancing in Cloud Computing: A Simulation-Based Evaluation", 2023 International Conference on Computational Intelligence and Sustainable Engineering Solutions (CISES), Year: 2023.

[4] Asep Kurniawan, Prihatin Oktivasari, Nur Fauzi, Muhammad Noviandri, Muhammad Iqbal, "Cloud Computing Based Server Infrastructure Analysis for Payment Machinery Needs", 2023 6th International Conference of Computer and Informatics Engineering (IC2IE), Year: 2023.

[5] Raghunadha Reddi Dornala, "An Advanced Multi-Model Cloud Services using Load Balancing Algorithms", 2023 5th International Conference on Inventive Research in Computing Applications (ICIRCA), Year: 2023.

[6] Shalu Rani, Dharminder Kumar, Sakshi Dhingra, "A review on dynamic load balancing algorithms", 2022 International Conference on Computing, Communication, and Intelligent Systems (ICCCIS), Year: 2022.