Chapter 6
New Proposed Policies and Strategies for Dynamic Load Balancing in Cloud Computing

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ABSTRACT

In this chapter, there are very novel techniques in which, by deleting nodes that are either overloaded or underloaded and then reassigning the total load to the collective system's nodes, it is possible to maximise the usage of resources and the amount of time it takes for tasks to be completed. The approaches that are utilised for dynamic load balancing are based on the behaviour of the system as it is being utilised right now, as opposed to the behaviour of the system as it was being utilised in the past. When constructing an algorithm of this kind, the most essential considerations to give attention to are the estimation

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and comparison of load, the stability and performance of the system, the interaction between nodes, the amount of work that needs to be transmitted, and the choice of nodes.

INTRODUCTION

It is a technique in which the overall load is redistributed to the individual nodes of the collective system in order to optimize (Pandey, B. K., & Pandey, D., 2023) the efficacy with which resources are utilized and to shorten the amount of time it takes for the activity to be completed (Mequanint. Moges., 2005). The goal of this strategy is to reduce the amount of time it takes for the activity to be completed. This is done with the goal of increasing the overall efficiency of the system (Iyyanar, P. et al., 2023) to the fullest extent that is practically possible (Singh, J., et al.(2023)). Because of this action, there is no longer a chance that some of the nodes are under loaded while others are over loaded at the same time. This eliminates the possibility of simultaneous under loading and over loading of the nodes. This circumstance may arise whenever some of the nodes are receiving more work than they are presently able to process. This could happen whenever there is a backlog of work. This might occur whenever there is a significant accumulation of unfinished tasks. Both the reaction times and the efficiency with which the available resources are exploited can be improved, which will ultimately result in the achievement of these aims (Pandey, D., 2022). A method for load balancing that is dynamic in its very nature does not take into account the previous state or behavior of the system model (Revathi, T. K. et al., 2022); rather, it is dependent on the behavior that the system is exhibiting at the present time in order to determine how to distribute the data (Kumar, M. S. et al., 2021). This is because it is impossible to know in advance how the system will behave or what condition it will be in (Vinodhini, V., et al., 2022). As an illustration, the technique would not take into consideration the fact that the system was currently in a condition in which it was carrying out a certain operation. This suggests that the approach cannot be used to discover how the system (Pandey, D. et al., 2021) behaved in the past due to the reasons that were outlined in the sentence that came before this one (Martin Randles et al., 2009). Those explanations may be found above. This demonstrates that there is absolutely no consideration given in any manner, shape, or form to the prior behaviours or condition of the system. This is the case regardless of whether we are talking about software or hardware (Bessant, Y. A. et al., 2023). When developing an algorithm of this kind, it is essential to take into account a number of significant factors, including the following: estimation of load, comparison of load, stability of various systems, performance of system (Pandey, J. K. et al., 2022), interaction between nodes, nature of work to be transmitted, selecting nodes, in addition to a great number of other factors (Sennan, S., et al. 2022. These are just some of the factors that need to be taken into consideration. These are just some of the many things that have to be taken into consideration, but there are plenty more. These are only some of the many factors that need to be taken into account, but there are lots more besides these. This burden that is being investigated can possibly be expressed in terms of the quantity of memory that is being used up, the delay that is being imposed, or the pressure that is being put on the network (Pramanik, S. et al., 2023). All three of these possibilities are being considered. These three considerations are given equal weight in the overall analysis. Consideration should be given to all three of these potential courses of action.