Load Balancing in Distributed Systems using Diffusion Technique

Abstract

The purpose of load balancing algorithm is to distribute the excess load from heavily loaded nodes to underloaded nodes. A new dynamic load balancing algorithm is proposed based on diffusion approach (DDD) for homogeneous systems where the processing capacities of all nodes in the system are equal. The proposed algorithm works iteratively to balance the load among the nodes in a system. The dynamic distributed diffusion algorithm has been developed for coarse and large granularity applications, where the load shall be treated as an Integer quantity. The functioning of the proposed algorithm is demonstrated by using a random graph & simulation has shown the proposed algorithm performs better in terms of time taken to balance the load, minimizing the load variance among the nodes and maximizing the throughput.

References

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