Abstract

In Distributed Computing Systems (DCSs), a program is split into small tasks and distributed among several computing elements to minimize the overall system cost. Several challenges have been posed by this mode of processing which can be classified mainly into two broad categories. One class belongs to the hardware oriented issues of building such systems more and more effective while the other aims at designing efficient algorithms to make the best use of the technology in hand. The task allocation problem in a DCS belongs to the later class. Intrinsically, task allocation problem is NP-hard. To overcome this issue, it is necessary to introduce heuristics for generating near optimal solution to the given problem. This paper deals with the problem of task allocation in DCSs in such a way that the load on each processing node is almost balanced. Further, the development of an effective algorithm for allocating tasks to processors of a given distributed system using task clustering by taking both Inter Task Communication Cost (ITCC) and the Execution Cost (EC) is taken into consideration.
An Effective Load Balancing Task Allocation Algorithm using Task Clustering


- Srinivasan, S., and Jha, N. K. 1999. Safety and reliability driven task allocation in
distributed systems. IEEE Transactions on Parallel and Distributed Systems. 10(3), 238 – 251.


Index Terms

Computer Science

Algorithms

Keywords

Distributed Computing Systems  Task Allocation  Static Load Balancing  Execution Cost

Communication Cost.