Improving Energy Efficiency of MapReduce Framework

Project number: IMURA0265

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The problem
The increase in power consumption of data-centres has become an important issue of concern. Now the MapReduce clusters constitute a major part of data-centres for BigData processing applications. But the sheer size, high fault-tolerant nature and low utilization levels makes them less energy efficient. So improving the energy efficiency of MapReduce clusters can contribute significantly towards the data-centres energy efficiency.

Project aims
- To empirically study the impact of various configuration parameters on MapReduce energy efficiency.
- To create MapReduce energy models for accurately predicting energy consumptions.
- To create energy aware scheduling algorithms for MapReduce.

Expected outcomes
This project aims to have an energy efficient MapReduce framework which can deliver required performance. It would provide the heuristics and models to enable energy-aware configuration of MapReduce framework and jobs. It would provide a energy-adaptive scheduling algorithm for efficient scheduling of MapReduce jobs and tasks. Thus the project outcome would help reduce the power consumption and operational cost of data centers.