In this paper, two row boundary (TRB) allocation algorithm and limited top-down compaction (LT-DC) migration method are proposed. The first scheme, attempts to allocate the free nodes in the center of the mesh and decrease the problem of external fragmentation. The next mechanism use task migration to improve the performance of existing sub-mesh allocation strategies. It should be noted that in this process three key metrics are considered. They are average execution time, average response time, and average wait time. In fact, we perform rigorous simulation experiments based on practical workloads as reported in the literature to quantify all our proposed schemes and compare them against standard schemes existing in the literature. Based on the results, we make clear recommendations on the choice of the strategies.

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