Introduction

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In total, fifteen papers were submitted to Topic 8 (including those that were redirected from other Topics), and each paper received four reviews. Five papers were discussed in depth between the chairs. Ultimately, the chairs proposed three papers for acceptance at the PC meeting. The accepted papers tackle a variety of systems and algorithmic problems, with none of the papers tackling some of the “classic” distributed computing topics (e.g., consensus). This was not done as a conscious decision by the chairs; rather, the papers were accepted solely based on quality.

The paper “Active Optimistic Message Logging for Reliable Execution of MPI Applications” focuses on reliability and fault tolerance of MPI applications. An important technique for achieving these goals involves message logging. However, straightforward logging can result in excessive messaging overheads. The authors present a new optimistic message logging protocols, called O2P, that reduces the protocol overhead by logging the dependency information as soon as possible. Evaluations using live experiments with up to 128 processes shows that the technique performs well.

In “A Self-Stabilizing k-Clustering Algorithm Using an Arbitrary Metric,” the authors tackle a problem of grouping a set of nodes in a distributed system based on their locality, or some other metric. This paper proposes a new distributed algorithm for such clustering. The algorithm leverages a Self-Stabilizing Leader Election algorithm, to construct a BFS spanning tree, and color waves for synchronization and inconsistency detection. Authors use simulation to demonstrate the effectiveness of their algorithm.

The paper “Distributed Individual-Based Simulation” describes a new approach to distribute and parallelize individual-based simulations in which entities communicate indirectly with one another through the underlying simulated space. Parallelizing such simulations takes considerable communication overhead since nodes need to exchange information at every iteration. The authors propose communication to be less frequent, e.g., every epoch. This introduces two problems: (1) nodes continue to track particles that have moved to other nodes; (2) particles can become stuck. The authors propose to resolve (1) using shadow cells and (2) using explicit conflict resolution techniques that tackle different scenarios. The experimental results show considerable improvements in execution time when the simulation is parallelized.

Finally, we would like to thank the authors for submitting their work, and the topic chairs and the external reviewers for writing the reviews.

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