Public Review for
Low Complexity, Stable Scheduling Algorithms for Networks of Input Queued Switches with No or Very Low Speed-up

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This paper presents a number of new results in the area of switching performance. Prior work has demonstrated that there are backplane scheduling algorithms (for input queued switches) that remain stable with no speedup. However, as this paper points out, the complexity of these algorithms makes them impractical. The algorithms that are currently practical require a speed-up in the backplane of at least a factor of two.

This paper describes new scheduling algorithms that can achieve stability without a speedup, with comparatively low complexity. The paper first builds approximate approaches that require a partial speed-up, and then shows how these may be improved to obtain an algorithm which requires no speed-up. The proofs are extended to networks of such switches, and the paper shows how to implement a distributed version of this scheduling algorithm.

The reviewers all liked the paper raising no major issues, except that it was seen as perhaps a little more incremental than is aimed for in CCR, as the results are built on a solid body of literature in this area. However, increasing the practical throughput of switches by a factor of two appears to be quite a significant improvement, worthy of appearing in CCR.

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