

# Review of On Selfish Routing in Internet-Like Environments

Swaminathan Sundararaman

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This paper investigates the impact of selfish routing policies to intra-domain routing traffic. Previous works on selfish routing have shown to give significant improvement in reducing latency (by avoiding inefficiencies in the network) as compared to traditional routing. But, recent theoretical works on selfish routing have shown that selfish routing can have poor performance and made them less desirable. In this paper, the authors have performed experiments (also through simulation) on selfish routing for various realistic network topologies and workloads and proved that selfish routing performs well (i.e., reduces the latency) for internet-like workloads, but will increase congestion on certain other links.

The main strength of the paper is that it evaluates selfish routing for multiple router control policies, routing schemes, and network topologies. This gives robustness to their results and findings from their experiments. Few of the weaknesses in this paper are: (a) it does not evaluate inter-domain routing which is more meaningful for selfish routing, (b) construction of network model especially for overlay networks does not represent actual deployment scenario (i.e., the authors assume that overlays are fully connected, which is almost always not the case in real scenarios), and (c) having a mesh network for overlays (i.e., completely connected) will always give comparable (if not better) performance to routing in regular networks as they also have the more flexibility in terms of choosing the next hop. This assumption also does not hold true in actual deployment scenarios of overlay routing.

The authors have taken a game-theoretic approach to studying the impact of selfish routing in internet-like scenarios and have found that selfish routing achieves close to optimal average latency in most cases for static routing. They also found that while improving latency, selfish routing increases congestion in other links. Finally, they show that traffic engineering and selfish routing don't go hand in hand.