



**RESEARCH ARTICLE**

# SMART ASSOCIATION CONTROL IN WIRELESS FIDELITY USING FBA

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**Abstract**— *Wi-Fi clients must associate to a specific Access Point (AP) to communicate over the Internet. Current association methods are based on maximum Received Signal Strength Index (RSSI) implying that a client associates to the strongest AP around it. This is a simple scheme that has performed well in purely distributed settings. Modern wireless networks, however, are increasingly being connected by a wired backbone. The backbone allows for out-of-band communication among APs, opening up opportunities for improved protocol design. This paper takes advantage of this opportunity through a coordinated client association scheme where APs consider a global view of the network, and decide on the optimal client-AP association. We show that such an association outperforms RSSI based schemes in several scenarios, while remaining practical and scalable for wide-scale deployment.*

*Here introduce the SAC protocol in this project to improve our performance. It argue that the load imbalance and consequent unfair bandwidth allocation can be greatly alleviated by intelligently associating users to APs, termed association control, rather than having users associate with the APs of strongest signal strength. Simulation results demonstrate that such a technique can improve over purely distributed association schemes, resulting in higher fairness, better load balancing properties, and even some robustness to client mobility.*

**Key Terms:** - *Include load balancing; association control; max-flow; fairness*

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