Optimum Load Balancing in WLANs

Technology #z03149

Uses Delay Costs to Load Balance Nodes in Wireless Local Area Networks

A new system uses delay costs to load balance in a wireless network. The method determines a delay cost for access points in the wireless network, where each point may have wireless nodes associated with it. When the delay costs are not equal, and when a difference in delay costs of two access points exceeds the cost to move a wireless node, the system determines an access point with the greatest delay cost. For each wireless node associated with that access point, it determines an overall cost associated with moving the wireless node from that access point to another access point and moving the wireless node to an access point having a lowest overall cost. The method uses weighted mean end-to-end delay across the entire WLAN attributable to the wireless portion of the network as a measure of network performance and user satisfaction. The weighted mean end-to-end delay, the costs of refusing service to a mobile station or forcing a mobile station to switch to another access point may be added to determine whether it is desirable to switch a station to a new access point. Furthermore, the balancing algorithm measures network traffic to make predictions and optimize allocation of station to access points every T seconds (T is length of an epoch and is determined by the network manager) to rebalance the network due to potential changes in traffic conditions.

BENEFITS AND FEATURES:

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• Load balancing in wireless local area networks
• Uses delay costs
• Load balances nodes across access points
• Determines overall cost associated with moving a wireless node from high-cost to lower-cost access points
• Weighted mean end-to-end delay
• Predicts and optimizes allocation of station to access points

APPLICATIONS:
• Wireless networks/WLANs

Phase of Development - Proof of Concept

Interested in Licensing?
The University relies on industry partners to scale up technologies to large enough production capacity for commercial purposes. The license is available for this technology and would be for the sale, manufacture or use of products claimed by the issued patents. Please contact Kevin Nickels to share your business needs and technical interest in this technology and if you are interested in licensing the technology for further research and development.

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