A centralized architecture for autonomic quality of experience oriented handover in dense networks

This paper presents an Optimised Handover (HO) Algorithm for Dense Wireless Local Area Networks (WLANs) based on a novel architecture of Software Defined Wireless Network (SDWN). The work has been designed to be effective in large network environments with a high density of Access Points (APs) and stations, which increase the chances of the Ping-Pong HO effect. Specifically, it considers Quality of Experience (QoE) by applying an optimised HO algorithm for WLANs, which relies on Fuzzy Logic Control Theory (FLCT) combined with Adaptive Hysteresis Values (AHVs). SDWN allows to monitor and manage the networks and to autonomously programme the APs through a centralized controller. The paper includes also a detailed performance analysis of the algorithm developed in an SDWN-based simulator implemented through OPNET. Specifically, our algorithm achieved promising performance results compared to the state of the art in terms of QoE, throughput, delay and reduction of the ping-pong HO effect.