

Abstract

In large organisations, wireless networks can consist of a hundreds or even thousands of wireless access points. The workload to configure these systems can be large due to the variety of configuration interfaces. The type of interface used to configure the access point (AP) varies greatly between manufacturers and models. This causes management of a large network to be complex.

In this thesis, a way to solve this problem was investigated and developed. This was done through an architecture we call CloudMAC. CloudMAC splits the single physical access point into two separate physical machines. One machine runs a Virtual AP who is transparently connected to the another machine, running the Physical AP. The connection is provided by a tunnel over the Ethernet wire. This extension to our current wireless networks allows for easier configuration and management.

In order to test the performance of this new architecture, a prototype was constructed and a series of performance tests were run. The results of the performance tests shows that this new, more flexible architecture gives a minimal loss in performance compared to a standard wireless network.

The applications of this architecture include, but are not limited to: simplifying the administration by centralizing the processing; eases deployment of new applications; making wireless access points shut down or start up depending on network load, thus saving energy.