Zurich University
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WLAN Mesh Network based on linux embedded system

Today the usual way to connect access points is still over ethernet. There are technical solutions to relay the data over a wireless network but the are rarely used in commercial products. The goal of this work was to assemble and analyse such an infrastructure (mesh).
Three devices were built: A plain access point, an access point connected over the mesh-network and a mesh-node with webcam. For supporting as many mobile devices as possible the access point was assigned to the 2.4 GHz band. To avoid complications with the access points the mesh-network was made to operate on the 5 GHz band. The devices should later be powered by a solar panel, therefore the power consumption was the main focus. The nodes were based on the single board computer RaspberryPi.
The network could successfully be built. The power consumption was acceptable, although it has potential for further optimization. The data throughput over two hops was at an average rate of 9.9 Mbps.

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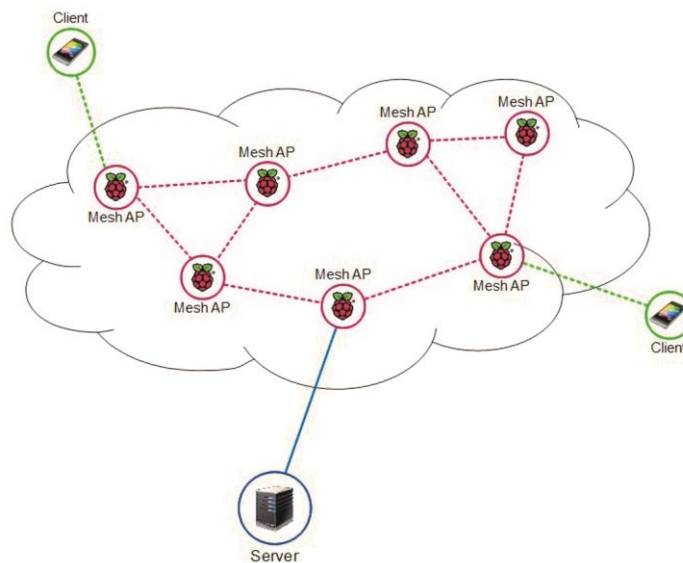
Mesh-network with access points