

ABSTRACT

Particularly in developing countries, the use of wireless technology as a means of data communication in computer networks will be very useful. Wireless is very flexible and can reach areas that are difficult to reach with wired access media. For local coverage can be used WirelessLAN (WLAN) with Ad-Hoc mode, because it is very simple and does not require a wireless access point so that each station can communicate with each other using mesh topology. Ad-Hoc WLAN is part of the Wireless Mesh Network (WMN).

WMN is a wireless communication network composed of multiple radio nodes in which there are two or more lines of communication data at each node. The final task of this type incorporate Hybrid WMN, where the WMN as the core network can handle a client of the WLAN network mode WLAN Ad-Hoc and Infrastructure modes at once. Routing protocol used is OLSR (Optimized Link State Routing) and olsrd to integration on the client operating system. The device used in the form of multiple wireless station as a wireless router as a client and mesh router in WMN cores. To be able to build the core WMN, mesh routers is modified by using DD-WRT firmware.

Measurements done with the audio streaming service to test the performance of self-organizing, self-healing, parameters delay, jitter, throughput, packet loss, as well as the Mean Opinion Square (MOS). Based on the results of measurements in this Final, the time required WMN cores in self-organizing to reach 7493 seconds and self-healing reach 13,293 seconds. In the measurements on the client access to services adhoc and BSS, delay reach 57,768 ms and 57,532 ms, jitter and 7239 ms 7.141ms reached, throughput reaches 23450,935 Bytes / s and 23651,287 Bytes / s, as well as the percentage of packet loss reaches 1757% and 1633%. Results are expected to provide an example implementation of the Hybrid WMN for the benefit of minimal cable service in the community, the post-disaster emergencies, and developing countries as a cheap solution communication costs.

Keywords: Wireless, Wireless Mesh Network, Hybrid WMN, OLSR, Audio Streaming