Performance analysis of HWMP protocol for wireless mesh networks using NS3

NATARAJU A.B1,2, H D MAHESHAPPA2, AMARDEVKATTE2
I Research Scholar, Jain University, Bangalore, INDIA
2Department of Electronics and Communication Engineering, Acharya Institute ofTechnology, Bangalore, INDIA
nataraju,ab@gmail,com; hdmappa@gmail.com; devkatteamar@gmail.com

Abstract –

Wireless mesh network (WMN) deployments are popular as a cost-effective means to provide broadband connectivity to large population. With the increase in network usage, network planners need to enhance the existing mesh network to provide additional capacity. IEEE 802.11s [2J is the de facto standard for WMN implementations. This standard defines two new protocols namely Hybrid Wireless Mesh Protocol (HWMP) and Peer management protocol (PMP) to support wireless meshing functionality. HWMP protocol provides the Layer-2 routing functionality while PMP helps in maintaining the links between mesh points. This work analyzes the performance of HWMP protocol with varied grid size, packet size, and number of radio interfaces. It is observed that HWMP protocol perform well with more number of radios and larger grid size as long as the packet size is less than or equal to 2K bytes. The performance degrades drastically beyond packet size of 2K bytes and is not suitable to operate with larger packet sizes.

Keywords

- IEEE 802.11s
- WMNs
- HWMP
- Multi-Radio
- NS3