ABSTRACT

One-way communications such as video streaming nowadays are easier to be used. One of service which eases those communications is Internet Protocol Tele Vision (IPTV). By easiness of service packet-based that has entered in the whole of world made simplifies access of IPTV services. The regulation of IPTV, which needs high performance, makes these services interesting to any people. However, the easier access requires secure services for protecting data and information.

One of network security applications is Secure Socket Layer (SSL). The protocol can encrypt data which will be transmitted to client, by SSL Handshake method, where this method gave a system which almost equals to connection-oriented method. The application of SSL is aimed to combine between SSL and HyperText Transfer Protocol (HTTP), where the communication happened when user of IPTV service make login session while it will enter website that is served by server. By using the system, then the application of Real-Time Transport Protocol (RTP) on Application layer does not overburden data delivery's performance between server and client. This research uses 5 type of attacks simultaneously, those are Distributed Denial-of-Service (DDoS), IP Spoofing, Man-in-the-Middle Attack: Video Hijacking, Heartbleed Bug, and a combination from IP Spoofing-DDoS-MitM Attack: Video Hijacking, with hacker or penetration tester (pentest) does not belong to examiner.

In the final task, the experiments of analysis are taken from 3 scenarios: using VLC program, web page-interface, and web page-interface after being attacked by pentest or hacker, with Open-Shortest Path First (OSPF) as routing protocol, and Protocol Independent Multicast (PIM) as grouping of videos IP. The result showed that the average marks, before being attacked by hacker (being VLC program), are 3.40734 Mbit/s, 4.31384 Mbit/s, and 1.31656 Mbit/s for throughput, 0.974 ms, 0.938 ms, and 0.899 ms for end-to-end delay, 0.0085 µs, 0.0093 µs, 0.0110 µs for mean jitter, and 0% packet loss for video 1 and 3, 0.93% packet loss for video 2, and the average marks, before being attacked by hacker (web page and HTTPS), are 3.62284 Mbit/s, 6.04867 Mbit/s, and 1.33368 Mbit/s for throughput, 0.971 ms, 0.926 ms, and 1.008 ms for end-to-end delay, 0.1188 µs, 0.0271 µs, 0.0048 µs for mean jitter, and 0% packet loss for all of the videos. Whereas the average marks, after being attacked by hacker, are dissimilar and depend on the types of attacks.

Keywords: IPTV, Secure Socket Layer, Attacks Performances