

ABSTRACT

VoIP (Voice over Internet Protocol) is a system that sends voice data packets from one place to another using IP protocol intermediaries. But since VoIP services are mostly located in the scope of the packet network area in the security aspects of VoIP networks also need adequate attention. Due to the volatile security aspects of this, we need a security system to keep the VoIP communication takes place.

In this final task is discussed further on these security aspects of VoIP. On examination, one is implemented to secure VoIP protocol that ZRTP (Zimmerman Real-Time Transport Protocol). ZRTP is a protocol designed to generate shared secret between the two parts of communication, that are then used to generate Secure RTP (SRTP) keys. ZRTP uses Diffie-Hellman key exchange to negotiate a key to encrypt the voice on the VoIP communication. The key exchange that would keep the sound or communication from an attack on VoIP communications. With the existence of security in VoIP communications ZRTP increased especially in overcoming some of the attacks. When tested Spoofing Attack repulsed the attack failed to do so attacker disguises. When tested MiTM Attack repulsed the attack so that an attacker who should be able to conduct further attacks, to perform ARP Poisoning failed. And lastly, although not entirely dispel, but security is biased to reduce the effects of flooding on testing DoS Attack.

From the test it was obtained that in terms of server security with ZRTP is more resistant from some attacks. And in terms of QoS performance obtained in conditions of the maximum background traffic in this test (100 calls/s, 80Mbps), delay value of communication in RTP is 24.19531 ms, while in the ZRTP increased to 25.615952 ms. Jitter value in RTP communication is 6.24295 ms, while in ZRTP is 8.411463 ms. The value of packet loss in RTP communication is 4.551167%, while in ZRTP is 4.990917% (almost 5%). Throughput value in the RTP communication is 70085.829667 bps, while in ZRTP bps 68545.307. And QoS parameters value since the maximum background traffic is still an acceptable VoIP quality standards.

Keywords : VoIP, SIP, Kunci, ZRTP