

Abstract

Android smartphone technology is growing rapidly. One is by utilizing the features of internet phone service through Voice over Internet Protocol (VoIP) users can have conversations with easy and inexpensive. But along with the development of Internet telephone service used is not necessarily safe to use. One solution is to perform encryption end-to-end. Conduct research application of TEA algorithm for encryption into Sipdroid VoIP client on Android smartphone. Therefore, the application of TEA algorithm into Sipdroid certainly have an influence on the quality of the conversation and the resulting quality VoIP performance. The results of measurements and calculations prove that the effect of the implementation of the TEA algorithm to produce a quality conversation R factor produced smaller, amounting to 72.11676 to 75.01362 compared without TEA application of 84.79064 to 85.38539. However, the R factor produced, according to recommendations of MOS category according to the standard ITU-T in the category of acceptable. While the influence of VoIP performance against the application generates a much larger *delay* which is equal to 0.018084 seconds to 0.024327 seconds when compared to the application without TEA which produces a *delay* of 0.006071458 seconds to 0.009465105 seconds. And produced a smaller *throughput* ie ranging diangka 53 kbps to 126 kbps. The process occurs due to the formation of a package with a bit larger than the usual bits. This is due to the encryption process that occurs has changed the length of the packet. These results prove that the application of TEA on the application process has an influence on the quality of VoIP performance.

Keywords : android, session initiation protokol, tiny encryption algorithm, voice over internet protocol.

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Intisari— Teknologi *smartphone* Android saat ini berkembang pesat. Salah satunya dengan memanfaatkan fitur layanan telepon internet melalui *Voice over Internet Protocol* (VoIP) pengguna dapat melakukan percakapan dengan mudah dan murah. Namun seiring dengan perkembangan tersebut layanan telpon internet yang digunakan belum tentu aman digunakan. Salah satu solusinya adalah melakukan enkripsi secara *end-to-end*. Penelitian melakukan penerapan algoritme TEA untuk proses enkripsi kedalam VoIP *client* Sipdroid di *smartphone* Android. Oleh sebab itu penerapan algoritme TEA ke dalam Sipdroid tentunya memiliki pengaruh terhadap kualitas percakapan dan kualitas kinerja VoIP yang dihasilkan. Hasil pengukuran dan perhitungan membuktikan bahwa pengaruh penerapan algoritme TEA terhadap kualitas percakapan menghasilkan R Faktor yang dihasilkan lebih kecil yakni sebesar 72,11676 sampai 75,01362 jika dibandingkan aplikasi tanpa TEA sebesar 84,79064 sampai 85,38539. Namun R Faktor yang dihasilkan, menurut rekomendasi kategori MOS sesuai standar ITU-T masuk dalam kategori yang dapat diterima. Sedangkan pengaruh kinerja VoIP terhadap aplikasi menghasilkan *delay* jauh lebih besar yakni sebesar 0,018084 detik sampai 0,024327 detik bila dibandingkan dengan aplikasi tanpa TEA yang menghasilkan *delay* sebesar 0,006071458 detik sampai 0,009465105 detik. Serta *throughput* yang dihasilkan lebih kecil yakni berkisaran diangka 53 kbps sampai 126 kbps dari aplikasi tanpa TEA.

Kata Kunci—Android, *Session Intiation Protocol*, *Tiny Encryption Algorithm*, VoIP.

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