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## ABSTRACT

Voice over IP technology have capability to integrate with wireless network together along with emerging compatible VoIP instrumentation, like wireless VoIP Phone, laptops, PDAs, and 3G telephone.

VoIP over Wireless LAN (VoWLAN) analyze in framework to fulfill the need of optimizing network performance with sound quality as big challenges in wireless LAN VoIP communication. For official communication between branch office, Graha Santika Hotel having a LAN network that connected by internet. In this final duty, VoIP network model simulated with OPNET, and evaluate of VoIP over Wireless LAN capacity using two standard VoIP codec that are G.729 and G.711. In this final duty conducted by QoS analysis that is end to end delay. Others also analyzed pairs calls of users, voice frame per packet, and DCF/ PCF scheme in wireless LAN Medium Access Control ( MAC).

Result of simulation indicate that the maximum capacities [of] VoIP network of Hotel of Graha Santika Semarang which can be reached is 15 pairs simultaneous voice calls by 1 frame of per packet packeting at the same time with the application of high data for the codec of G.729, and 10 pairs simultaneous voice calls with the packeting 2 frame per packet with high data application for the codec of G.711. This Matter reached by making calls to IP Phone in network of Hotel of Santika Jogjakarta and evaluate traffic of one access point in wireless LAN Hotel of Graha Santika Semarang. Its indication that is VoIP end to end delay which admit of accepted ( $< 150$  ms) using codec G.729 and G.711. Result of simulation also indicate that the medium accessing of compatible sublayer MAC wireless LAN applied for the application of real time is PCF, because yielding smaller end to end delay compared to by same pairs voice calls of scheme of DCF accessing medium.

*Key words: QoS, Wireless LAN, delay, DCF, PCF*

