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PERFORMANCE ANALYSIS OF HIGH DEFINITION VIDEO CALL OVER SECURE REAL TRANSPORT PROTOCOL (SRTP)

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ABSTRACT

The deployment of high-definition (HD) video requires the employment of security for ensuring availability, confidentiality and reliability communication. The Session Initiation Protocol (SIP) is considered as principal signaling protocol for handling real time data, voice and video over the Internet. SIP like other Internet protocol is vulnerable to Internet attacks. Meanwhile the Secure Real-Time Transport (SRTP) is an extension of RTP protocol is used to protect the media flows such as voice and video. SRTP was designed to provide the protection and confidentiality of RTP packet. Nowadays most of the software developers were ignored about the security features to be added into their video call applications. This is due to concern on the performance of video quality delivery. Thus the objective of this research is to determine and analyze the performance of HD video call and to deploy the HD video call on two different channels which are secure and non secure channel. The experiments will be tested on wired and wireless environment. In this research three indicators were used; jitter, MOS score and R-Factor. Experiments are conducted using CounterPath Bria Professional softphones on two clients and a SIP server on BSD platform to enable and disable SRTP for secure and non-secure channel were configured. A simulation of high-definition video over IP environment was created and the results taken will be measured. The findings reveal that the performance for non secure channel give the best result compared in secure channel. Furthermore the HD video call application is acceptable to be used in secure channel even though the result from jitter showed the value in secure channel is higher than in non-secure channel. This is proven when the security features were added in the secure channel, the process of encryption and decryption happened in the network. For future research, the implementation of this application in detail can be proposed over WANs or other network.

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CHAPTER ONE

INTRODUCTION

1.0 Introduction

Video over IP is referring to the delivery of audio and video and it will be compressed over networks using Internet Protocol (IP). After so many decades the telephone technology has developed such a valuable technique that helps people in making calls. The organizations have realized they can save their money by moving video and voice traffic over IP. Thus making all the broadcasters switched to IP for video transmission. Same goes to a HD video where it also being used over the for video call application. This HD technology can improve user experience. Previously, this HD video is already being used for the television system for the higher resolution. Later on the researcher has deployed this HD video call over the internet as it promised good quality and resolution.

Currently HD video is one of the newest technology available and it already over takes the standard-definition (SD) video as it became increasingly used by users because of its pleasure of high resolution video, high quality. Mostly it involves 1,280×720 pixels