

# IMPROVE VIDEO STREAMING AT CLIENT SIDE BY USING RTP/RTSP/RTCP PROTOCOLS

Krutika Shukla<sup>1</sup>

<sup>1</sup>3rd Semester M.E, Information Technology, L.J.I.E.T, Gujarat, India  
(Project Trainee At eInfochips pvt ltd, Ahmadabad, Gujarat, India)

## ABSTRACT

Real time multimedia traffic is increasing day by day, online streaming is more beneficial in every term of video management system. Synchronization between audio and video is must for good result. Live video streaming should have less jitter, less packet loss ratio for better output. To add some more features in video streaming RTP/RTSP/RTCP protocol works together. RTSP protocol used on client side to establish connection. Data transmission done by RTP protocol and the RTCP protocol used to send and receive reports about the network between client and server. Pre-synchronization algorithm used for intra-media synchronization at client side. Client side used to modular and try to support all available cameras and open source sever. So, by using this method we can get better QoS of live and on demand streaming at any computer platform.

**Keyword:** - Multimedia-video streaming at client side1, RTP protocol at client side2, RTSP protocol at client side3, and RTCP protocol at client side4.

## 1. INTRODUCTION

Multimedia streaming services, like live video conferencing, Internet calling and transmitting audio, has become more popular in between millions of users of the Internet. To make real-time applications much better, some modifications and extensions to the current internet protocols needed. Minimize end-to-end delay, accurate synchronization between audio and video streams and provide feedback to find out quality of service are must for better video streaming. RTP is a real-time end-to-end transport protocol. RTP only used UDP, so misleading in packets can possible. RTP doesn't provide guarantee for on time delivery of packets, even doesn't it keep the packets in sequence. Multimedia real-time applications require appropriate timing in data transmission and in play back of video. So RTP provides time-stamping, sequence no, and some other mechanisms to take care of the timing issues.

In RTSP protocol TCP used in system. In RTSP acknowledgement received after every single packet or message delivery. RTSP supports some operations and services, that are OPTIONS, DESCRIBE, ANNOUNCE, SETUP, PLAY, PAUSE, TEAR DOWN, GET\_PARAMETER, SET\_PARAMETER, REDIRECT, RECORD. Even RTSP server needs to keep up all above states. In RTSP sever or client any one can issue request. RTSP provides interoperability between any client and server.

RTCP- real time control protocol, It sends the report about network information and other useful information to server. It sends five type of report: receiver report, sender report, source and destination items, BYE packet and application specific functions.

## 2 METHODOLOGIES

As we can see in our figure , there are different modules of the system. So if we make some changes at client side we can easily give better performance.

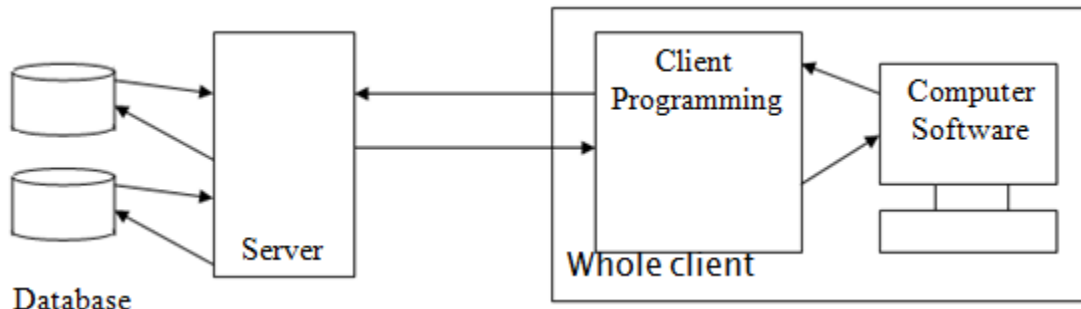


Fig -1: Module of the system

Now, we can see how the actual client works. There has some other processes like encoding, synchronizer, multiplexer

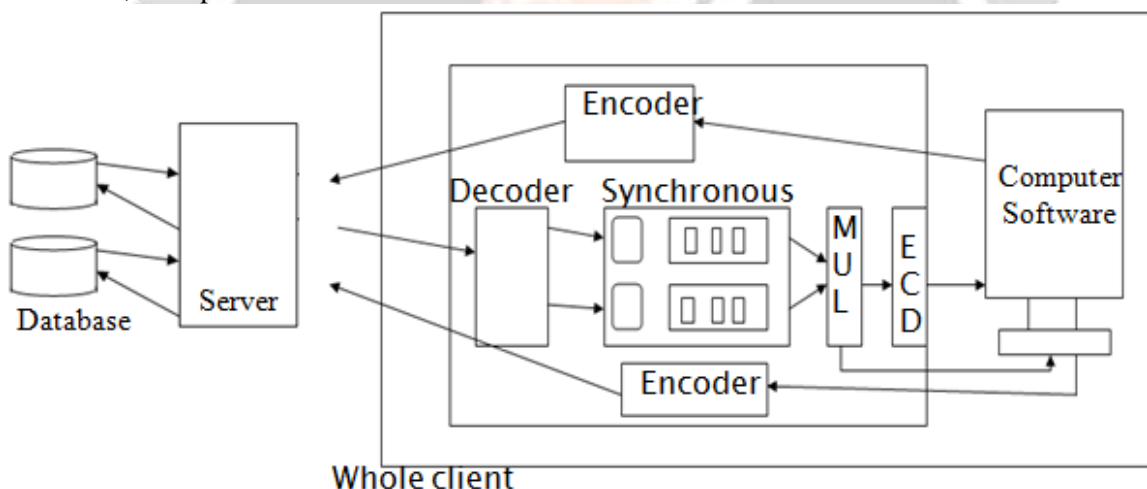


Fig -2: Propose model of RTP/RTSP/RTCP client

## 3. WORK-FLOW

First we Create Client's Socket and header list. Then Store UserName / Pass; send connection request to server by RTSP protocol. Then creates OPTION and DISCRIBE (Send Req/Rsp req to server) Send requests for SDP to server. Get respond from server Send SETUP request. Get respond. Send Play request. Get respond. Received RTP packets from server. Display all details at user software RTCP take details from client . Create report, send it to server about bite rate , jitter ,delay plus periodically sending report to server. Destroy client. Calculate MTU.

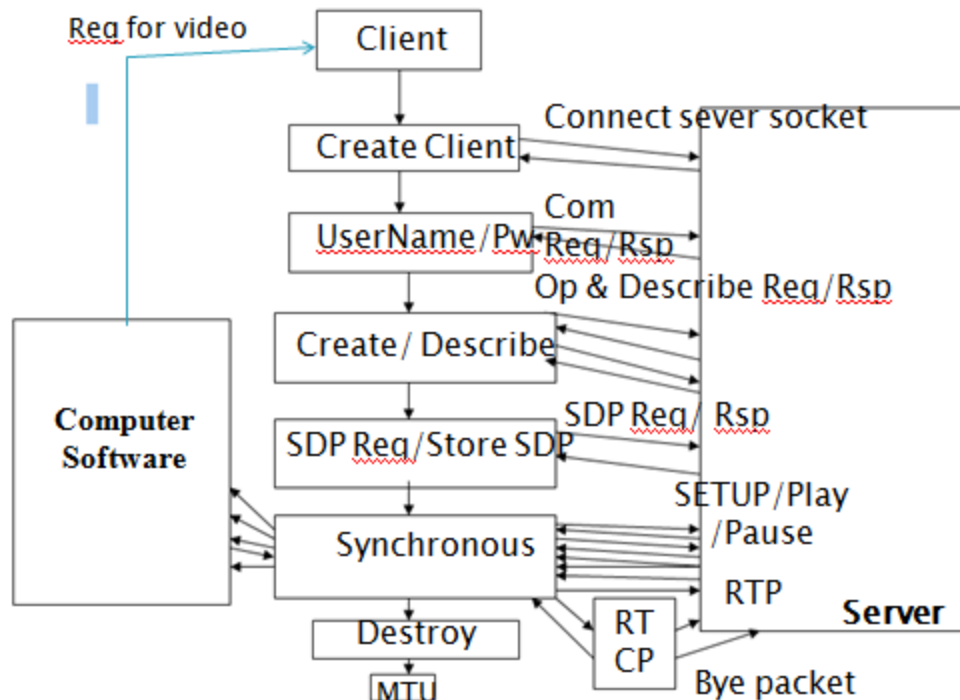


Fig -3: Work-Flow

#### 4. CONCLUSIONS

RTSP/RTP/RTCP protocols can work nicely together ;RTSP for establishing connection, RTP for sending and receiving packets and RTSP for getting QoS. By using pre-synchronization at client side we can get proper and fast synchronization . By using FFMPEG library we can create fast encoder and decoder so buffer speed will increase. By creating open source computer software we can play any video at any where. By validating all available standard cameras and open source servers, client can offer VOD features for all of them.

#### 5. ACKNOWLEDGEMENT

I am deeply indebted and would like to express my gratitude to my faculties and specially my internal guide Ms. Hinal Somani(Assistant Professor). And very thank full to my external guide Mr. Maulik C. Patel(Senior Engineer at eInfochips pvt.ltd)

#### 6. REFERENCES

- [1]. Lie Wang, Weiqiang Wu, Qinyu Zhang, Changjian Zhang; Pre-synchronization of AVS Audio-Video Based on Real-Time Transport Protocol; 2012 IEEE.
- [2]. Iffat Ahmed, Leonardo Badia, and Khalid Hussain; Evaluation of Deficit Round Robin Queue Discipline for Real-time Traffic Management in an RTP/RTCP Environment; 2010 IEEE.
- [3]. Tejmani Sinam, Irengbam Tilokchan Singh, Pradeep Lamabam, Ngasham Nandarani Devi, Sukumar Nandi; A Technique for Classification of VoIP Flows in UDP Media Streams using VoIP Signalling Traffic; 2014 IEEE.
- [4]. Du Xiao-dan, Hu Qing and Liu Yong-hong, Yu Hong; The System Construction and the Implementation of QOS Control Mechanism in Intelligent Streaming Media; International Conference on Solid State Devices and Materials Science 2012
- [5]. DENG Huaqiu ; A Real-time Embedded Video Monitoring System; 2014 IEEE.
- [6]. Tommi Koistinen; Protocol overview: RTP and RTCP; Nokia Telecommunications.
- [7]. Chunlei Liu; Multimedia Over IP: RSVP, RTP, RTCP, RTSP.

[8]. Arjan Durresi, Raj Jain; RTP,RTCP and RTP – Internet Protocol for Real-Time Multimedia Communication ; 2005 by CRC Press LLC.

