

# Development of scalable video streaming over heterogeneous network

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# Introduction

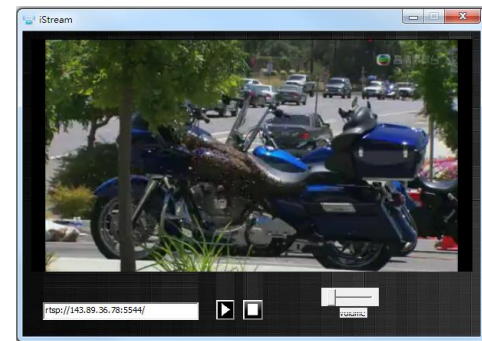
Recently, TV broadcasting has been widely adapted on different platforms, including desktops and smart phones. To provide a high reliability and quality TV stream is always a challenging task for the developers.



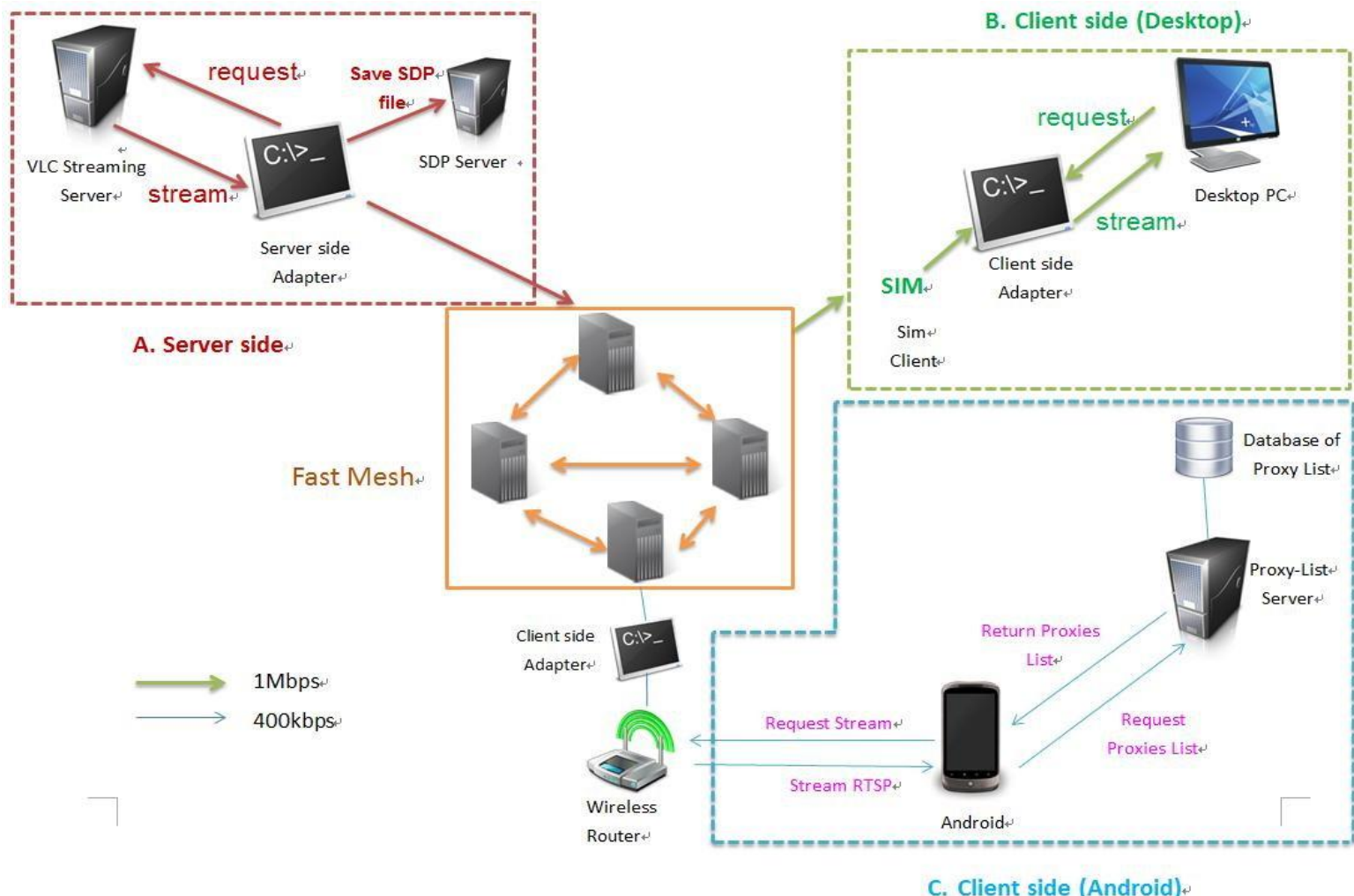
## Goals

Our project aim to:

1. build Peer to Peer system with a real time live streaming application for heterogeneous network which include PC and Android platform
2. provide an efficient, smooth, steady and high quality live streaming by integrating two technologies – FastMesh and SIM
3. stream different format of video



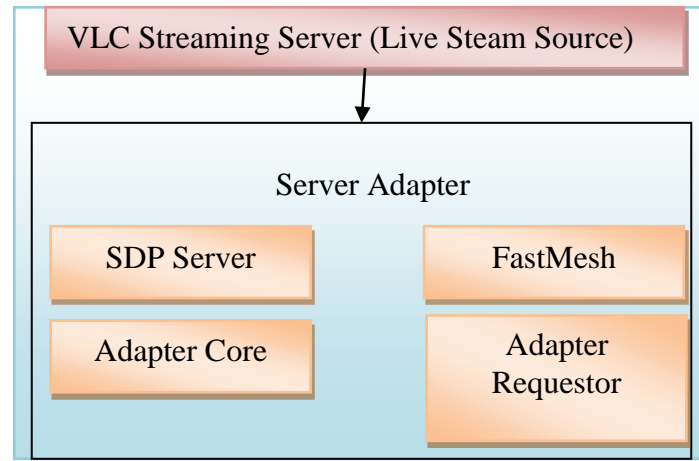
## Design



# Implementation

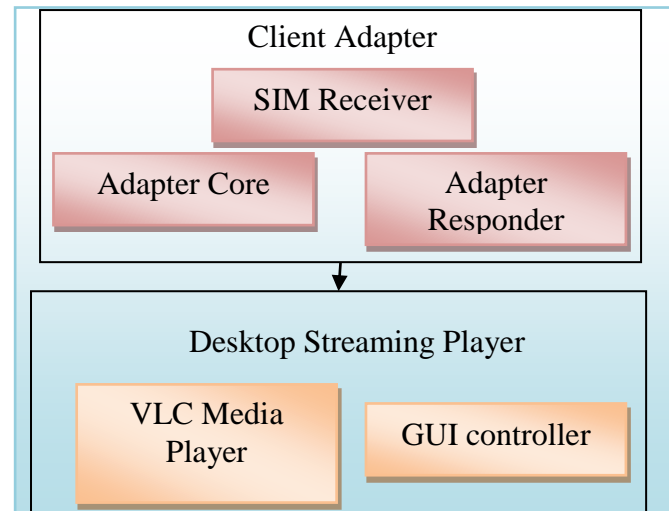
## Server Side:

The live streaming source streamed by VLC server. VLC captured and digitized from analog to digital signal and then forward to another computer which running Server Adapter program. Server Adaptor can request the video packets from VLC server, and manipulate the packet header and pass into FastMesh proxy layer.



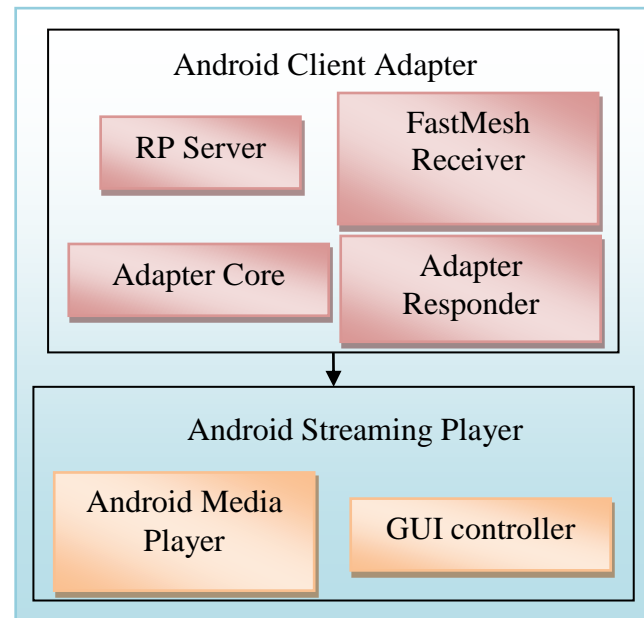
## Client Side(Desktop):

Client side start our application, the program of Client Adapter will start. The program contains server address, RTSP request will be sent to server when the program starts. Connection will build to receive stream packets from SIM. Desktop Streaming Player which can receive packets from adapter core, and reconstruct the video packets stream, make available to potential end-users.



## Client Side(Android):

The Proxy server will start the Android Client Adapter. When Android Mobile Client starts our application, Android Streaming Player will start. This program contains RP server address to find the closest proxy server from RP server. The RTSP request will be sent to that proxy server. Connection will build to receive stream packets from FastMesh proxy server. An Android Streaming Player which can receive packets from adapter.



# Features

Our applications provide users with

1. smooth High Definition TV live streaming
2. user-friendly interface

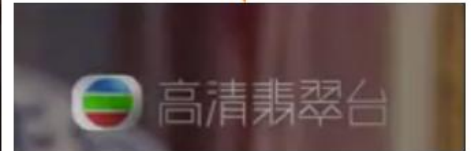
The followings show the media quality on same bit rate but different resolutions:

## PC Platform:

myTV



our system 960X576



## Android Platform:



Bit rate =400kb/s , Resolution = 480x270



Bit rate =400kb/s , Resolution = 960x576

## Result

The result of the above experiment showed that the media quality was desirable. The result is showing that there are no different if our team observed the screen using our eyes. Therefore, our team decide to use Bit rate = 400kb/s, resolution = 480X270 is enough in our system. Also, the results of reliability, latency, scalability were performed well.

## Future Extension

- ❖ Support different streams in various bitrates.
- ❖ Develop a version for other mobile platform such as iPhone.

