

Towards an Enhanced Quality of IPTV Media Server Architecture over Software Defined Networking

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Abstract : The aim of this paper is to present the QoE (Quality of Experience) IPTV SDN-based media streaming server enhanced architecture for configuring, controlling, management and provisioning the improved delivery of IPTV service application with low cost, low bandwidth, and high security. Furthermore, it is given a virtual QoE IPTV SDN-based topology to provide an improved IPTV service based on QoE Control and Management of multimedia services functionalities. Inside OpenFlow SDN Controller there are enabled in high flexibility and efficiency Service Load-Balancing Systems; based on the Loading-Balance module and based on GeoIP Service. This two Load-balancing system improve IPTV end-users Quality of Experience (QoE) with optimal management of resources greatly. Through the key functionalities of OpenFlow SDN controller, this approach produced several important features, opportunities for overcoming the critical QoE metrics for IPTV Service like achieving incredible Fast Zapping time (Channel Switching time) < 0.1 seconds. This approach enabled Easy and Powerful Transcoding system via FFMPEG encoder. It has the ability to customize streaming dimensions bitrates, latency management and maximum transfer rates ensuring delivering of IPTV streaming services (Audio and Video) in high flexibility, low bandwidth and required performance. This QoE IPTV SDN-based media streaming architecture unlike other architectures provides the possibility of Channel Exchanging between several IPTV service providers all over the world. This new functionality brings many benefits as increasing the number of TV channels received by end-users with low cost, decreasing stream failure time (Channel Failure time < 0.1 seconds) and improving the quality of streaming services.

Keywords : improved quality of experience (QoE), OpenFlow SDN controller, IPTV service application, softwarization

Conference Title : ICSED 2017 : International Conference on Software Engineering and Design

Conference Location : Berlin, Germany

Conference Dates : May 21-22, 2017