Multi-Screen Application for SVC Video
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Abstract

This memo proposes a supplement to existing draft, RTP payload Format for SVC Video. One new application, Multi-Screen is added. SVC is very suitable for Multi-Screen application, which has some different characteristics from the existing applications in the current draft. This proposal provides a paradigm and addresses potential issues and consideration.

1. Introduction

In this scenario, the term "Multi-Screen" and/or "Multi-Platform Video" are synonymous as industry terms. In simple terms, they mean communicating and enjoying media on any screen, device and at any time, within a very seamless and compelling consumer experience. Multi-Screen is more than TV, PC and Mobile.

2. Multi-Screen application

In multi-screen application, whether the video content are played simultaneously in different screens will be decided according to the user’s requirements. This is the most difference between multi-screen and the existing applications in the current draft[SVC]. Here is a typical multi-screen application scenario: one user watches a live football game in his mobile-phone at afternoon, and he requests a stored HD video of this game to his TV at night, thus he and his family can view the HD (High definition) video of this game using TV.

In multi-screen service, it is obviously that different media or content being deployed to each of the appropriate screens will occupy huge system resources. Currently the same content is stored multiple times in different formats; this is expensive in terms of storage and operations. Converting or trans-coding that master video source into the various forms that are required to realize multi-screen delivery by service providers is extremely time consuming, and expensive for content creators/owners.

SVC can be used to solve the above problems. Screen matching for a particular terminal device can be performed by selecting an appropriate subset of the incoming SVC layers to transmit to the particular device. For example, a system that uses spatial scalability with three layers, base layer, enhancement layer one, enhancement layer two. Decoding the base layer can support QCIF size video which can be shown in the screen of mobile-phone; decoding the base layer and enhancement layer one can support CIF size video which can be shown in the screen of laptop or PC, decoding the base layer and all enhancement layers can support 4CIF.
size video which can be shown in the TV screen. In fact, the payload format can also be designed to allow for screen-adaptability in the mentioned senses. Thus, the converting or trans-coding operations required to realize multi-screen delivery can be removed. Moreover, it is not necessary that the same content is stored multiple times in different formats.

As to the video transmission method, on one hand, if there is only a single multi-screen user who requests video transmission to his/her mobile phone, PC and TV, then IP multicast can be used to transmit the base layer to his/her mobile phone, PC and TV. And point to point transmission can be used to transmit the enhancement layers to PC and TV. On the other hand, if there are many users of multi-screen service, to save system resources, more flexible IP multicast method can be performed to transmit the base layer and the enhancement layers to the different screens.

When the transmissions to different screens are performed will be decided according to the user's requirements. i.e., user can send playing time requirements of different screens by using the OMA interactivityMediaDocument, SIP message or SMS. Here should have uniform input format of the playing time requirements.

3. References


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