

Experimental evaluation of a DASH implementation (Proposal Paper)

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Abstract—Adaptive (bitrate) streaming over HTTP is heavily being adopted, as it offers significant advantages in terms of both user-perceived quality and resource utilization for content and network service providers. MPEG-DASH is picking pace along with other proprietary HTTP based adaptive streaming technologies and is expected to become the standard in the near future for interoperability. In this experimental study we are aiming to test and analyse video streaming characteristics and operations over MPEG-DASH. We want to focus on the analysis of DASH behaviour of stored video streaming on desktop devices. We have chosen a gameplay video which will be displayed on landing-page of a game called “Roached” for carrying out our study and experiments.

Keywords—Bitrate, Adaptive streaming, HTTP, dash.js, heterogeneous networks, bandwidth

I. INTRODUCTION

We have chosen to do our project on Adaptive Streaming over HTTP to provide better experience on our game’s landing page. Mobile games landing pages usually don’t come with a lot of content. All they need is one good landing page with a gameplay video that appeals to people, informs them, and triggers them to download/buy this game. A gameplay video is what users first prefer to land on when they first visit the website. Increasingly, users can watch this gameplay video over heterogeneous devices and networks.

Many of these viewers/users also sit behind corporate firewalls that do not allow anything other than HTTP content to pass through. Game developers displaying their gameplay video need to ensure an optimum and uninterrupted experience for the viewers on these various networks.

II. APPROACH

We have a landing-page which has a game-play video. At present it is embedding using HTML5 <video> element. We plan on building an MPEG-DASH player into our website to play this video.

For the purpose of our study we propose to choose MPEG-DASH implementation technique of adaptive bitrate streaming which has codec-agnostic and browser-agnostic property. It would efficiently deliver streaming gameplay video to our users by dynamically switching among different streams of varying quality and size during playback. This provides users with the best possible viewing experience, their

bandwidth and local computer hardware (CPU) can support. Another major goal of using dynamic streaming in our landing-page is to make this process smooth and seamless to users, so that if up-scaling or down-scaling the quality of the stream is necessary, it is a smooth and nearly unnoticeable switch without disrupting the continuous playback.

We plan on using dash.js implementation which is an open source MPEG-DASH video player written in JavaScript.

We then will host our website locally to test and document the various *performance metric values* (bandwidth, bitrate, bufferlength across different networks using LAN, WiFi networks and then host it in external server to test and document over the internet. We would test it using broadband, 2G, 3G, LTE connections.

We will then proceed to analyse our findings to evaluate results.

III. PROJECT MANAGEMENT PLAN

Wee k	Date	Project Tasks
1	Apr 4th to 8th	1) Hosting the website 2) Including the DASH properties in website source code by implementing dash.js
2	Apr 9th to 15th	1) Testing the DASH behaviour across variable bandwidth scales and variety of networks (LAN, WiFi, 3G, LTE) 2) Documenting the results
3	Apr 16th to 22nd	1) Analysing and evaluating the obtained results 2) Concluding the experiment 3) Project Report and Presentation making

