

**Case Study:**

**Client:** A video publishing company that provides users tools to upload, edit and publish their videos.

**Industry:** Media

**Technology / Software / Methodology:** Ruby on Rails, Adobe AIR, Adobe Flash Player, Agile Methodology

**Testing Tools:** IP Firewall, Fiddler and Charles tools

**Engagement Model:** Offshore

**Business Challenges:** The video player was well designed to be used in high bandwidth scenarios, functioning without any packet loss where bandwidth was upwards of 2MBPS. This restricted the user base for the player as it was not able to reach out to the audience who had low bandwidth internet connections.

**Solution:** Our team, spent time understanding the problem at hand. We then suggested that we would conduct bandwidth simulation and packet loss testing. To test how the video played in low bandwidths, we used scripts that executed on the system's firewall to simulate low bandwidth. We were able to test the player with bandwidths as low as 33 kbps. Similarly, to test bad internet connection, with data packet loss during transmission we again used scripts that were able to simulate scenarios wherein we were able to drop any percentage of packets ranging from 0 – 100. We used the ipfw (IP Firewall: <http://en.wikipedia.org/wiki/Ipfirewall>) service for MAC and modified the client provided scripts to test packet loss and low bandwidth scenarios. For Windows, we used Fiddler and Charles tools, to simulate these scenarios. We created these scripts and shared them with the client. Using these scripts we were able to combine the low bandwidth and packet loss scenarios and make suggestions to improve the player's performance

Our suggestions included: Make the video available in various bitrates and based upon the quality of user's internet connection the player would automatically choose the correct bitrate i.e. if a user has a slow connection the video would be played at around 464 Kbps and on a fast connection it would be played at 2128 Kbps. A typical video has bitrates such as 464 Kbps, 664 Kbps, 828 Kbps, 1128 Kbps, 1528 Kbps, 1628 Kbps and 2128 Kbps; accommodating such a large range drastically improved the end user experience.

**Benefits/Value Add:** The client made appropriate changes to their player, based on our suggestions. This helped them target the user group that did not have high internet bandwidth and that lived in areas/countries where the internet connection was not that good. Videos were streamed to such users without any buffering. Our combination of performance and usability testing, thus helped them reach out to newer audiences in newer target markets helping increase their sales drastically.