

Kaltura White Paper

Selecting a Video Player in Today's Digital World

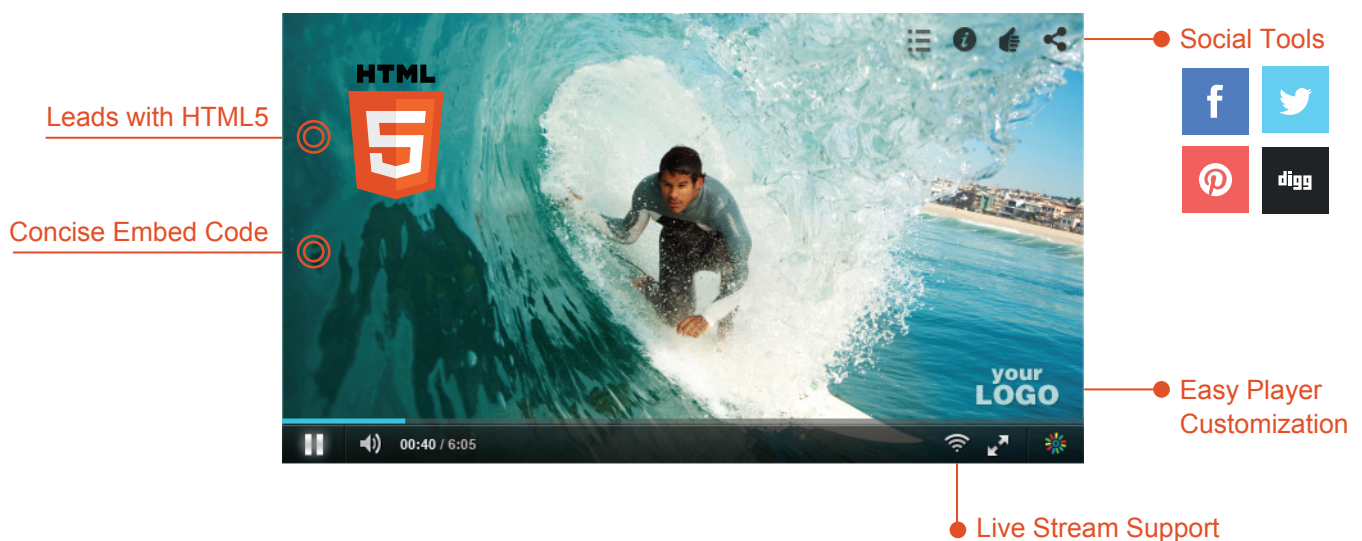
10 Questions to Ask When Choosing a Video Player

The importance of the video player

This white paper offers a unique way of looking at your online video strategy. This strategy is usually comprised of many parts: content, branding, monetization, user engagement, social capabilities, and more. In this paper, we take a look at all these strategic elements through the lens of the video player experience. While it may seem obvious, presenting a powerful video player that is both feature-rich and quick to load and respond on any screen is the key to success, and yet in many cases, overlooked when deploying online video.

Think of the player as a brick-and-mortar store: a beautiful glass storefront with a well-branded skin, convenient buttons, and a beautiful thumbnail that helps lure the viewers. Clicking “Play” is like walking inside. This is where the player’s technology lights up to deliver a smooth video experience that will impress users, regardless of their location or device. The player capabilities should inspire the user to take action, based on the strategy goals: watch more videos, click on ads, answer an interactive survey, upload UGC content, or share your content with the world.

If done correctly, the player will be the incarnation of your video strategy. Choosing a video platform that will handle everything you need, from consistency across devices to supporting the necessary business rules, flows naturally from the requirements of this strategy. In this white paper we will discuss the crucial questions to ask when looking for the right video platform to build that player.



1. Can my video be watched on any device?

Take a look at this set of numbers:

- Back in 2010, PC sales were overtaken by smartphones and tablets
- By the end of 2015, tablets alone will overtake PCs¹
- Facebook reports 3 billion videos are viewed on its site every day, with over 65% of the videos viewed on mobile²
- About a third of gaming console owners use them as a video streaming devices³
- More than half of video views on YouTube come from tables and phones⁴

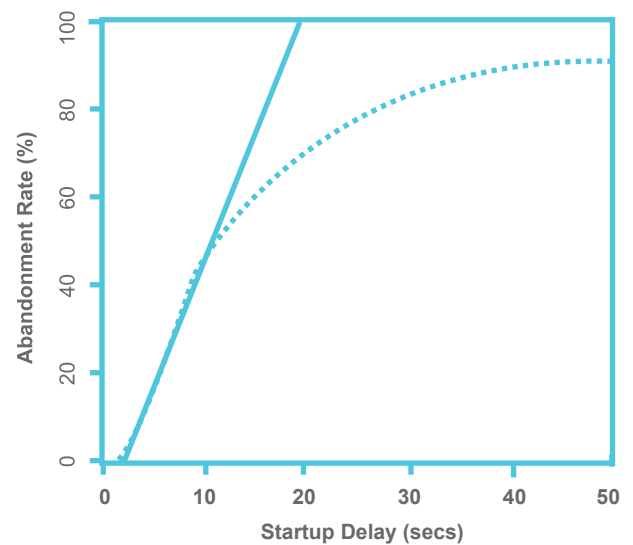
When it comes to online video, the proliferation of devices is even more significant given the various mobile OS, set top boxes, connected TVs, and gaming consoles. All of these have different screen sizes and require different transcoding technologies. On top of that, live video, ad insertion, and DRM technologies require more than one technology to service all of the devices in the post-PC world. This is the advantage of using a full video platform versus a simple player. Simply put, your video platform should be able to consistently deliver any video to any device anywhere in the world.

2. Does the video player load quickly?

You can have a very advanced player with all the bells and whistles displaying a library of incredible content. However, if the player takes more than two seconds to load none of that matters. Recent research shows that after two seconds, users begin to lose patience. Past that point, a 1-second increase in delay results in roughly a 5.8% increase in abandonment rate.

A reliable video player will always load quickly, even when it contains extended functionality like a playlist. When reviewing different players, it is important to test them in the context of a live HTML page, where there are usually many competing resources being loaded simultaneously.

Your player should also be flexible enough to work well in different use cases. For example, you may want to embed more than one player on the same page. How can you guarantee that all players load quickly? This is done using different embed codes that are generated by the player's video platform. The same embed codes should also support additional features like responsive web design for viewers using mobile devices and built-in search engine optimization (SEO). In the context of video, SEO helps search engines index the web page including the content of the video. This way the search engine can display your page as video content and you receive valuable real-estate in the search results.



Viewers start to abandon the video if the startup delay exceeds about 2 seconds. Beyond that point, a 1-second increase in delay results in roughly a 5.8% increase in abandonment rate. Source: http://people.cs.umass.edu/~ramesh/Site/HOME_files/imc208-krishnan.pdf

3. Does the player lead with HTML5?

Flash, the familiar propriety Adobe technology that introduced online video to the masses in 2006, was originally needed because HTML did not support video natively. HTML5 changed that, adding multimedia support to the specification.

Today, we are in a transition period as HTML5 increasingly replaces Flash. HTML5 offers two major advantages over the older Flash: mobile-friendliness and the semantic markup that makes it possible to determine meaning as well as appearance from website code. This enables functions as diverse as mobile-based shopping and interactivity, location-based ads, and better SEO. Specifically applied to video, HTML5 for the first time includes a <video> tag, which specifies a standard way to embed video into a web page, no plug-in necessary. As we move into an HTML5 world, your viewers will not need to rely on plugins like Flash or Silverlight, which means that the same video player could be easily loaded on a PC, mobile or tablet. The Interactive Advertising Board—backed up by publishers and advertising firms including AOL, Forbes, Google, The New York Times, and the Wall Street Journal—recently issued an open letter urging marketers to use HTML5 for all mobile ads. However, while Flash has been effectively killed in the mobile market, PCs continue to lag behind, requiring video players to continue to support Flash as well.

HTML5 is not the only important standard that needs to be taken into account. MPEG-DASH is a standard for adaptive streaming over HTTP that ensures continuous playback with an optimal experience even if bandwidth fluctuates. Standardizing adaptive bitrate (ABR) helps maintain quality playback as well as giving more control over Content Delivery Networks (CDNs). Another key standard to be aware of is the Common Encryption Scheme (CENC), which standardizes the encryption used for Digital Rights Management (DRM) systems. As we'll discuss later in question 6, having a player that takes these newer standards into account will ensure that your strategy can stay up-to-date.

Future-proof your strategy and ensure feature parity by choosing a platform that guarantees to continuously improve with HTML5 and make it compatible with future video codecs and protocols such as H.265 and MPEG-DASH. This gives you peace of mind that as new technologies emerge, they will be automatically added to your HTML5 players.

4. Will your customized player work the same on all devices?

Just like any video you produce should be an integral part of your content and marketing approach, the player should be well aligned with your brand. It is important to keep in mind the context of where the player will be embedded:

On your website: The most common use case is having the player on the company website. For this, you want the player to include colors and fonts that match the brand's look and feel. This is one reason to go with a professional video platform as opposed to a free solution. A free player will often look very different from other aspects of the company site and could be difficult to customize. This is comparable to using a generic WordPress theme for a company website. Such graphic inconsistencies reflect badly on the brand and the users may question how professional you are. This is especially true for companies where video is a major part of their online strategy.

Outside of your site: Another use case for video players is embedding them on other websites. From a content marketing and monetization perspective, you want your videos to go viral. So it is important to ensure that when they do, they also promote the brand and drive traffic back to your site. This could be done by using a number of features: a clickable logo, an on-video watermark, an animated logo (bumper video), a 'related videos' gallery, auto-play of a subsequent new video, and more.

In order to optimize the player for both scenarios, some customization is needed. Robust video platforms will offer a player studio that allows easy changes to the player's functionality and the look and feel. The more you can do using an easy WYSIWYG interface, the better. However, those who need to execute deeper customization should have the option not only to save changes to the player on the server, but also to dynamically change aspects of it at the embed code level where need be. Keep in mind that in the current state of the web, you will need two versions of each player – Flash, HTML5, Native Android and native iOS. Leading player platforms such as Kaltura let you use a single configuration and skin for all major platforms across web and native..

Once customized, you want to make sure the player performs consistently across all devices. This includes not only obvious customizations like brand colors and share functionality, but also additional player plugins like advertising network connectivity and analytics. In the post PC era, your player will play on many devices and you should be able to monetize and track performance everywhere.

5. How does the player maximize monetization?

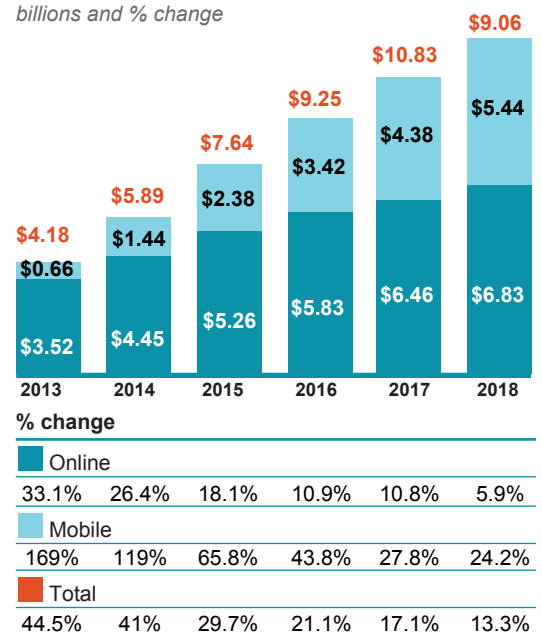
Digital ad spending marketing is growing rapidly and is projected to grow from \$7.64 billion this year to \$12.27 billion in 2018. In order to take advantage of this trend, it is paramount that your video player will offer smooth ad delivery to any device.

Some publishers use free solutions like YouTube to monetize their content. Due to their high traffic, these sites should definitely serve as distribution channels, but they should be secondary. While YouTube may share some of the revenue with the original publisher, this is often much less than what an ad network would pay directly for well-organized and professional online video content.

Monetizing your content independently also ties in to your branding strategy. As mentioned before, publishers should create an integrated store experience. Such an approach enables to cross-market products and attracts premium monetization. Think of it as a brand name like Starbucks. If they sold their merchandise sold solely in Walmart, the brand would become quickly indistinguishable. For that reason, Starbucks puts most of its efforts to increase sales within its carefully designed coffee shops.

US Digital Video Ad Spending, Mobile and Online, 2013 - 2018

billions and % change



Note: ad spending on tablets is included in mobile; ad spending on desktop and notebook computers included in online; numbers may not round up to total due to rounding. Source: eMarketer, 2014

Online video technologies present a huge opportunity for content publishers, since online viewers are considered to be a highly engaged audience. Pre-rolls (ads that appear before the video) and mid-rolls (ads that are served in the middle of the video) are the most popular. Having a player that supports both options is critical. Mid-rolls are considered much more useful with 87% completion rate. According to some studies, mid-roll ads are performing almost 30% better than pre-rolls.

Most sites will use ad networks that connect them with advertisers. Ad networks facilitate the transaction and simplify the ad delivery process. The video platform should offer out-of-the-box support of major ad networks (Tremor Video, Google DoubleClick, FreeWheel), but should also be able to connect with any VAST ad network (LiveRail). When using VAST (Video Ad Serving Template), it's important your player lets you take advantage of all the VAST features like Linear Ads, Non-Linear Ads, and Shippable Linear Ads. Also, your player should let you customize that experience, with advanced tools such as ad segmenting based on content metadata, frequency caps, and cross-session ad intervals.

The ability to serve ads to mobile devices is essential. Cisco⁵ estimates that 75% of the world's mobile data traffic will be video by 2019. Today, it already accounts for more than 55%.⁹ Mobile is not the only delivery challenge, however. "Closed" devices such as gaming consoles and connected TVs are even harder to target, especially with mid-roll ads.

There are two different ad serving technologies that can be used to maximize your effective ad delivery: Native player and server side ad stitching.

Native player delivery is a technology in which clicking the player generates an active "call" for the ad. This requires the player to communicate with an ad server and once the ad has been served, to switch back to the requested video. This is a fairly sophisticated process that requires deep integration with the end device. With a native player, sophisticated monetization techniques can be used: targeting, clickable calls-to-action, and control over skipping. This technique works well with desktops, Apple device browsers, and native apps for iOS and the new versions of Android. However, it's much more challenging to do with connected devices as Apple TV, Roku, gaming consoles and smart TVs.

Server side stitching (also known as server based ads) can simplify integrations, be used on a wider variety of devices and provides a more broadcast-like experience. Instead of integrating with the player integration code, the ad is "stitched" to the video file itself, so as long as the device plays video, it will play the ad as well. Skip buttons, clickable ads, and companions can require additional integration but once integrated provide the best of both worlds with high performance ad playback alongside interactivity and client side beaconing for user validation. Ad stitching can be used for almost any device: most Android browsers, gaming consoles, connected TVs, Chromecast, and video aggregation mobile apps. It also gets past ad blockers. To maximize monetization, a video platform ideally should be able to handle both techniques, and include hybrid modes to take advantage of both techniques to optimize your video monetization strategy and viewing experience across platforms.

6. How does the player handle content protection?

Streaming technology revolutionized the way video is being distributed online. However, it has also introduced new concerns and risks, especially in areas like rights management and security. Different content types may have different legal constraints (e.g., a viewer's location or the specific timeframe in which the video can be made public). Furthermore, once the video is published, it may require another layer of protection to ensure that users do not simply download the streamed file. This is done using DRM (digital rights management) technology that either encrypts the content or adds a digital watermark so the video cannot be distributed without authorization. Serving premium content requires a robust DRM system.

Much of the access control settings and DRM protection protocols are set at the player level. This enables publisher's maximum flexibility in a wide range of restrictions and policies. A robust video platform will allow creating a range of players to enforce these different requirements for various types of video. While all the players may look similar, behind the scenes they can be set to enforce distinctive access control profiles. For example, block access to users from specific countries – a crucial requirement for publishers that plan to scale globally. Another example is offering free episode previews in VOD sites and with the option of playing the entire show without having to reload the page after a payment was received.

New complications have arisen recently, as some of the older solutions will no longer be supported. Some of the most commonly used plugins for video have been Silverlight, PlayReady, and WideVine. As of April 2015 Google will disable the interface that allows Silverlight and PlayReady to work within their popular Chrome web browser. Meanwhile, new standards for HTML5—DASH delivery and Common Media Encryption (CENC)—are being established, which are not compatible with the existing playback solutions and will require migration. Finally, Firefox has thrown its weight behind Adobe CDM. What this all boils down to is that the DRM solutions most video platforms previously employed are in the process of being replaced. To ensure continued DRM support, it's imperative to pick a video platform that takes these changes in the ecosystem into account.

Content owners must look to overcome this problem with a two-way bridge to both new and old streaming and content protection systems. This means the video player should play legacy Smooth Streaming protected content in new HTML5 browsers and play DASH protected content in older browsers via plugins. When publishers can trust their player to automatically handle multiple delivery protocols across devices, they can focus instead on strategy: content acquisition, branded experience, and building intelligence around how their users interact with their content. A good video player will adapt to ensure that publishers are not forced to alter their strategy just to deal with the differences in delivery protocols across different platforms.

7. Can the video player be easily integrated with my native mobile app?

Mobile devices are optimized to provide a supreme video experience and are often connected with one of the major online outlets (iTunes, Google Play, and Amazon Instant Video). Apps can offer a superior user experience on many devices, since they are not constrained by any web playback limitations and enable complete control over the playback experience. By creating a native mobile app, any publisher can reach larger audiences and increase its monetization potential. Apps can be sold, but most publishers prefer offering them for free and charging for the content either by selling it a la carte or by offering a subscription plan. In some cases, the publisher's main purpose is to promote a brand and its app will be entirely free.

Regardless of the strategy, developing a native mobile video app is usually a pricey endeavor that requires much time and multiple versions (iOS, Android, Windows Phone, etc.). The development could be expedited if your online video platform provides a mobile SDK of a reference app. Such a blueprint for a mobile video app could save many resources and dramatically cut down costs and the time to market.

Furthermore, a mobile SDK developed by the video platform should provide a player component that enables your same Flash and HTML5 configuration to cross over into a native platform experience. This will ensure that all the analytics are logged correctly so you can keep track on the videos' performance across all devices. Ideally, the same SDK will include support for DRM to enable monetizing copyright protected videos.

8. How granular is the player's analytics dashboard?

Measuring performance is key. Online video platforms offer incredible tools that provide information on any aspect of the video consumption. In fact, due to the nature of the web, online video analytics are far more useful than the tools of traditional broadcasters to measure viewership and optimize content performance.

To put it simply: the more information you can get, the better. Leading online video platforms should be able to track views as well as show the play to impression ratio and calculate the average view drop-off. Such key performance indicators (KPIs) are extremely useful to track performance. Additional measurements may include geo-location and device reports, which provide valuable data about where and how the videos are being watched.

All of this information is harvested on the player level. Advanced players also offer integration with robust analytics services (Google Analytics and Akamai Analytics) so that you can easily integrate video events into your overall tracking goals and existing services.

In case you are using an authenticated video portal that is tightly integrated with a video provider, the analytics will drill down to the end-user level. Highly granular user analytics can be used to draw deep insight on how video consumption improves learning (in a university setting) or productivity (in an enterprise setting).

The same analytics dashboard should also allow you to keep track of costs such as bandwidth and storage. You should also be able to monitor your quality of service (QoS) as an average bitrate to ensure that your viewers receive a quality experience. (This is especially critical for live events, so you know the stream is being received at an acceptable quality.) Analyzing this information along with the consumption data and monetization reports will enable you to clearly see the ROI and evaluate your video strategy and tweak it as you go.

9. How will the player help expand my social footprint?

Anyone aware of last summer's ALS Ice Bucket Challenge, a series of viral videos that raised \$115 million dollars in donations, understands the power of video to spread a message⁶. Getting your videos to "go viral" is very much dependent on how easy it is for viewers to share them with others. The player's functionality and the UI can make a big difference.

An ideal video player will allow sharing the video on as many social networks as possible. No network is too small. But smooth integration with the obvious juggernauts such as Facebook and Twitter are particularly key. Both Twitter and Facebook require whitelisting. In addition, they do not always support HTML5, so your player will also need to be able to dynamically switch over to Flash. (In March of 2015, Kaltura became one of the first video platforms to be enabled for Facebook's new HTML5 support.) However, displaying the video on one's wall or feed is only the first step. You also want the user to be able to view the content right away (on the wall or feed) without taking the extra step of opening a new tab in the browser. Always remember that simplicity and ease of use is key in order to reach

10. Can I use the player to stream live events?

In August 2014, Amazon's acquisition of the gaming-focused live-stream site Twitch for \$970 million merely emphasized the trend: live streaming is huge. FreeWheel⁷ reported 201% growth year-over-year in live ad views in 2014, ABC streamed the Academy Awards live, and the NFL announced their intention to exclusively stream a football game for the first time in the 2015 season. Live events can be a silver bullet to expand your reach and monetize. Historically, live events attracted more views than VOD and accounted for much higher engagement. As a result, the click-through-rate (CTR) generated by players with live content is higher as well. At the same time, viewers expect more from the player when watching live events. Past research has shown that viewers are much less tolerant to buffering issues when watching live events. Likewise, the higher the quality of the video stream, the longer the average viewing session will be. Another important feature around live events is the ability to index them and offer them for VOD viewing as quickly as possible. If done efficiently, this could maximize the content potential by increasing viewership and revenue. Ideally, the live video player will play on any device, have the same look and feel and offer the same level of DRM as VOD content.

Conclusion

Online video technology poses a huge opportunity to publishers. However, with so much change and innovation, comes complexity. Examining the different scenarios of using the video player is a good practice when forming a focused video strategy and deciding between important features vs. nice-to-haves.

One of the best ways to address many of these issues is to choose a full video platform rather than a simple player. A full video platform should offer consistency across devices, flexibility with different monetization tools, and integration with ad networks, social platforms, and analytics that ensure a quality viewer experience.

We compiled this helpful checklist to aid your decision process. If you wish to learn more about Kaltura's market leading video player, please visit <http://player.kaltura.com/>

Player capabilities to look for when selecting an online video solution

	BUSINESS NEED	TECHNOLOGY
<input type="checkbox"/>	Deliver to any device	Flash and HTML5 players and multiple streaming options support
<input type="checkbox"/>	Fast play load	HTML5 and Flash chromeless players, dynamic embed codes
<input type="checkbox"/>	Leading with HTML5	Powerful HTML5 player
<input type="checkbox"/>	Easy player customization	HTML5, Flash, Android & iOS feature parity, customize all player types with a single JSON/HTML/CSS
<input type="checkbox"/>	Maximize monetization	VAST complaint player, YouTube distribution connector
<input type="checkbox"/>	Content protection	Widevine, Playready, Geo and IP blocking
<input type="checkbox"/>	Branded mobile application	Mobile SDK, out-of-the-box native application
<input type="checkbox"/>	Granular Analytics	Detailed analytics panel, 3 rd party analytics plugins
<input type="checkbox"/>	Increase social footprint	Out-of-the-box sharing plugin, well documented JS library
<input type="checkbox"/>	Live stream	Cross-platform support, powerful CDN to ensure no buffering issues

About Kaltura

Kaltura's mission is to power any video experience. A recognized leader in the OTT TV (Over the Top TV), OVP (Online Video Platform), EdVP (Education Video Platform) and EVP (Enterprise Video Platform) markets, Kaltura has emerged as the fastest growing video platform, and as the one with the widest use-case and appeal. Kaltura is deployed globally in thousands of enterprises, media companies, service providers and educational institutions and engages hundreds of millions of viewers at home, in work, and at school. The company is committed to its core values of openness, flexibility, and collaboration, and is the initiator and backer of the world's leading open-source video-management project, which is home to more than 100,000 community members. For more information visit www.kaltura.com, www.kaltura.org, or www.html5video.org.

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- <http://techcrunch.com/2015/01/28/facebook-now-has-3b-video-views-per-day/>
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