*www.adobe.com/products/
adobeconnect.html*

Key Takeaways:
- Adobe Connect is committed to the full support of open web standards
- Integration of impactful HTML5 features drives our vision for the future
- The adoption of new open standards is methodical
- The Adobe Connect product roadmap meets a diverse range of customer needs

Adobe Connect and HTML5

Leading the future of digital collaboration with easier entry, richer experiences, greater reach and improved accessibility through support for widely adopted technology standards.

[Adobe recognizes these facts to be true and accurate as of this document's publication date, 6/3/2016]

In recent months, significant speculation has been brewing on the influences that HTML5 and WebRTC may have on the web conferencing space. We would like to help articulate what impact these developing standards will have on Adobe Connect.

Adobe has a *long history* of both embracing web standards and, as highlighted in a *blog post* from 2015, creating them where none previously existed. With this in mind, we are committed to support HTML5 as it continues to mature into a broadly accepted web standard. The Adobe Connect team believes that HTML5 will help move toward solving three of today's important challenges:

1. **A rich browser-based experience:** The promise of HTML5 is that developers can deliver powerful applications using video, audio and interactivity within a browser, with no additional plug-ins or downloads.

2. **Content portability:** HTML5 will allow users to access content and applications in a consistent manner across multiple operating systems and browsers, trusting it will work well on both desktops and across mobile devices.

3. **Extended functionality:** Robust scripting, style sheets and promising APIs will extend the capabilities of web conferencing technology even further in the future.

What is HTML5?

HTML was created in the early 1990s as a page description or markup language to make it easier to display and share documents online. Over time it has been adopted, standardized and advanced by the international standards organization, the World Wide Web Consortium (W3C). The most recent version, HTML5, was proposed as a working draft in 2008 and became established as a version 1.0 standard in 2015. It brings significant updates that enable more robust web applications, mobile web development and semantic markup. It also proposed a number of standards for presenting audio and video in a browser, without requiring plug-ins such as the Adobe Flash Player or Java.

In 2012, the Opus audio codec was selected to be the standard for HTML5 audio; however, uniform adoption across browsers has yet to be seen—particularly in Microsoft's Internet Explorer and Apple's Safari. Instead, as often happens, a de facto standard has emerged with MP3 and MP4 (with AAC) currently acting as the most popular choice for audio supported across browsers, including those from Microsoft and Apple. Unfortunately, video has been, and continues to be, even more contentious. A number of patent concerns around the proposed video codecs have delayed the choice of any official standard. As with audio, certain formats and codecs have been more widely supported than others, and it seems that the MP4 format, using the H.264 codec, is the most popular at the moment.

HTML5 is an increasingly rich way of displaying content and developing applications that can run in a browser. That being said, there is still no official standard in HTML that allows for local capture of video from a web camera, audio from a microphone or screen sharing from a desktop within a browser-based application. These capabilities continue to require either browser plug-ins, such as Adobe Flash or Java, or a stand-alone application that runs natively on the desktop. There are proposals and working documents for browser technologies such as WebRTC and ORTC, but universal adoption or endorsement has yet to be seen, and neither has been officially incorporated into the HTML specification.

What makes HTML5 important to web conferencing today?

Many *changes* have been made in this version of HTML across numerous functional areas that relate specifically to the web conferencing space. The improved features included in this update allow participants to begin using web conferencing software directly within a browser, without the need to download any plug-ins or applications. The updates also begin standardization of formats within HTML5 such as MP4 video and MP3 audio. These will guarantee uniform display of content across a wider variety of devices, browsers and operating systems without the need for a plug-in, and provide opportunities for richer experiences using HD-quality video and improved audio.

HTML5 also enables better accessibility for the web and includes improved guidelines that ensure web pages and browser-based applications can be used by everyone, including those with disabilities. This is an area *Adobe Connect has always prided itself on,* and we are inspired by the increased capabilities HTML5 will unlock in this space. Adobe, as a W3C contributor and sponsor, is a huge proponent of the W3C's *Web Content Accessibility Guidelines (WCAG)* and recognizes that many of its outlined functional requirements are, at times, better supported in HTML5 than they are in the Adobe Flash language. HTML5 can offer a much better experience for users with mobility, vision and hearing challenges.

This new version of HTML also opens up a larger set of robust scripting capabilities that broadens the reach of content authoring and its respective use. This move toward scripting rich open-source content experiences, whether they be a display animation or interactive application, will enable the design of more impactful synchronous multi-user applications and collaborative content experiences that run inside of a virtual meeting room.

The Adoption of HTML5 in Adobe Connect

As shown over the past few months, the Adobe Connect team has taken several steps toward supporting HTML5 and its standards, and we are preparing to provide even greater support as HTML5 becomes more widely adopted across our diverse audience of users. We are inspired by the potential to leverage open-source technology to enable the advanced use cases that our customers rely on Adobe Connect to deliver. In the past year, we have released four key product developments around HTML5:

1. Adobe Connect now supports fully interactive HTML5 content, developed with Adobe Captivate or Adobe Presenter, in virtual classrooms. The content can be displayed just like any other content in a Share Pod, and allows participants to interactively respond to quizzes and surveys within the class.

2. A new software developers kit (SDK) now lets third-party app developers create custom pods built with HTML5 and Javascript. Previously, custom pod apps could only be developed in the Adobe Flash language and only used by desktop participants. Now these apps can be built in HTML5 or JavaScript and work inside of Adobe Connect for mobile on iOS and Android devices. This change invites an even larger JavaScript and HTML development community to extend the functionality of meetings with custom apps.

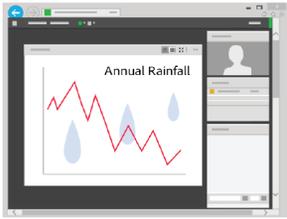Web based HTML5 Environment
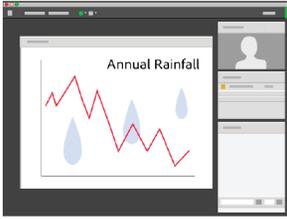
Adobe Flash based Environment

3. In February 2016, we enabled entrance into Adobe Connect meetings from browsers that do not have the Adobe Flash Player installed. By switching from Adobe Flash to JavaScript, we can now prompt users to download and install the Adobe Connect Add-in if they do not have the Adobe Flash Player available to them. While the underlying technology for an Adobe Connect meeting has not changed, we believe this update will further reduce any barriers to entering an Adobe Connect room from browsers that do not have the Adobe Flash Player installed.

4. Adobe Connect recordings can now be exported and locally converted into MP4 video files. Previously, recordings could only be exported locally as a FLV (Flash) video file. This new feature means much better content portability for our customers. They can now convert their recordings into a standard MP4 format, increasing the quality while reducing the size of their recordings. This change also offers better compatibility with both editing and playback applications, improving how content can be manipulated and viewed on desktop and mobile devices.
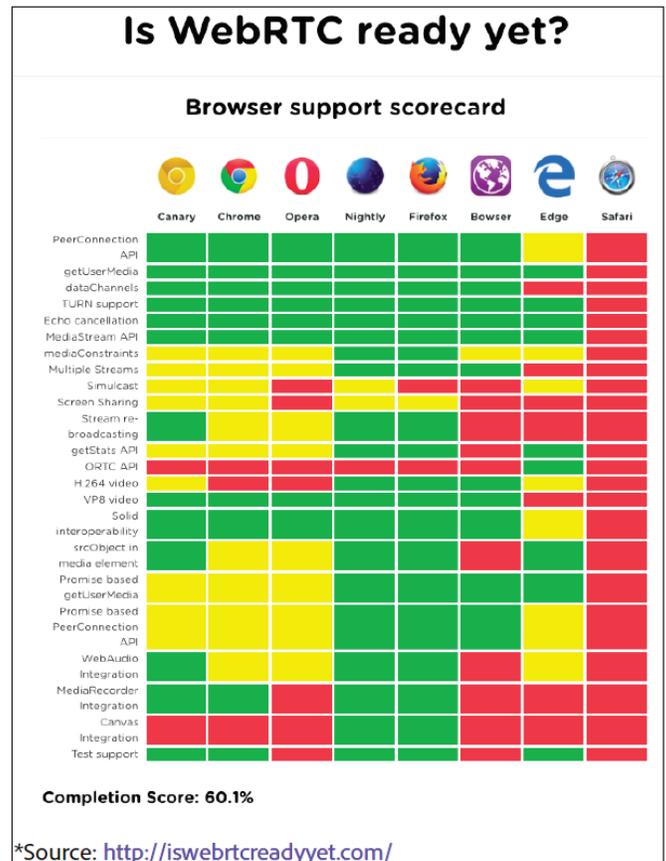
What might the future of HTML5 hold for web conferencing?

It is certain that HTML5's potential holds far-reaching enhancements to web conferencing content and application experiences for both end users and developers. The key benefit HTML5 provides is ubiquitous access to web conferencing applications from web browsers. Web conferencing technology providers' next challenge will be to ensure that these environments reach and surpass feature parity with their desktop or plug-in based counterparts. An environment where web collaboration can take place completely from within a browser will help circumvent arduous conversations with system integrators and IT managers, and ultimately empower everyone by removing the need to download a plug-in to a browser or an application to a desktop.

Is WebRTC ready?

WebRTC is designed to complement HTML5 because, while several of the previously described developments offer increased functionality of content and applications, HTML5 is still primarily a playback and display language. HTML5 has no ability to detect and access a device's microphone and/or camera, key components to conducting virtual meetings, webinars and eLearning. WebRTC attempts to address these issues but on a much smaller scale.

WebRTC is a proposed set of application programming interfaces (APIs) that work alongside HTML5 to enable one-to-one audio exchange, video chat and screen sharing. This technology would eliminate the need to download plug-ins in order to share a microphone, camera or screen, and its peer-to-peer premise removes the need for an intermediary server, which can help to lower latency, improve network utilization and lower costs. Early signs point to it holding promise for certain applications such as customer service, tech support and one-to-one communication.

Is WebRTC ready yet?

Browser support scorecard

Completion Score: 60.1%

*Source: http://iswebrtcreadyyet.com/

However, in its current state, WebRTC is not ideal for the development of one-to-few or one-to-many communication applications for the enterprise. Furthermore, the standards that surround the technology are not finalized and continue to change. Our analysis shows that many browsers remain quite far from uniform adoption of WebRTC, and while WebRTC technology can currently be added to many browsers, it often requires a plug-in, defeating a key benefit of HTML5 web applications.

Whether it is WebRTC or some other technology, we look forward to the day when the full range of features required for rich, large-scale digital collaboration can be found in every browser. Until then, we must continue enabling these critical product capabilities through browser plug-ins and executable applications to embrace the other benefits offered by HTML5.

Building a Bridge

Adobe Connect is embracing key HTML5 standards thoughtfully while keeping all of our customers' needs in mind. Up until this point, we have spoken a lot about the future, but it is important to also acknowledge the fact that millions of Adobe Connect users are at varying points along the adoption curve of HTML5-based web applications. For reasons of security, compatibility and IT management, many organizations and individuals may choose to continue to support specific versions of an operating system or browser for many years. A majority of these legacy operating systems and browsers do not support HTML5 or WebRTC. This raises the question: How does a web conferencing provider like Adobe Connect fully support those users, while also forging ahead with the latest technology?

The answer is by building a bridge—one that ensures that users working behind strict firewalls, on hardened operating systems and using older browsers can communicate seamlessly with those on the browsers, devices and operating systems of today and the future. The bridge we have created yields a reliable and highly functional means of delivering on web conferencing and digital collaboration needs. Ensuring we do not lose functionality or sacrifice access by rushing to adopt new but unproven technologies is top of mind for our team. We are committed to not forcing customers into a scenario where they must choose between migrating to a new, potentially unstable application or losing features just for the sake of moving forward.

Our resources are laser focused on the release of the most impactful features possible for our customers. HTML5's support and adoption continues to motivate our team to push the development envelope of Adobe Connect in support of its standards. Based on our assessments today, we believe share pods that support HTML5 content, an option for a Flash-less environment, HTML5 SDKs for creating custom pods and embracing MP4 video are some of the best ways we can begin incorporating open standards into our product. These specific features have begun building a bridge between the current browser versions and operating systems our customers are using and the future product capabilities HTML5 will unlock in Adobe Connect.

6/16