

## Landscape at a Glance

### Windows 8

The new desktop and tablet OS from Microsoft.

### Windows Phone 8

A distinct but related OS for smartphones only.

### IE 10

The latest web browser from Microsoft, providing a common platform across both Windows 8 and Windows Phone 8.

### HTML5

The next generation of web technologies that allows for development of open-standards based “universal apps” that work across all platforms, including Microsoft, Apple, Google, BlackBerry, and more.

### Metro

Microsoft’s internal code name for its typography-based design language for use in Windows Phone. Metro apps are now formally called “Windows 8 Store apps.”

### Sencha

Creator of tools and frameworks that make it easy for HTML5 developers to build rich and sophisticated universal apps for both mobile and desktop environments.

# Building Windows 8 Apps with HTML5: The Opportunity for Developers

With Windows 8, Microsoft has made web technologies (JavaScript, HTML, CSS) a top-tier development option for native Windows apps. Now you can build apps targeting every major mobile and desktop platform via a universal approach.

## What Microsoft’s Embrace of HTML5 Means to Developers

There is no question that Microsoft is betting big on HTML5. Windows 8 and Internet Explorer 10 (IE 10) have radically increased HTML5 feature support, while newly launched hardware platforms running Windows 8 and Windows Phone 8 — such as touchscreen Windows laptops and the Surface tablet — are showcasing the capabilities of HTML5 in the Windows world.

What does this mean for developers? Is this the start of a new gold rush in Windows app development? Or does it mean “discarding two decades of knowledge and expertise in Windows development,” as one blogger put it?<sup>1</sup>

There’s another interpretation that may be closer to the truth: Microsoft’s warm embrace of HTML5 means developers don’t have to place a bet when they select a development platform for desktop and mobile web applications. They can build for both using a common platform. And they can use their skills to deploy the same HTML5 to build apps for Microsoft platforms — as well as for iOS, BlackBerry 10, and Android devices — without being locked in. They don’t have to try to figure out which platforms and devices will eventually win in the marketplace, because HTML5 performs well on all of them.

In short, they can focus on the app rather than the platform.

This paper examines Microsoft’s robust adoption of HTML5 from the developer’s point of view. It recaps how Microsoft and its partner ecosystem are providing deep support of HTML5, and provides insights into what it means, both from a technical perspective and a business perspective.

### Quick Recap: HTML5 Advantages for Developers

Before diving into the details of HTML5 support in Windows 8 and IE 10, it's worth a quick look at the big picture: what exactly is HTML5, and why are developers using it for app development.

HTML5 started as an initiative to transform the web browser into a high-performance application platform — to enable web apps to be built with rich user interfaces, offline capabilities, and deep access to hardware capabilities. Since HTML5 apps are web-deployed, they harness the benefits of the web, including:

- A universal, cross-platform client: the web browser
- Easy searchability and indexing (including deep linking)
- The ability to trivially include third-party services and mashups
- Hassle-free deployments and updates

HTML5 is a moniker that represents a broader set of technologies, including the HTML5 specification itself but also CSS3 (Cascading Style Sheets version 3) and JavaScript to enrich the capabilities of applications delivered via the web. Typically, HTML defines the structure of the web content, JavaScript manages behavior, and CSS determines the visual presentation of the content.

The core of modern application development on the web is JavaScript, which is used by developers to access the various new APIs that are a part of the HTML5 specification. JavaScript is a powerful scripting language in its own right, but when building rich and sophisticated modern apps, most developers turn to a framework that layers on top of the language. With the help of a powerful framework, developers can much more easily build sophisticated HTML5 applications, using frameworks to add features to the language such as an object-oriented programming layer, a Model-View-Controller architecture, features like iterators, and more.

The core HTML5 specification was first moved forward by the Web Hypertext Application Technology Working Group, whose work was then subsumed by the World Wide Web Consortium (W3C). HTML5 continues to evolve to accommodate emerging technologies and capabilities today. Currently 75% of users in North America and 83% in Europe are running browsers that support a large segment of the HTML5 feature set, according to a recent report by Forrester Research.

“ We are at an inflection point: HTML5 is no longer an emerging toolset for mobile and tablet development... it is fast becoming the de facto standard for web experience innovation across touchpoints.<sup>2</sup> ”

– **Peter Sheldon**, Forrester Research

Why use HTML5 for application development? The chart below summarizes just a few of the key advantages for developers.

| HTML5 Advantage                               | Description   |
|---|---|
| <b>Richer applications via open standards</b> | Proprietary plug-ins like Flash and Silverlight add richness to the web's capabilities but can introduce problems with performance, stability, and security. With HTML5 any browser client, including mobile device browsers, can deliver the same rich web experience; the potential market is not limited to those who allow plug-in support.   |
| <b>Ubiquitous access, easier development</b>  | Native app development uses separate languages for each platform and limits access to only those platforms. With HTML5, users can access content from any browser at any time, and HTML5 web app development is typically a faster, easier process.   |
| <b>No app store delays and expense</b>        | Developers who want to create rich mobile application experiences often end up creating native mobile apps and submitting them to the app store ecosystem — a lengthy and sometimes expensive process. With HTML5, developers can use the web as both a desktop and a mobile platform and avoid app-store constraints. They can distribute to all mobile platforms simultaneously and consistently. |
| <b>Shorter development cycle</b>              | HTML5 streamlines app development. HTML5, CSS, and JavaScript are all interpreted languages that require no compilation cycle. Developers can debug in-browser, make a quick edit, and refresh the browser to see the change live.  |

### HTML5 Support in Windows 8/Internet Explorer 10

Microsoft began touting the benefits of HTML5 back in 2010, and added their first HTML5 features in IE 9. “HTML5 offers tremendous improvements in interactivity, graphics, typography and more,” said Jean Paoli, President of Microsoft Open Technologies (and an inventor of XML), at the W3C debut of HTML5 in 2011. “It’s time to tell the world that HTML5 is ready to be adopted.”

Microsoft’s support for HTML5 has continued to grow and expand since then. With Windows 8, web technologies are now a Tier 1 development option for native Windows apps. For the first time, applications developed in JavaScript/HTML/CSS can be built and distributed as native Windows applications.

### IE 10 Support for HTML5

To put it simply, the level of HTML5 support Microsoft now provides in IE 10 makes HTML5 as powerful as any other development option.

Microsoft proved it was serious about HTML5 when it provided support for capabilities such as hardware-accelerated Canvas in IE 9. They went from serious to fully committed in IE 10, which supports far more HTML5 features, including Drag and Drop, File API, Web Fonts, and Touch, Pointer, and Gesture APIs to name just a few.

In addition, almost every visual HTML5 and CSS3 feature introduced in the last three years is supported in IE 10. This means you can build HTML5 apps that have the same visual richness and fidelity as they would with any other Windows platform development option. The supported specs include:

- **CSS Transforms and Transitions:** 2D and 3D transforms work smoothly and at high quality. Anti-aliasing and perspective handling for 3D transformed elements is visibly superior to that of many other browsers; and the smoothness of transforms is impressive — an indication that they are hardware accelerated.
- **CSS Animations** are fully implemented with the syntax pioneered by WebKit.
- **CSS3 Shadows:** Both text and box shadows are completely supported (including inset shadows). Combining shadows with other effects works flawlessly.
- **CSS3 Gradients** are fully supported with new style WebKit/Mozilla syntax that allows circular and elliptical radial gradients among all the other options.

It is noteworthy that the Microsoft platform tie-ins are minimal. For the most part, Microsoft simply implemented the draft standards without extensions.

Equally important, Microsoft’s HTML5 support in IE 10 is not simply “catching up” on UI-related features. IE 10 pioneers some new capabilities that haven’t made it into other browsers yet, such as CSS Regions. CSS Regions is a working draft authored by Adobe that enables newspaper-style layouts with features such as irregular inserts that span multiple columns, as well as configurable text flow around floating elements. These are very useful for publications that want to duplicate print-style layouts on the web.

IE 10 also has extensions for touch interfaces that control scrolling and pan/zoom on elements. For example, the new `-ms-content-zooming` CSS property controls zoomability, and the `-ms-scroll` CSS properties control scrolling behavior.

Several high-profile HTML5 technologies have not yet appeared in IE 10. First, WebGL is explicitly off the menu. To work with 3D graphics, web developers need to use the JavaScript bindings to Windows Direct graphics APIs and distribute their apps only as Windows apps. Similarly, media capture and device APIs are not supported.

On the other hand, IE 10 support of HTML5 now exceeds that of Safari and Opera, according to CanIUse.com:<sup>3</sup> “IE 10 supports 83% of HTML5 recommended, proposed, and working draft features. IE9 is at 52%... Safari is at 77% and Opera at 70%.”

The complete list of HTML5 features supported in IE 10 can be found on the Microsoft site: [msdn.microsoft.com/en-us/library/ie/hh673549%28v=vs.85%29.aspx](http://msdn.microsoft.com/en-us/library/ie/hh673549%28v=vs.85%29.aspx). Developers can test-drive some of the HTML5 capabilities supported by IE 10 by visiting: <http://ie.microsoft.com/testdrive/Graphics/hands-on-css3/>.

### **Windows Phone 8 Support for HTML5**

Windows Phone 8 brings IE 10 to mobile devices. Windows Phone 8 devices have much better HTML5 support than previous releases, and the version of IE 10 that ships with Windows Phone 8 includes most of the improvements found in the Windows 8 desktop/tablet.

IE 10 on mobile is substantially ahead of its predecessors and supports web app essentials such as the Application Cache API for creating offline apps and IndexedDB for storing data. It also includes support for Web Workers, WebSockets and several of the new HTML5 form elements.

IE 10 on mobile has all the new CSS features found in the Windows 8 version as well, including CSS Regions and Grid layout. Developers can read a detailed discussion of what's new in IE 10 mobile by visiting [http://blogs.windows.com/windows\\_phone/b/wpdev/archive/2012/11/08/internet-explorer-10-brings-html5-to-windows-phone-8-in-a-big-way.aspx](http://blogs.windows.com/windows_phone/b/wpdev/archive/2012/11/08/internet-explorer-10-brings-html5-to-windows-phone-8-in-a-big-way.aspx), and also by reading developer Andrea Trasatti's blog at <http://blog.trasatti.it/2012/11/html5-forms-and-IE-10-mobile.html>.

### Why is HTML5 Important to Microsoft's Customers?

From a developer's perspective, it is important to understand that **HTML5 support is a clear win for Microsoft customers**, because that means Microsoft's support for HTML5 — and the market for Windows 8 and Windows Phone 8 apps — will continue to grow. Clearly, Microsoft has many customers who want and need the capabilities HTML5 brings to the table, and many motivations to embrace the power of HTML5 and open standards. For example:

#### HTML5 support translates to more app choices for customers.

Microsoft's support for HTML5 will entice more developers to create Windows 8 apps, and that means customers will have a broader selection to choose from in the Windows App Store. Populating the App Store is critical to Microsoft's success, and right now Microsoft is behind Apple and Google in the numbers game. According to a recent report in CNET<sup>4</sup> there are currently only 120,000 apps in the Windows Phone store. By comparison, Apple's store has 700,000 applications, while Google's Play store offers 675,000.

A closer look reveals why HTML5 support draws developers to the Windows platform. Since HTML5 is platform-agnostic, apps created for the Web or notebooks can easily be deployed in smartphones or tablets. For developers, this means a broader potential customer base with minimal added effort or cost. Plus, for developers who are not skilled in .NET languages such as C# or Visual Basic, HTML5 support opens the door to Windows application development — and the Windows customer base — without requiring a massive investment in new tools and training.

“ For the developer interested in embracing the popularity of HTML5, creating Windows 8 applications with JavaScript, CSS and the new features supported in HTML5 will be a fantastic way to maintain experience in these technologies.<sup>5</sup> ”

– **Michael Palermo**, Senior Developer Evangelist, Microsoft

#### HTML5 support means Microsoft customers don't have to make difficult choices.

Consumers and IT managers have traditionally had to make bets on platforms just like developers: which browser to use, which OS, which hardware. A wrong choice could become costly if that platform is left behind by newer technologies or can't adapt to new requirements.

<sup>4</sup> Source: "Windows Phone 8 users can access 46 of top 50 apps," by Shara Tibken, CNET, October 29, 2012.

<sup>5</sup> Source: "Windows 8 and HTML5: A story just unfolding," by Patrick Hynds, Software Development Times, May 24, 2012

Since HTML5 has become the cornerstone of the universal app, Microsoft has protected its customers — and itself — against technology lock-in. Now customers can continue to use Internet Explorer on Windows 8 and Windows Phone 8 with full confidence that the latest web apps will run seamlessly. And new customers frustrated with other browser options can make the move to IE 10 and experience the advantage of Microsoft's strong support for HTML5.

Customers also love the fact that HTML5 apps will run in desktop, tablet, and mobile environments. It is therefore in Microsoft's interest to ensure that IE 10 is the fastest, most feature-rich HTML5 browser under Windows 8, and to support all of the HTML5 features that are important to Windows 8 and Windows Phone 8 HTML5 apps.

### Business Opportunities for Developers

Clearly, Microsoft's accelerating adoption of HTML5 capabilities opens new doors for two huge groups of developers:

- **Existing Windows platform developers** now have a way to write an app once and have it work well on multiple platforms, including Android, iOS, and BlackBerry as well as Windows 8, Windows RT, and Windows Phone 8. That means they can dramatically expand the market reach of their apps without investing the time and resources to develop native versions for multiple desktop, tablet, and smartphone platforms. They can also give users the freedom of choice to access the app using virtually any device.
- **Newcomers to Windows development** now have a way to build apps for Windows 8 platforms without having to develop expertise in .NET programming languages such as XAML with C# or Visual Basic with C++. They can create native-like apps without the limitations of native development, and they can use HTML5 as a common denominator and target all apps stores, not just Microsoft's.

The question both groups must address is whether the Windows 8 and Windows Phone 8 markets are large enough to merit aggressive pursuit.

IDC had Windows Phone holding about 2% of the market in the third quarter of 2012,<sup>6</sup> and reported that 3.6 million phones running Windows 7 were shipped in the third quarter of 2012, versus 1.5 million in the year-ago quarter. The third-quarter numbers do not include Windows Phone 8 sales, as devices running it only came out in October 2012.

The good news, according to IDC, is that Windows Phone is the fastest-growing mobile OS in the market with 140% growth from the third quarter of 2011. The total market for smartphones grew by 46.4% to 181.1 million units in the third quarter from 123.7 million in the year-ago quarter, IDC reported. And according to Windows Phone Program Manager Joe Belfiore, out of the 50 top smartphone apps, 46 are now on Windows Phone.

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<sup>6</sup> Mary Jo Foley has covered the tech industry and Microsoft for more than 25 years for a variety of publications and Web sites. For the full context of this quote see ([http://news.cnet.com/8301-10805\\_3-20070775-75/windows-8-and-anxiety-over-html5/](http://news.cnet.com/8301-10805_3-20070775-75/windows-8-and-anxiety-over-html5/)).

“ It definitely seems Microsoft’s ultimate goal is to wean developers off Silverlight and to convince them to use HTML5 and JavaScript to write new apps for Windows, going forward.<sup>6</sup> ”

– **Mary Jo Foley**, Editor, ZDNet

Phone makers are also getting on the Windows Phone bandwagon: for example, Nokia CEO Stephen Elop promised greater emphasis on Windows Phone products at the 2012 Mobile World Congress (MWC) in Barcelona.

Sencha conducted its own survey of 1400 mobile executives and found that there will be “aggressive” adoption of Windows Phone 8 in the enterprise over the next 12 months. In the survey, 46% of companies polled said they were going to be supporting Windows Phone 8 within 12 months. As Ojas Rege, VP of strategy at MDM providers MobileIron, stated: “We believe that the new Windows release will become an important part of the mobile enterprise mix.”

The Sencha survey also revealed that 83% of respondents supported two or more operating systems in their workforce. This finding lends credence to the belief that enterprises are not willing to bet on any one platform, and in fact are looking to continue embracing choice and supporting a diverse and growing set of devices.

Developers can also harness Microsoft’s support of HTML5 in building **Metro-style apps**. JavaScript and HTML5 offer the quickest route to building Metro UI apps that take full advantage of the animations and interactivity features of the Metro design language. By using HTML5, developers can build Metro apps that give the user the impression that the UI is alive and responsive, with an added sense of depth. There are already books available on the topic, including “Metro Revealed: Building Windows 8 Apps with HTML5 and JavaScript” by Adam Freeman.

Microsoft’s increased support of HTML5 has also generated increased support for Windows 8 and Windows Phone 8 within its partner ecosystem, creating additional opportunities for developers to leverage frameworks that are optimized for HTML5 and the Windows platform.

For example, Sencha announced with Microsoft Open Technology, Inc. support for Windows Phone and received early access to the Windows Phone 8 SDK and technical support, making it easier for Sencha to provide Windows Phone 8 support in Sencha Touch — the leading JavaScript framework for mobile developers. Leveraging the cross-platform support of Sencha Touch, developers can now add Windows Phone 8 support to their business applications with minimal effort — focusing on delivering core value through their applications.



“ Sencha Touch support for Windows Phone 8 is seamless. We built our Diablo III companion mobile app with Sencha Touch because the open platform allowed us to quickly build and publish our app to multiple devices. Using the same HTML5 and JavaScript code base, we got our app to run on Windows Phone in just a few days. ”

– **Jay Garcia**, CTO, Modus Create

“ We chose Sencha Touch for our mobile app, Xero Touch, because the framework is built on open web standards and enables us to build a universal app that supports a wide range of platforms. Using Sencha Touch, we get to focus on delivering a beautiful user experience. ”

– **Craig Walker**, CTO, Xero

### How Sencha Helps Ensure Success with HTML5

Our mission at Sencha is to deliver the frameworks and tools that empower developers to create amazing multi-device applications with open-standards web technologies like HTML5. We're enthusiastic about Microsoft's direction with Windows 8 and Windows Phone 8, and our products are powerful aids to developers building for these platforms.

The Sencha product portfolio includes application frameworks and tools. The frameworks are the core systems that enable the rapid creation of true, cross-browser web applications, from IE6 to Chrome 10. Sencha tools accelerate the developer's workflow even further by leveraging the frameworks to enable visual development of user interfaces and interactions. The main framework offerings are Sencha Ext JS and Sencha Touch:



**Ext JS** is a framework that enables developers to build rich desktop Web applications with ease. Ext JS also includes a large library of UI components and default UI themes that enable developers to focus on building the applications they want.



**Sencha Touch** is a framework used to build mobile and touch Web applications. It's the world's first application framework built specifically to leverage HTML5, CSS3 and JavaScript for the greatest power, flexibility and optimization.

Sencha products make specific use of HTML5 to deliver components such as audio and video, as well as a local storage proxy for saving data offline. We have also made extensive use of CSS3 in our style sheets to provide the most robust theming layer possible.

To complement Sencha frameworks, we offer two tools — Sencha Eclipse Plugin and Sencha Architect, along with a new product called Sencha Desktop Packager:



**Sencha Architect** is a desktop application that helps you create interfaces faster than ever in an easy-to-use, drag-and-drop environment. Using Sencha Architect, companies can create new designs quickly, enabling Ext JS developers and product designers to develop the user interface for their web app in less time.



**Sencha Eclipse Plugin** is a plugin for the popular Eclipse IDE that gives full code intelligence, syntax highlighting and code assistance to Sencha Ext JS and Sencha Touch code. Developers can rapidly increase the speed of their application development with the Sencha Eclipse Plugin by giving them powerful, enterprise grade tools to build applications rapidly.



**Sencha Desktop Packager** enables you to package enterprise applications in a hybrid application runtime, with native API access and the performance of full desktop applications. With the Packager technology, developers can use web technologies to build their apps and provide their users a first-class app experience on Mac, Windows, and Linux with no dependency on browsers. In other words, develop as web, deliver as native. Sencha Desktop Packager is sold as a per-machine commercial license.

## Conclusion

By embracing HTML5, Microsoft has opened new doors for developers and provided access to new markets for HTML5 developers. Equally important, Microsoft has shifted from laggard to leader in HTML5 support—and in so doing has signaled strong support for the idea of multi-device, multi-platform, universal apps.

Now it's time for developers to take a fresh look at the Windows platform in the light of new opportunities, and to evaluate the new options HTML5 creates for their business and their customers.

## Learn More

For more information about how Sencha can help you leverage HTML5, visit [www.sencha.com](http://www.sencha.com). You can also:

- Talk with other web developers and Sencha experts on our developer forums ([www.sencha.com/forum](http://www.sencha.com/forum))
- View screencasts and demos at our Learning Center ([www.sencha.com/learn](http://www.sencha.com/learn))
- Sign up for training sessions on our frameworks and tools to jump-start development ([www.sencha.com/training](http://www.sencha.com/training))