# The Browser-Based Debate

Browser and smart client software as a service are the latest in mortgage tech— but which is better?

When a lender decides it's time for a new loan origination system or other piece of mortgage technology, many executives quickly see that it's not a difficult decision to go with a software-as-a-service offering.

But lenders are finding the options go well beyond picking between a SaaS or installed license model for their new tools. The world of SaaS products can be divided broadly into two categories: browser-based, also called Web applications, and smart client applications.

The differences between the two each have their pros and cons. Meanwhile, emerging products often blur the distinction, creating a sort of hybrid offering—which has many technologists asking themselves not just which is better, but where the future of this technology is headed.

By Austin Kilgore

## No Right Answer

With a Web application, developers build software that can be accessed through a browser like Internet Explorer or Firefox, the top two most commonly used browsers in the world. Developers use a combination of tools, including hypertext markup language and plug-ins like Flash and JavaScript. A user only needs an Internet connection and a browser to access the application, which is hosted by the provider's servers.

A smart client is like a desktop application in that a program is installed on user computers. But it's not the full application. The smart client serves as a gateway to company's data and the full features of the software, which are stored on the provider's servers and accessible over an Internet connection.

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> **Jonathan Corr,** chief strategy officer, Ellie Mae

When it comes to Web and smart client applications, there is no one-size-fits-all answer. Developers have various reasons for building to the two specifications, rooted in the set of priorities they have for their product. In some cases, developers may sacrifice the features of one type of application in order to take advantage of options available on the other.

Neither option is an out-and-out winner. It depends largely on the purpose and task a piece of software is designed to handle. It's like the difference between the retractable pens that have a number of different ink colors and a calligraphy pen. Like the rainbow of colors on the retractable pen, Web browsers are powerful multitaskers. The smart client, like a calligraphy pen, is a custom-designed to accomplish a single task.

Both have their strengths and weaknesses, but one differentiator that developers have to balance is the speed a SaaS application can process data requests and its graphical user interface; key components of a tool's effectiveness.

==William Walsworth, the chief information officer of Five Brothers, a Warren, Mich.-based property preservation and technology company, compared his company's browser-based FiveOnline workflow management SaaS to a graphically complex smart client== ==FiveOnline's priority is speed and stability, not visual bells and whistles.==

=="With Web-based versus a feature-rich interface like a Windows GUI, the interfaces in the browser usually aren't anywhere near as good as a feature-rich application that's running on your local PC,"== Walsworth said.

By their nature, SaaS products can be updated electronically and in some cases automatically, as opposed to deploying physical media storage like CDs or DVDs to release a new software version. That centralized data storage helps provide safe and secure storage for loan files and other critical data.

Developers benefit because they can push new versions and services to market faster and have a lower cost of service. Users can scale down their internal information technology infrastructure as well, providing another source of cost reduction.

The benefits of Web-based SaaS applications build off those efficiencies. The quick install is boosted by the browser's near universal accessibility. Smart clients, like desktop applications, aren't as easily installed.

=="If you want to install an application on 2,000 PCs at a bank, you'd probably rather stick your nose in a fan because banks have all kinds of security and it's not a very easy thing to do,"== Walsworth said. =="With a browser, you just give somebody a hyperlink and they're ready to go."==

Meanwhile, smart client applications offer developers higher performance and more control over the application's user interface.

"All the benefits you get from pure Web-based are there, plus you get a much higher performing piece of software because it can do calculations much faster," Corr said. "You don't have to have four roundtrips to the server for every single webpage."

=="For FiveOnline, it doesn't really matter because the interface doesn't need to be that complex,"== he added.

Jonathan Corr, chief strategy officer at Pleasanton, Calif.-based Ellie Mae, agrees—though his company's flagship Encompass360 LOS is a smart client application.

"Depending on the level of calculations and roundtrips to the server and complexity, you get performance degradation if you're on a webpage and you have to continually go back to the server," he said.

"If you need better performance on the client, then a smart client works better," Corr added.

There are myriad advantages to both types of SaaS applications. The first of which is ease of installation.

## Who's Using It?

Much of the decision on a type of SaaS application is dependent on the end user, explained Randy Schmidt, president of Data-Vision.

"A lot of our focus is based on consumers," he said. "We don't want the consumer to have to do anything differently or special, or download any sort of special component or application."

The Mishawaka, Ind.-based company offers a browser-based point of sale application for consumers to complete mortgage applications and monitor their loan status online, along with complementary SaaS technology to perform automated underwriting checks, let loan officers manage loan cases and transmit application information into lenders' back-end LOS.

Despite the focus on consumer-facing Web applications, Schmidt said Data-Vision also has a back-end system for lenders. For consistency's sake, that is also a Web application. "Because of the way we do things, we put it all into a browser-based application," he said.

"If you're looking at it from a lender's perspective with an online LOS, or something where it's strictly going to be the bank's employees using it, you could take a look at going with a different channel," he added.

Providers of Web-based SaaS tout the applications' universal access as a benefit for employees like loan officers and mortgage brokers constantly out in the field. Many LOs and brokers have relied on laptops with Web-based technology to collect application data and manage loan pipelines out of the office.

As mobile technology continues to evolve, many browser-based LOS providers have quickly found themselves ready for the tablet push without changing a thing, while smart client developers are scrambling to build new interfaces to their applications.

"With the smart phones and tablets, it really has become you can do it anywhere," Schmidt said. "You can sit out in a parking lot and take an application.

"We really haven't mobile optimized it because nobody's going to take an application on a phone," he added. "They are going to want to do it on a tablet, but the way we've designed our site, there's no difference between the tablet and desktop versions of the website."

But Ellie Mae's Corr sees it differently. He believes lenders think wide access to a browser-based LOS is advantageous, without realizing the potential risks.

"Some would argue that the benefit of a browser means I can access it from any computer. I can walk into a coffee shop and I can access my loan origination system," he said. "And I'll ask people, 'Do you really want that?' It's nice to think you want that, but how often are you going to trust that someone is going to actually do that in a secure fashion across any type of browser on an unknown laptop or unknown computer?"

That so-called benefit is really not a benefit, Web application developers may want to access status on a Web page or bits and pieces of functionality, but I would argue from a security standpoint that you don't want to access the full level of capability of the loan origination system because of potential security issues on an unknown laptop or desktop."

With smart applications, lenders can control how and where employees access the LOS and can control which computers have the software installed. While that means smart client providers have to develop additional software, it ultimately protects lenders, Corr believes.

"You can't use it in the coffee shop, but you really don't want to that in terms of someone else's computer," he said. "You want to have them on the [lender's] laptop."

## Growing Demand

Based on the increasing number of mortgage technology vendors deploying SaaS versions of their software, it seems apparent that lenders see the value of SaaS and are willing to make the switch from other products.

Mortgage Cadence is in the process of its own SaaS transformation. In March, the Denver-based LOS, document preparation, default servicing and compliance software company launched a SaaS LOS for midsize lenders called Symphony.

Meanwhile, its enterprise-level LOS, called Orchestrator, is migrating from a client that's hosted on lenders' own servers to a SaaS application hosted by Mortgage Cadence. Both products are accessed through Web browsers.

"We've been moving towards the Web, strategically because that's where the market is going, but it also makes sense from a support, infrastructure and deployment strategy," said Rob Jannotte, executive vice president of product management at Mortgage Cadence.

Added Trevor Gauthier, the company's executive vice president of enterprise sales and marketing, "The original market that Mortgage Cadence was going after eight or 10 years ago was the top 100 lenders. When we were going after those, they wanted to take our application and host it in-house. That's how everybody was doing it.

"Over the years, and especially now, even when you get into the enterprise world about 90% of our client base want us to host and manage and they just want to access it over the Internet," Gauthier added.

The shift to SaaS technology is happening at Ellie Mae as well. According to the company's first-quarter 2011 financial results, lender use of its software-as-a-service IOS has increased to more than 11,100 mortgage professionals at the end of 1Q11, from 2,738 at the end of 1Q10 and 8,704 at the end of 4Q10.

At the Department of Housing and Urban Development, a browser-based SaaS application was launched in summer 2010 to facilitate transmission of documents between HUD's Mortgagee Compliance Manager—a vendor that oversees disposition of Federal Housing Administration REO properties—and mortgagees and their vendors performing maintenance on real estate owned properties, called P260.

The portal replaced a disparate system of faxes and standalone emails for communication about foreclosures, preservation service reimbursement and other disposition tasks, Walsworth said.

Previously, those emails and faxes would go to the servicer, which would manage the documents. Now, Five Brothers handles all that data entry as a service to its customers. To facilitate that work, the company created a process that automates many of the steps needed to upload the information from FiveOnline and pass it on to P260.

## Development Challenges

Developers face unique challenges when building technology for either type of SaaS application. While browser-based applications offer virtually ubiquitous accessibility, it comes at the expense of developers' ability to build specialized features.

"You do give up some flexibility because you can't control what the screen resolution of the end user is on a browser," Schmidt said. "You can code toward a minimum standard, but you don't know on the outside exactly what screen resolutions, software they have installed or what operating system they're coming from, whether it's a Mac or a Microsoft Windows platform."



**Damir Matic,** chief technology officer, Mortgage Cadence

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In order to promote accessibility, developers have to write to a common standard among browsers and versions, many times losing the ability to take advantage of functions in the latest editions of a browser.

"Even within the same type of browser, if you look at IE 7 versus IE 8 or 9, there are differences," Schmidt said. "We always go in and when we test our system, we test on all platforms because there are differences between them."

To find the middle ground between the two extremes, developers may have to hold off updating a critical component to take advantage of the latest browser features.

While there are differences in the way a screen might appear to an end user, he added that what's more important is gathering the data.

"In all cases, it's still going to be aesthetically appeasing," Schmidt said. "It's not going to look the same way every time, but it's not going to look bad in any case."

There were significant architectural differences in the early development of Web browsers, making it difficult for Web application developers to write to multiple platforms. Those problems have generally subsided as browsers have evolved, though most application developers still test their products on multiple platforms.

The bigger problem is when a lender isn't using the most current version of a browser. Many IT departments lock down employees' ability to update their browser, leaving them with outdated versions.

Other times, developers will design the user interface of a Web-based application to appear differently, depending on the capabilities of a specific browser version, keeping it simply for old versions and more advanced for the new editions.

"It's still within the one code base, but it's like two different versions," Schmidt said. "But that's pretty standard."

Mortgage Cadence's Jannotte said the mortgage industry is filled with different levels of technological sophistication, particularly across lending channels.

"We've got clients that are on IE 9 and Windows 7 and we've got clients that are on much older operating systems and much older machines," he said. "In the world of wholesale, which lenders have no control over, you still have a fair amount of the market using old technology."

# Browser

"The browser is the gateway. It's our technology and the plug-in to the underlying technology within the browser that can move forward or backwards as the browsers change without relative difficulty," Jannotte added. "It's definitely something that we work through, but it's not that large of a challenge."

Smart client developers have their own challenges. Companies that develop proprietary platforms may need personnel with more specialized skills than the commonly used Web applications require. This higher-level function has traditionally enabled more robust features in smart client applications.

Also, providing updates to the dedicated smart client requires downloading and installing the update—as opposed to a Web application, where the update can be immediately deployed. But like the issues of browser types and versions, Ellie Mae's Corr said the impact is negligible, especially since updates are still deployed over the Internet.

"It just isn't that hard, especially with clicking and it streaming down," he said.

## Selecting the Right Tool

As developers look to broaden their SaaS horizons, some vendors have turned to a sort-of hybrid SaaS model, called rich Internet applications. These applications are browser-based, but rely on more robust plug-ins and architecture to create a better user experience.

The decision by many Web-based mortgage technology developers to stay away from writing software that includes Flash-based animations has paid off in the transition to mobile, as Apple's popular iPad does not support the plug-in.

During the Mortgage Cadence conversion, the company has deployed the Silverlight development platform to create its Web-based applications. Those tools, combined with other Web-based technology like the emerging HTML 5, provide a full toolbox for developers, explained Damir Matic, chief technology officer of Mortgage Cadence.

"These technologies serve different purposes and as such cannot be compared in an either-or fashion," he said.

"The HTML vs. Silverlight technology decision can largely be described as selecting the right tool for the job and as such, depends on the desired solution attributes, such as specific functional objectives and intended audience."

HTML remains the optimal solution for cases where maximum penetration and compatibility with a wide range of devices are desired, he said, like in direct-to-consumer software. Silverlight is a better solution in cases where industrial-strength runtime combined with complex front-end processing is necessary.

"Although in theory many things that Silverlight does can be accomplished with a clever application of HTML/CSS/JavaScript, the resulting solutions would be significantly costlier to develop, stabilize across all browsers, and would not perform as well as equivalent Silverlight solution," Matic added.

As rich Internet applications continue to improve, they gain on the user interface and control advantages of smart different applications. And since the underlying feature set is built around Silverlight, a commonly used Microsoft platform, vendors don't need specialized developer personnel. And Jannotte believes these latest tools come with few downsides.

"The only limitation has been from some of the older clients, more established banking clients, they don't fully understand the world of this rich Internet application and plug-ins. They might immediately have an objection to any software that requires a plug-in to operate," he said.

"But the reality is there are plug-ins embedded in their IE application that they're using for other applications. So it's getting them educated on what that really means."

## What's Next?

As the next generation of browser-based applications continue to evolve with rich Internet technology, the philosophical discussion has shifted from determining where the line between a website and a Web application is or the difference between desktop application and a smart client. Now developers are debating where the Web application ends and the smart client begins—or vice versa.

"We go back five years and there were very few applications that were Web enabled, they only had elements of it," Corr said. And while he believes that smart clients currently offer "the best of both worlds," between desktop and Web applications, he said that won't be the model forever.

"Until we get to a world of broad bandwidth and really high performing computers, there's always going to be this question of what fits, what makes sense?" Corr said.

"Do I think that will be the model forever? No. As technology evolves, as bandwidth evolves…it really is a function of the technology and bandwidth being there to deliver on the value proposition for the customer."

Schmidt, of Data-Vision, said the next generation of first-time home-buyers will also help promote browser-based applications as they demand more services online.

"The whole millennial age group is getting into the housing market and these are the people who have grown up with the Internet and they're doing everything on it," he said. "There has to be an Internet component going forward for the mortgage industry, because that's where a lot of this is going to be done." **MT**