



## *The Business Value of Ajax*

A White Paper from JackBe Corporation

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## About This Document

### Purpose of this document

There's a lot of material all over the Web that talks about the technical aspects of Ajax and the challenges and benefits it brings to Web application developers. This paper instead focuses on Ajax from a *business* perspective: What's Ajax, why should you care, and what kinds of real business benefits can it provide for you and your organization?

### Who is this document for?

This paper is oriented at line-of-business managers, C-level executives, or even senior IT managers just trying to figure out what all the fuss is about. We'll try to stay relatively free of technical jargon, and we're not going to talk much about specific products or technology.

## The Changing Face of Web Applications

The World Wide Web was originally envisioned as a way to easily communicate unstructured information and to provide users with a simple way to navigate between pages of that information using a Web browser. HTML (Hypertext Markup Language) was designed to easily create and format those pages, and it's handled that mission pretty well since the Web began to take off in the mid 1990's. We've all grown accustomed to the "page-at-a-time" design of HTML: Click on a link, your browser screen clears, and an entirely new page is sent to replace it. Those of you who grew up with slow speed dialup links probably remember (not fondly!) how your browser screen turned white, followed by a long delay while the next page was downloaded and displayed. Maybe not real elegant, but it was simple and it got the job done for the 'informational' websites of the day.

"The Web wasn't ever as functional or useful as client software, and Ajax just knocks that ball out of the park."

-- Seth Sternberg, co-founder of Meebo.com ([News.com](#))

Now fast-forward about ten years: Internet usage is pervasive, broadband links have become much more common, and we are using the Web not only to deliver information but as the *de facto* way of handling business transactions. We still refer to 'Websites', but 'Web applications' have joined that older term. Whether our applications are internal or customer-facing, we all love the idea of delivering them anywhere in the world without distributing or installing client-side software. But we hate giving up the usability, speed, power, and flexibility users have come to expect with traditional 'fat client' applications. And that's where the huge limitations of traditional HTML are painfully apparent to businesses as well as to your customers. Users quickly become frustrated, to the point that they simply give up and walk away. Online shopping cart abandonment rates over 80% are common, as are unfinished

financial applications and uncompleted transactions. At the risk of introducing more jargon, users miss the usability that is easy to achieve with 'event-driven' programs—a paradigm that just can't duplicated with HTML.

"Until Google put this technology out there, no one was really thinking of Web pages as applications."

-- Francis Shanahan, Sapien Corp. (SAPE) Software Architect

Rich Internet Applications (known as RIAs) are changing all that. Put simply, RIAs give us the best of both worlds: they deliver the usability of traditional applications, but over a standard Web browser on the internet. For lots of good reasons, what's now called 'Ajax' (Asynchronous Java and XML) is by far the most popular approach for creating RIAs. There are also proprietary tools like Adobe's Flash and Flex that use different technologies to accomplish similar results.

## So What's Ajax All About?

There's no question that Ajax is one of the most talked-about new technologies in the entire application development market space. So let's try to explain in clear business terms what Ajax and RIA are all about.

First, you need to understand that Ajax is not a product. It's not even a single technology or a standard. Instead, it's a broad set of existing open technology standards and methods (more technical jargon like HTML, JavaScript, Dynamic HTML, DOM, XMLHttpRequest, and XML). Collectively, these allow delivery of truly dynamic content on a Web page without constantly resending entire pages. Once a page is displayed, only the bits of data that actually change need to be transmitted and refreshed. And even better, Ajax relies on the power of the user's computer and Web browser to perform many of the tasks that traditionally had to be done on the server. With Ajax, when the user clicks on a column heading to resort data, or wants to use click-and-drag to rearrange the columns, it all happens instantly right there on the client side—no data at all is sent or received from the server. While Ajax is (too) often used to simply add flashy "how-did-they-do-that" front ends onto existing websites and applications, the *real* power of Ajax lies in its ability to enable a whole new breed of rich Web applications that we couldn't even consider tackling with basic HTML.

By now you're probably saying, "Great! Let's use some of this cool Ajax stuff to improve our e-business and customer-facing applications—and while we're at it, we can deliver all our internal applications via Web browsers too."

Unfortunately, it's not that easy (is it ever?) All of the underlying technologies used to implement Ajax have been around for awhile now, but the key word two paragraphs earlier was "collectively". Cobbling all these disparate technologies together to deliver a working Ajax-based RIA is not for the faint of heart—we're talking about a challenge that even leading analyst firm Gartner referred to as "rocket science". That's why the first commercial Ajax applications came from companies with huge advanced R&D groups like Flickr or Google (Maps and Gmail).

JackBe released the first versions of our *NQ Suite* several years ago (NQ stands for “nimble and quick” because there wasn’t a name for what we were doing until the term ‘Ajax’ was coined by Jesse James Garrett in early 2005), and through mid 2005 there was very little market awareness of Ajax. But once end users experienced the usability of applications like Google Maps, old-fashioned HTML seemed positively archaic by comparison and the market for Ajax development solutions took off like lightning. As of mid-2006, Gartner analysts estimate there are about 130 different products that claim to help ease the effort of implementing Ajax. Only a handful of these are commercial projects; most are unsupported open-source tools. We’ll say more on that a bit later.

## Why Is This Important to Me?

Put simply, Ajax-based RIAs offer improve dramatic improvements in usability, productivity, and functionality for both current and new Web-based applications. You can now deliver Web apps that look and feel like standard desktop applications with rich interactive content. This translates directly into benefits like increased online revenue through reduced website abandonment and higher sales conversion rates, lower IT infrastructure costs and better performance, higher rates of user satisfaction and loyalty, reduced customer support costs, and competitive differentiation.

“Ajax enables better user experiences on the Web, which can help businesses gain a competitive advantage.”

-- *Microsoft Product Manager Brian Goldfarb, InformationWeek*

Ajax empowers new ways for Web applications to interact with the user that were previously only available with desktop applications. The resulting user experience is richer because the application feels more like a desktop application in terms of responsiveness, interactivity, intuitiveness, and overall usability. This improved usability leads to stronger business results because the experience is much more like what users are accustomed to, and they now have the flexibility to quickly accomplish business transactions on the Web. Because there’s no longer a need to install software on the client machines, enterprises enjoy dramatically lower costs for application deployment and maintenance. They also benefit from lower support-center costs by eliminating all the calls related to client-side application installation and configuration.

Finally, Ajax opens up whole new business models. For example, you can now take an installable software application and convert it to a purely Web-based service accessible by anyone, anywhere in the world, using only a basic Internet connection and a standard Web browser. This is known as ‘Software as a Service’ (SaaS), and Ajax (often in combination with service-oriented architectures (SOAs) and other new server-side technologies) is a key component to making SaaS a reality.

## The Business Benefits of Ajax

As is true with many newer technologies, you will find that much of the material discussing the ‘benefits of Ajax’ in fact focuses on *IT-related* benefits such as

increased developer productivity, integration with existing systems, and support for technical standards.

These are surely important corporate benefits, but they're not particularly relevant to you as a line-of-business manager. They certainly won't compel you to invest the time and effort to spearhead an Ajax-based RIA project, especially with mission-critical applications where introducing any new technology carries risks that must be more than offset by potential business benefits.

So while they may be harder to quantify, here are just a few of the very real business benefits that lead to a rapid return on investment (ROI) from Ajax RIAs, along with a few real-world examples.

- **Improve employee productivity and accuracy:** Better user interfaces enable a more natural workflow that results in fewer human errors—errors that can carry huge financial costs in terms of lost revenue and customer dissatisfaction, among others. And while the time savings generated by the improved productivity of Ajax may seem insignificant at first, if you have hundreds of people using your Web application multiple times a day, the ROI impact can be substantial. (For an interesting study that quantifies the time savings of an Ajax-based transactional system, see “Measuring the Benefits of Ajax” by Alexei White at <http://www.developer.com/xml/article.php/3554271>)
- **Increase the value of business information:** Developers can use Ajax to deliver new kinds of data visualizations and interactivity that traditionally would have been possible only on the desktop. By providing these capabilities to a much broader audience of Web-based users with no client-side software, Ajax leverages your investments in information assets. For example, the U.S. Defense Intelligence Agency worked with JackBe to create ‘Overwatch’—an innovative application that integrates multiple national intelligence sources into a personalizable, desktop-like intelligence asset dashboard that increases the timeliness of intelligence briefings and aids the real-time analysis of data for users worldwide.
- **Reduce total cost of ownership (TCO):** Ajax-based applications offer much lower costs when compared to those of a traditional application, including the impact of lower yearly licensing costs for proprietary desktop software, as well as the elimination of distribution, installation, and support costs.
- **Reach new audiences:** Forward-thinking government agencies have worked with JackBe to reduce costs by extending intuitive self-service applications to audiences who found earlier Web applications too difficult, inflexible, and slow to use on a regular basis. One great example is Mexico’s SAT (equivalent to the U.S. Internal Revenue Service), which wanted to improve the efficiency of how its citizens filed taxes. JackBe worked with the SAT to create an Ajax-based online tax filing system that’s intuitive and user-friendly enough to satisfy those who use it year after year. The SAT went on to enact legislation that makes it necessary for filers to submit their returns via the Internet. When fully deployed, over 20 million end-users will use the system—making it one of the largest deployed Ajax business applications in the world.

- **Increase sales:** Frustrated by lower than expected online sales, one of the largest pharmaceuticals companies in the world used JackBe's NQ Suite to drive revenues by replacing their old Web-based B2B e-commerce system with an easier to use, highly interactive Ajax-based purchasing application. Providers of business-to-consumer products and financial services have achieved similar benefits through measurable reductions in website abandonment and higher sales conversion rates. And advertising-supported business information sites generate more revenue from 'stickier' websites that use Ajax interactivity to keep visitors on the site much longer than would be possible with static HTML pages. One good example of this is Forbes.com, which publishes a number of very well-known annual business ranking lists. In the past, these lists were made available online as static HTML pages. But after being replaced with JackBe Ajax-enabled pages, users can now re-sort and filter the lists in any manner desired—thus increasing their "time on site" (and of course, the number of different ads served during that time). Check it out by viewing the Forbes.com list of the "200 Best Small Companies" (<http://images.forbes.com/lists/2005/23/htm/filter.html?sort=0>)
- **Lower support center costs:** The elimination of client-side software installation, in combination with a more intuitive, capable, responsive, and flexible user interface, can dramatically reduce both the number and complexity of customer support calls. This frees your agents to focus on tasks that are more productive.
- **Boost customer satisfaction and loyalty:** With the total number of online shoppers leveling out, the research firm Jupiter Group reports that retaining current customers has now become a higher priority for firms engaged in online commerce than gaining new customers. Delivering a very positive online user experience can be a major contributor to both satisfaction and ongoing loyalty for future purchases.
- **Reduce costs of IT infrastructure:** While the cost of bandwidth does not increase linearly, it does increase in sizable steps as the company is forced to invest in larger-capacity Internet connections and new hardware to accommodate greater server loads. The cost structure for bandwidth depends on the scale of the operation and these capital investment needs. Since Ajax-based applications consume a lot less bandwidth, these upgrade costs can be dramatically curtailed. For example, Tupperware's technology manager says, "We have only one T1 line and one server supporting our distributors for order entry, billing, receivables, promotions, and inventory. Yet with JackBe, response time is still great." Yahoo's well-known Ajax guru, Bill Scott, agrees: "JackBe is an interesting Ajax toolkit for the enterprise. It is the only full framework I am aware of that can handle really low bandwidth/latency connections (and I am talking 9600 baud Ajax!)"

## Ajax Implementation Challenges

Earlier, we mentioned that there are many tools now coming to market that claim to ease the creation of Ajax applications. But an Ajax tool by itself doesn't represent anything close to a complete solution to business needs and leaves a lot of open questions. For example:

- Is the tool supported commercially? Do you have confidence that it will continue to be enhanced with new functionality, and that it will be solid enough for mission-critical use?
- If you're considering using one of the many open-source toolkits, will timely support and maintenance services always be available when you need them?
- Does the product truly support open standards to give you the maximum future flexibility, or does it tie you into other proprietary products (development environment, languages, deployment platforms, architectures, etc.)
- Will resulting applications run on any major browser (IE, Firefox, Opera, Safari, etc.), or will users be forced to choose between only one or two of these? And will users be forced to download and install plug-ins or other add-ons for their browser before being able to use your application?
- Ajax provides a wonderful user interface, but what about the rest of the application (server architecture, data bindings, etc.?) Does the vendor of your Ajax toolkit provide a comprehensive solution that integrates the Ajax client with server-side facilities that easily access SOA-based services and other data while still maintaining governance and security?
- Do you have the right staff training and experience to tackle the job internally?
- What architecture should you use for your applications?
- What applications can generate the largest benefits from the addition of Ajax, and what's the best way to implement them?
- How can you reduce risks while ensuring that you maximize the potential benefits?

To answer these questions and truly capture all that is possible with Ajax technology while minimizing risks, you'll want expert advice and guidance you can count on—from people who have been successfully working with Ajax for years and are taking a visionary role in defining next-generation Web application development. JackBe is that trusted partner.

Unlike the majority of Ajax vendors that merely deliver development tools, we leverage our experience to create complete Ajax solutions to your specific business challenges and opportunities. Our proven methodology starts with a low-cost fixed-price assessment engagement, followed by a proof-of-concept if desired. We'll help you with solid answers to all of the questions above—regardless of what product you ultimately choose, whether you do the work yourself, or have JackBe do it for you.

### About JackBe / For Further Information

JackBe Corporation is a pioneer and industry leader at the center of the Ajax/SOA market. Founded in 2001 and headquartered in Chevy Chase, Maryland, JackBe's goal from the outset was to enable the next generation of browser-based applications.

JackBe is the first to integrate the desktop-like interactivity of Ajax with the flexibility and reusability of SOA to deliver complete Rich Enterprise Applications (REA). Just as the client/server paradigm enabled a leap beyond monolithic mainframe



applications, JackBe's REA solutions deliver dramatic new opportunities for creating and delivering powerful business applications over the Web.

JackBe already counts among our satisfied clients more than 35 industry leaders worldwide supporting more than four million end users. Our deployments and deep expertise span the financial and information services, government, online commerce and telecommunications sectors.

Visit our website at <http://www.jackbe.com> to learn more about our Ajax/SOA solutions. Then give us a call at 240.744.7620 to talk about your specific needs and goals for your Web applications—and let us put our proven products, services, and expertise to work for you!