

**ReachForm™**  
XML-based forms for everyone

**White Paper**



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## Overview

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Businesses and governments today are looking to the Internet to help them cut costs *and* improve service, two typically opposing objectives. By electronically connecting departments and offering citizens and customers convenient online access to electronic forms, organizations can, however, cut overhead and deliver the service improvements that their constituents and clients desire.

In the government sphere, we refer to this leveraging of the Internet as e-government, a revolution driven by both citizen expectation and legislation. In fact, the U.S. federal government has mandated that, by 2003, all agencies offer their forms electronically as well as in paper. Known as the Government Paperwork Elimination Act (GPEA), this legislation responds to the public's demands for more efficient and cost-conscious government.

State and municipal governments also recognize the opportunity to save money, improve service and increase productivity by harnessing the Internet. This opportunity will soon turn into necessity as more and more agencies connect and communicate with their constituents electronically. Governments that embrace the Internet will better serve their citizens at lower cost, thereby increasing the public's service expectations and encouraging other agencies to follow suit.

The Internet allows private companies to reap gains as well. Why make customers stand in line for 45 minutes to complete a transaction that they could perform in two minutes online? Service-oriented firms are capitalizing on the Web to cater to time-pressed customers, serving them when and where they want—at home, at a mall kiosk, in the office or even at the cottage.

The Internet is also generating an explosion in B2B (business-to-business) transactions. Forrester Research Inc. predicts that by 2004, U.S. B2B activity will be worth \$2.7 trillion, growth fueled by tremendous expansion in the e-marketplace and e-processes. Companies that learn to operate efficiently in this new digital economy will gain a substantial edge.

This white paper explains how ReachForm™ redefines the way that governments serve the public and companies serve their customers. By making it easy for people to access and submit forms online using the Internet, ReachForm solves the issue of reaching all citizens and customers via their Web browser—on any platform and on any device—without requiring them to download any proprietary software or plug-ins. It changes the rules of engagement, replacing the hassles and costs of the paper-based world with the speed and convenience of the online world.

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## The Impetus for Change

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### ***Saving Money by Eliminating Paper***

According to the Gartner Group, forms represent about 83 per cent of all business documents. Consider that US\$12 billion is spent on entering data into those forms per year. Another US\$6 billion is spent on pre-printed forms in North America, and for every dollar spent on pre-printed forms, US\$30 to US\$60 is spent on processing the forms. The cost of managing this paper is staggering: forms must be ordered, printed, shipped, stored, distributed, filled in, submitted, administered, archived and eventually destroyed, a labor intensive process that burdens business, government and their customers and citizens.

Inherently inefficient, the process is also subject to frequent bottlenecks. Respondents must acquire up-to-date forms and fill them in completely and accurately, and government data-entry operators must then correctly key in information to databases. This manual process is prone to errors, which creates delays and degrades service.

### ***Improving Service for Citizens and Customers***

Proponents of the e-business revolution recognize that by getting people “online and out of line,” many of these paper-based costs and delays will disappear. When people use the Internet to renew their drivers’ licenses, change their addresses or perform any one of hundreds of similar functions, they avoid the problems associated with traditional paper-based or face-to-face processes: line-ups, re-keying of data, limited access for rural citizens and lengthy cycle times. They also have the flexibility to acquire, complete and submit their electronic forms 24 hours a day, seven days a week, an appreciable convenience.

Moreover, by processing information faster and more accurately, governments can improve both the speed and quality of service that they offer their constituents.

### ***Reaching Citizens and Customers***

There are few choices to post forms on the Web. Web masters can build forms in code and maintain many versions of the documents in all the flavors of HTML to support the multitude of browsers being used. Vendor-based solutions require a proprietary download or plug-in, placing a burden on the end-user in order to view, fill and/or print the documents. This is a complex solution for which there were no alternatives, until now.

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## The Goal: Access for All

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Although as many as 100 million people around the world use the Internet each day, not everyone has access to the Web. Business and government must therefore deal with both electronic and paper formats, ensuring that no one faces discrimination because they lack an Internet connection or have a disability that prevents them from using electronic forms.

This same principle of non-discrimination prompted the U.S. federal government to require that citizens be able to use any computer type or browser to retrieve and submit forms online. At the same time, the government wants its e-processes to be simple and convenient. Introducing complicated electronic form applications that require lengthy downloads and proprietary plug-ins may help alleviate the paper problem, but they would create quite another.

The requirement for streamlined, hassle-free electronic access presents agencies with an obstacle because the software that displays an HTML form, applies validation rules and governs dynamic behavior differs significantly among the various user environments. In other words, the lack of adherence to Internet standards means that different computer types and different browsers—even different versions of the same browser—will read Web pages differently.

For instance, a Web page viewed on a Mac® using Microsoft® Internet Explorer 3.0 might well appear differently from the same Web page viewed using a PC running Netscape® Communicator 4.72 and so on. Headings can be omitted, pages may not print, text can be truncated. Unlike the internal corporate environment, where IT departments control software and desktop systems, e-processes that involve the public or suppliers, customers and partners must be more forgiving and accommodate a host of different platforms and software.

### ***Traditional Solutions Fall Short***

Organizations have typically dealt with this incompatibility in one of three ways, each of which has pronounced drawbacks.

#### Lowest Common Denominator HTML

A common approach is to create a single HTML form that operates with early versions of different browsers. Two problems exist with this “lowest common denominator” solution. First, anyone with an even earlier browser version will not be able to read the form. For example, if an organization creates an HTML form that can be read by, say, version 2.0 of different browsers, people running version 1.0 will not be able to access the form. Governments and businesses want to avoid this type of technological discrimination.

The second shortcoming of this single HTML form solution is that people will not be able to take advantage of the increased intelligence and capabilities of advanced browser versions. Consider this hypothetical example: someone applies to renew a driver’s license online six months after her license expired. But, because the license has expired, she needs to submit additional information with her renewal. An advanced browser would potentially allow the license-issuing organization to automatically present the applicant with another online form required to capture the extra data. A basic HTML form may not have the intelligence to accommodate this type of interactivity, thereby causing delays in renewing the license and effectively discriminating against those without the new browser.

### The HTML Page Juggling Act

A second solution—and an awkward one at that—is to design and maintain separate HTML forms to ensure that the Web form appears properly regardless of the user's platform or browser. But this approach involves keeping four or five different versions of the same electronic form current, a costly, risky and inconvenient restriction. Should a form change, someone has to re-design all underlying versions and make sure that the change appears uniformly in each one. The more balls in the air, however, the more likely that one will drop, and citizens or customers could easily wind up with two substantially different versions of what should be the same form.

In such a situation, two customers may well pay two different prices for the same merchandise or two hunting license applicants might pay different fees. Making the change once and knowing that it will appear properly regardless of the users' computer types or browsers would be much simpler, less costly and potentially less discriminatory.

### Unwieldy Downloads

The third traditional solution requires that citizens and customers first download a proprietary plug-in onto their computers. Once they complete this step, they can download and read forms that require this proprietary plug-in.

The problem with this approach, aside from having to find and wait for the plug-in to download and install, is that citizens and customers must also download the forms, a process that can burden them with lengthy waits. People do not appreciate waiting several minutes—or longer—for forms to finally appear.

Recognizing the drawbacks of these traditional solutions, JetForm created ReachForm. Not only does it avoid the pitfalls of conventional approaches, it introduces a host of value-added conveniences that make designing and distributing e-forms on the Web easier than ever.

## ReachForm — Simplicity Makes its Mark

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ReachForm is an integrated e-form solution that enables governments and corporations to post their forms on the Web using a graphical-based (WYSIWYG) design tool and to make these forms instantly available to *anyone*—regardless of their technological environment.

ReachForm offers numerous time- and money-saving advantages. By using ReachForm to collect and validate information online, businesses and government can eliminate paper and replace their manual, paper-based forms with thin-client Web-based e-forms quickly and easily. ReachForm verifies the data's accuracy, validates and calculates it, sends a confirmation and submits the data to any database to be saved.

Organizations can effortlessly integrate data collected with ReachForm forms into their current information systems. In fact, by sidestepping the data re-keying procedure, governments and businesses can accelerate their e-processes and deliver service much faster than a paper-based or face-to-face system allows.

Just as important, ReachForm allows citizens and customers to easily access, complete and submit forms without waiting for downloads or worrying about having the right software or computer. Capable of functioning in

tandem with a variety of third-party security providers' offerings, ReachForm works with any computer and any browser. It is an attractive solution for agencies and companies eager to move their manual, paper-based processes to the Web, reducing paper, cutting costs and increasing service.

### ***XML Forms Architecture (XFA)***

XML (eXtensible Markup Language) lies at the heart of ReachForm's versatility. A system for defining, validating and sharing document formats, XML has emerged as the basis for B2B communications on the Internet, and it will underpin e-business and e-government processes as well.

XML Forms Architecture (XFA) is an open, public specification that defines how a form will appear and act in an XML environment. This open architecture ensures that your forms solutions will expand with your needs and integrate easily with products from other vendors.

Separating its data elements from the details of its graphic presentation, XFA assumes no proprietary data schema, which means that governments and companies can use the system for a broad range of e-process operations. Because XFA works with any browser or computer platform, businesses and governments can confidently treat all customers and citizens in the electronic domain the same.

### ***All-in-one Designing, Previewing and e-Distributing***

ReachForm incorporates three main components: the form designer, the form previewer and the form server. The form designer allows you to design e-forms, the form previewer allows you to preview forms while you design them and the form server enables you to store completed forms on your Web server for public access.

#### The Form Designer

##### *Creating forms for multiple platforms with a single design tool*

A point and click application used to create intelligent XML templates, the form designer provides you with a simple way to create and maintain e-forms without involving third-party tools. It creates XFA templates or structured XML user-interface "form" definitions that render the data and the presentation specified by the template in a format suitable for the user's run-time environment.

Employing the form designer's WYSIWYG graphical design tools for user interfaces, designers can quickly include list boxes, drop down lists, command buttons, radio buttons, check boxes, lines, circles, images and static text—anything they need to create a form. The form designer can also be used to incorporate database lookups, calculations, automatic formatting, choice lists and even automatic error checking to prevent respondents from entering incorrect data and delaying the processing of their e-forms.

Moreover, designers need learn only one tool to administer and build numerous applications, which shortens development cycles and reduces development costs. In fact, the form designer is so straightforward and automatic, less technical people can quickly learn to use the tool productively.



### The Form Previewer

*A built-in tool that speeds e-form design*

The form previewer enables designers to see in real time how their forms will appear in different browsers. Designers simply select the desired preview format and the form appears immediately as it would in the selected browser.

This convenient feature allows designers to tweak forms as they create them to produce the desired appearance. Simplifying the design process, the form previewer allows people to generate forms faster and make changes quicker, boosting their productivity and their effectiveness.

### The Form Server

*Design once, deploy many*

The third primary component of ReachForm, the form server, takes a single template created with the form designer and delivers it in any browser. Templates are designed once and then deployed to any number of users, allowing organizations to manage their e-process and e-business initiatives without creating and maintaining a user interface to accommodate each browser type.

Automatically detecting the browser and user environment, whether PC, Mac or Linux®, the form server delivers the user-interface form in the appropriate language, for instance, DHTML, HTML or Java. The form server extracts the field information, such as the type and the positioning, and the boilerplate information, such as the lines and the static text, from the XFA template and converts it to a format that best suits the target browser on the client desktop. By allowing anyone to access and use online forms, ReachForm becomes an important asset in the e-government and B2B worlds where the hosting organization has no control over the user's browser or platform type.

The form server also provides intelligent templates for user interfaces. Organizations can validate a user's data entry before processing by performing calculations, accessing databases or enforcing business rules on field-level data. Whenever data is submitted to the server, the form server merges the data it has received into the template and executes the business logic contained in the XFA template. The resulting data is then returned to the browser.

Given that the business logic—the validity checks and calculations—occur at the server, even HTML forms can have intelligence without requiring Web-application programming.

To allow end-users to print and save forms locally, the form server can convert the XFA template, with or without the merged data, to a PDF. Unlike with ordinary HTML forms that print using the Web browser, organizations can precisely control the layout and pagination of these forms. Users can therefore print their filled-out forms—license applications, customer statements, invoices, order confirmations, contracts, insurance policies, change of address forms and the like—for their records. They can also sign them and mail them to comply with laws, regulations or policies, where required.

## ReachForm in Action

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The following example illustrates how a government department can transform a paper-based process into an efficient, fully automated e-process, saving time and money.

### ***Example: Applying for a Fishing License***

Paper-based Process:

To apply for a fishing license in a U.S. state, an out-of-state tourist must telephone the Department of Fish and Game to request an application form. One week later, upon receiving the application by mail, the applicant completes the form, attaches a check for the license fee, and returns it by mail to the department. Once the application has been received, a clerk keys the applicant's information into the department's database and cross checks with the enforcement division to determine if the applicant has any poaching violations. Once approved, the application is sent to the finance department, which processes the payment and issues a license. One week later, the license arrives in the applicant's mailbox.

Elapsed time: 2+ weeks

ReachForm for e-Process:

To apply for the same fishing license, the out-of-state angler visits the Department of Fish and Game area of the e-government Web site and clicks on "Apply for License—Fishing." Upon completing the online application form, which includes providing credit card information for payment, the applicant selects "Submit" and receives an e-mail that acknowledges the submission and provides a tracking code. The data is inserted into a database for the department to extract and process.

Elapsed time: 1 day. This is the first step to an e-process.

The ReachForm CD includes a Web application that uses this fishing license example to illustrate how to integrate and employ the form server. You can use the various parts of this sample to develop your own custom Web application.

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# The Benefits of ReachForm

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## ***Easy to Design, Deploy and Implement***

ReachForm's easy-to-use graphical design tool allows less technical users the ability to build one intelligent form that can be rendered to *any* browser. Applications can be built in days instead of weeks or months.

## ***Improve Service***

Allowing citizens or customers—regardless of their browsers or computer platforms—to deal with your organization faster and without hassle underscores ReachForm's utility. By making the Internet an electronic front door to your department or company, you keep the welcome mat out 24 hours a day, seven days a week. Visitors can quickly find the forms they need, and complete and submit them according to their schedules.

As well, with ReachForm, citizens and customers always work with current forms, sparing them the delays and frustration that unwittingly submitting an out-of-date paper version can introduce.

## ***Reduce Costs***

By eliminating the burden of dealing with paper forms, you can cut your costs dramatically. You no longer have to stock warehouses full of forms or worry about inventory levels; your constituents or customers will have around-the-clock electronic access to every form that you offer. If a form changes, you do not have to destroy thousands of dollars' worth of outdated paper, a savings that can add up quickly.

In addition, by automating your data input processes, ReachForm can reduce your staffing costs and shorten cycle time.

ReachForm allows you to easily design a single e-form to reach all your customers' or citizens' via the electronic channel that best suits them resulting in cost savings from reduced development, management and updating time.

## ***Increase Productivity***

Centralized Web deployment makes it easy to update forms, which saves you the considerable logistics and costs of replacing old paper versions with newer ones. Also, given that the data arrives electronically, you no longer need to manually key information into databases. The result? Fewer mistakes, quicker turnarounds and more satisfied customers and citizens.

## ***Extend the Reach***

ReachForm generates a powerful, highly-versatile data-capture mechanism for information processing systems. By swiftly collecting accurate data, businesses and governments can introduce the kinds of service improvements that their constituents will applaud. Companies can adjust strategies to capitalize on new business opportunities. ReachForm is XML based, which makes integration into existing applications possible. The XML-tagged data can be translated into most existing application environments with simple tools available off-the-shelf.

## Summary

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Cutting costs and improving service are no longer mutually exclusive goals. With ReachForm, governments and businesses can accomplish both objectives. Offering you everything you need in one integrated package to design and publish forms online, ReachForm can propel your organization to the fore of the e-business revolution.

By working with any computer and any browser at any time, ReachForm knocks down all barriers to e-forms accessibility. Every citizen and customer who has Internet access—be it on a desktop, laptop, handheld or mobile phone—gains a remarkably convenient and cost-effective way to communicate and connect with your organization.

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## About JetForm

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JetForm Corporation (NASDAQ: FORM, TSE: JFM) makes Web-based software solutions that automate business processes and transform them into e-processes. JetForm enables companies and government to operate efficiently and effectively, to grow revenues, to lower operating costs, improve service and to reduce cycle times. The company's strength is in intelligent XML forms, process automation and customer-focused document output. With operations in 11 countries and a global network of partners, JetForm is uniquely positioned to address the needs of international business. For more information, check out [www.jetform.com](http://www.jetform.com).

### ***About JetForm Government Operations***

JetForm's North American Government Operations team, located in Washington, D.C., is dedicated to serving the needs of U.S. and Canadian governments at the federal, provincial, state and local levels.

With 18 years of experience and an 80 per cent share of the electronic forms market, JetForm is the trusted supplier of leading e-form and e-process software solutions for government. JetForm technology is used by over 1,000 government customer sites in 16 countries.

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**About JetForm Corporation**

JetForm Corporation is the global leader in workflow and electronic forms automation, providing solutions that automate e-business processes. JetForm products help organizations improve service, reduce costs and increase efficiency.

JetForm's professional services team offers an integrated services program that ensures your success with JetForm technology. Services include: Systems Analysis, Design, Development and Integration, Training and Support. For more details about JetForm's Services Program, phone (613) 751-4884 or e-mail [servops@jetform.com](mailto:servops@jetform.com).

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