

# The LiquidOffice eForm Management System

*An Open Systems Approach  
to eForm Automation*



Cardiff Software, Inc.

February 2001

© 2001, Cardiff Software, Inc.  
All Rights Reserved

## EXECUTIVE OVERVIEW

The LiquidOffice™ eForm Management System™ is a dramatic technology shift in the eForms market segment, for the first time combining an n-tiered Web architecture with XML, Adobe PDF and HTML to enable enterprise and global use of eForms. With LiquidOffice an organization can implement a scalable, global solution that delivers the cost savings and productivity gains associated with the automated processing, tracking, approving and signing of online forms.

*By using an open systems approach, organizations can – for the first time – deploy automated online forms without using proprietary form formats and “Filler” applications.*

As a part of the Cardiff eTransaction product family, LiquidOffice lets organizations move beyond the limitations of historical client/server “eForm only” products. Cardiff is unique in providing additional solutions that can automate the processing of paper forms as well as the creation and delivery of “next step” documents.

### **Technology Shift - From Historical Client/Server to n-Tier eForm Automation**

Paper forms are costly and inefficient, yet corporate, academic and governmental organizations are heavily dependent upon them. In the United States alone, the printing of paper forms is estimated at a staggering \$6 billion per year. To bring the point closer to your organization, consider that *every paper form used by your staff* represents a cost of \$150. Multiply this by the number of forms used each day, month and year by your organization, and the result brings into sharp focus the opportunity costs associated with manual form processes.

You are not alone. Bill Gates, CTO of Microsoft Corporation, published the 1999 book “Business @ the Speed of Thought” to share the negative impact that paper processes had upon his company, and the competitive edge Microsoft gained through the migration to online digital processes. An enlightening read, the book highlights the “Paper Form Dilemma” faced by most organizations – even successful technology companies such as Microsoft.

There is an interesting calculus to the “Paper Form Dilemma”:

- ◆ Organizations know that paper forms are costly;  
Organizations continue to use paper forms.
- ◆ Organizations know that paper forms are slow and inefficient;  
Organizations continue to manually process line-of-business forms.
- ◆ Organizations know that paper forms are not secure;  
Organizations continue to rely on physical signatures and storage.
- ◆ Proprietary client/server eForm products have existed for 10 years;  
Organizations have found that historical client/server eForm products do not work.

To date, eForm products have failed because they implement network-based eForm capabilities using historical client/server architectures and proprietary form formats. Forms “designed” within these systems lock the client into a non-portable solution and must be deployed using a proprietary “form filler” thick client or Java “filler” applets. The Internet, and innovative technology leadership by Cardiff Software and Adobe Systems, offers a new alternative to client/server eForms.

Cardiff Software, through an alliance with Adobe Systems, has developed the LiquidOffice eForm Management System, the “next generation” eForm product that takes an Internet and open-systems approach to online forms. LiquidOffice enables organizations to design, process and approve online forms in a single integrated system. Leveraging its role as a technical co-editor of the emerging W3C XForms standard, Cardiff has developed LiquidOffice to overcome the limitations of historical client/server eForm products.

The benefits of the LiquidOffice eForm Management System versus historical client/server forms products are significant, providing a near immediate Return-On-Investment through cost reductions and productivity gains. To build LiquidOffice, Cardiff and Adobe began with a blank slate, gaining design guidance from Fortune 1000 and leading governmental organizations. The following summarizes the design goals of the LiquidOffice™ eForm Management System™.

### **Standards-based eForm Management System - Requirements**

**Open Form Format** - The use of proprietary, non-portable eForm formats is perhaps the single greatest cause of customer dissatisfaction - and expense - in using historical client/server products. Cardiff has leveraged its role as the technical co-editor of the W3C XForms standard to insure that LiquidOffice supports an open format approach to eForms. The LiquidOffice Form Designer “Saves As” .xfm XML, has Publishing Agents for both HTML and Adobe PDF standards, and uses JavaScript as its instruction language.

*Cardiff has leveraged its role as a technical editor of the W3C XForms Standard to embrace a true open format approach. Without conversion, forms created in LiquidOffice are portable to third party products, including Microsoft FrontPage and Adobe Acrobat.*

**Open “Filler” Approach** – The client/server eForm approach uses proprietary eForm formats, leading to a requirement to deploy a proprietary “Filler” at the user desktop. While some historical vendors have built Java or ActiveX versions of their proprietary “Filler” applications, these “Fillers” continue to be dreaded for their cost, security issues and long term IT-support requirements. LiquidOffice uses HTML and Adobe PDF standards to completely eliminate proprietary filler requirements, using standard desktop applications like Microsoft Internet Explorer, Netscape Navigator and Adobe Acrobat, Acrobat Fill In and Acrobat Reader as the “Filler” application on the user desktop.

*By embracing already established – and installed – desktop applications for “fill in,” LiquidOffice is more cost-effective and more easily deployed and maintained than products with proprietary Java, ActiveX or thick client “Filler” requirements.*

**Accessibility** – Worldwide governmental legislation and corporate hiring requirements are driving the need to make online forms accessible. Adobe Systems has invested heavily to insure that the Adobe PDF standard, and Adobe Acrobat applications, lead the way in voice-enabled and sightless online documents and forms. As a native Adobe PDF platform, LiquidOffice enhances the Adobe Acrobat desktop application by providing a Web-based backbone for the distribution of forms that meet Section 508 requirements. Further, the ability for Adobe PDF to support “print & fill” insures that the ‘digital divide’ can be crossed with the use of the “print” command.

*The Adobe PDF standard and Adobe Acrobat applications exceed Section 508 requirements for the accessibility of online forms and documents.*

**Open Signing Technology** – The ability to use electronic signing technology is a key component for many corporate and governmental organizations, even though, for most, electronic signatures is still an emerging capability. LiquidOffice leverages the signing capabilities of existing systems, insuring support for today’s technology and an easy migration path to future signing technologies.

*LiquidOffice seamlessly supports signing products from Entrust, Interlink Electronics, Verisign and others.*

**Cost Effective Deployment** - Pre-Internet client/server products have attempted to fit into n-tiered Web architectures through add-on components – for additional fees. These add-ons attempt to extend the reach of the proprietary form format to HTML, or to provide a Web deployment platform for the proprietary eForm files. In contrast, the LiquidOffice Form Server has a native Web/XML architecture, and is implemented as complete solution using Java™ Servlet Command Agents™.

*As a native Web server and single integrated platform, LiquidOffice has significantly better price/performance over historical client/server products.*

**Leverage Existing eBusiness Products** – Traditional client/server products either “live in their own world” or require the vendor to do specialized integration to co-exist with existing workgroup, Web and content management platforms. Since LiquidOffice is a peer to existing Web-ready applications, it is easily connected to other Web-ready applications. The LiquidOffice Web Desktop can be instantly presented within FileNET® Panagon® 2000, Lotus® K-Station™, Microsoft® Outlook & Outlook Web Access, Open Text® Livelink® and other workgroup and content management applications.

*LiquidOffice adds best-of-breed eForms to your existing Web, workgroup, eProcess and content management investments. As a peer to these systems, integration is seamless and easy.*

**Customization** - LiquidOffice provides secure access to blank forms, and offers complete services for publishing, routing, tracking and approving HTML and Adobe PDF eForms. LiquidOffice also includes support for attachments, notes and audit tracking. In spite of its robust feature set, organizations with special needs may require customization. LiquidOffice provides extensible Java-based Publishing Agents™ and Command Agents™ that allow for customization using standard scripting and programming languages.

*LiquidOffice plug-in design allows customers to extend the platform using Java and JavaScript-based mechanisms. The use of Java makes LiquidOffice a familiar system to your existing Web and eBusiness development teams.*

## **BENEFITS OF eBUSINESS AUTOMATION WITH LIQUIDOFFICE**

The LiquidOffice eForm Management System can deliver to your organization significant cost savings, efficiencies and productivity gains far beyond what is commonly associated with automated forms. Further, Cardiff has designed LiquidOffice to mirror the way your team works today, insuring that the system will be embraced and used.

### **Put Your Forms Online**

Studies outlined by Bill Gates in “Business @ The Speed of Thought,” and supported by data from AIIM and The Association for Work Process Improvement (TAWPI,) show that the processing cost for a single paper form can be over \$150 per form transaction. More importantly, real-life business studies show that nearly all of that \$150 can be saved through the deployment of standards-based automated eForm solutions.

In the Microsoft example, online forms reduced the costs associated with paper forms from \$160 per form to under \$5 – including staff, hardware and software costs. Adobe Systems replaced paper expense reports with a standards-based solution, and created \$50,000 per month in hard cost savings alone. When coupled with the increased productivity of the organization, and improved morale, eForms represent a huge competitive advantage for an organization. Below are a few capabilities and benefits delivered by the LiquidOffice eForm Management System.

- ◆ Use eForms and print-on-demand to eliminate the need to print, store and distribute pre-printed forms; Over \$1.8 billion is lost each year in the United States on printed forms that become obsolete and are discarded.
- ◆ Support on-line submission of eForms to eliminate the costs associated with manual data entry from paper forms; Organizations that require their professional accounting and human resources personnel to key data from paper forms into line-of-business applications are paying over \$30 per hour for data entry – and baking-in poor organizational productivity.
- ◆ Provide instant routing and approval with digital signatures to reduce approval time; Organizations that use paper forms are paying their entire staff to walk forms from place to place, losing forms in management inboxes – and are knowingly putting the organization in a competitively handicapped position.
- ◆ Business Rules Processing eliminates errors at the source, correcting inaccurate information, and preventing inaccurate information from corrupting database and back office applications; incorrect data results in shipment errors, payment errors duplicate work and poor morale.
- ◆ Use AutoFill, calculations, choice lists, and other intelligent eForm features to improve worker productivity and improve data processes; Form filling is tedious,

and computers are an ideal solution for automating tedious activities.

- ◆ Provide instant, 24/7, global Web access through any standard Web browser saving employees time and minimizing training; an ideal way to use forms to implement and enforce global eBusiness standards.

### **Acceptance Leads to Success – And eBusiness Benefits**

What are the productivity applications that are widely used by your organization, and why are they widely used? Cardiff asked this question during the requirements phase of LiquidOffice so that the resulting product would have the characteristics needed for widespread acceptance by your worker community.

**Timesaving Value** – Nothing drives acceptance within your worker community more than the fact that the new way is a better way. Since LiquidOffice has an XML architecture it supports a wide range of timesaving features, including robust search and tracking capabilities – for blank forms, forms in process and completed forms. LiquidOffice provides the framework that will prove to your organization that online forms are significantly better than paper forms.

**Zero-Desktop Intrusion** – Plug-ins and auto-installed eForm components create confusing user experiences, while large Java “Filler” gadgets create complaints that the system is slow. By *completely avoiding* proprietary “Filler” downloads you can avoid worker confusion and performance complaints – and assure acceptance of the new eForm system.

**Low- to zero User Training** – How much training do you provide to your worker community to use your existing paper forms? To use Web and email products? To gain acceptance, the eForm solution should require near-zero training. LiquidOffice works within standard Web browsers, using standard navigational constructs already familiar to your worker community, reducing training requirements and avoiding user rejection. LiquidOffice was designed to be as literally close to “put my forms online” as possible, preserving the look and feel of paper, but in an online system.

**eMail Integration** – LiquidOffice integrates with standard email messaging in an unobtrusive way. Instead of populating forms into everyone’s email “Inbox,” LiquidOffice uses automated email messages and links into the LiquidOffice Form Server to communicate that there are new forms to approve, or that a form needs immediate attention.

**What’s Next?** – LiquidOffice supports multiple approvers, and offers customization of what follows the successful completion or rejection of a form. Initiators can track the progress of a form, and notes can be added throughout the routing process.

**Print Forms Too** – LiquidOffice offers a unique ability to support users who need to print forms. Because LiquidOffice is a native Adobe PDF application, the system allows organizations to gain the cost savings of “print & fill” and “fill & print” applications. Online forms can maintain the look of paper forms, which is a key advantage when physical signatures or disconnected use is required.

## THE BOTTOM LINE

Putting forms online is not a new idea. What is new is the technology shift from the limitations of client/server eForms to Web-based eForms. LiquidOffice takes an open system approach to enable your organization to deploy a global standard that will deliver to your worker community the eBusiness Automation benefits of an eForm Management System.

Implementing an eForm Management System results in real organizational benefits:

- ◆ A reduction of the real and opportunity costs associated with paper forms, estimated to be over \$150 for every form your organization uses today.
- ◆ Through the distribution and automation of organizational forms, including expense reports, purchase orders, and time off requests, you will significantly increase worker productivity.
- ◆ Automated online systems like the LiquidOffice eForm Management System leverage your existing Internet infrastructure and add eForms to your existing workgroup, email and content management investments.
- ◆ LiquidOffice will increase organizational efficiency and improve your competitive position by reducing worker time spent on administrative and forms-related tasks.

Cardiff has joined with Adobe in an alliance to deliver complete interactive business solutions that leverage XML, HTML and Adobe PDF standards. This alliance has fundamentally changed the approach for automated online forms, away from the proprietary client/server model to a standards-based Web solution. For the first time an enterprise eForm solution has been delivered without requiring the deployment of proprietary “Filler” clients or Java applets.

Complete information on LiquidOffice, Cardiff’s role within the W3C XForms Working Group, and the Adobe-Cardiff alliance on eForms is available at [www.Cardiff.com/LiquidOffice](http://www.Cardiff.com/LiquidOffice).