



A Rich New Dimension to PDF

by Bob Connolly

Martin Jeffery is in the business of direct marketing. His company, BrainTrain Inc., offers clients a variety of ways to communicate through self-mailers and brochures in print, or electronically, with e-mail newsletters.

Now, in order to appreciate this story, you have to know that Microsoft is currently preparing to release a new version of its e-mail software, Outlook Express. Jeffrey learned recently that the new Outlook Express will greatly curtail HTML e-mail by turning off the default capabilities for viewing pictures in e-mail. It's a plan aimed at stopping spam for the population at large, and electronic marketers are scrambling to find alternatives.

After reading an article I wrote called *Predicting the Future* (GX Mar/Apr 2003), Jeffrey wondered if I had any solutions or thoughts on the next wave of electronic marketing. I told him that PDF eBooks, eBrochures, eDocuments and eNewsletters using links in e-mail or attachments could solve the HTML e-mail problem, and at the same time could greatly enhance his electronic offerings by utilizing "rich media" — especially with the embedded video capabilities that are now incorporated into Adobe's new version of Acrobat.

His major clients are car companies, and he asked how PDF

documents could be used to market their new products.

"Car companies have brochures, don't they?" I said. "How about making an eBrochure that could be downloaded or e-mailed?"

"Oh, I've seen those things," he answered. "They're hard to read, and they look dreadful."

But I explained that the car companies were just taking their

Jeffrey tested the concept of "rich media" PDFs on a selection of major car companies — General Motors, Volvo, Ford, Jaguar — and they all loved it.

printed brochures and "distilling" them in Acrobat. Naturally, they would be hard to read on a computer screen — they're meant to be downloaded and printed. I suggested that the brochures be reformatted for full screen landscape display to resemble a CD-ROM, and that video and virtual reality tours of the car be added to the document.

Jeffrey tested the concept of "rich media" PDFs on a selection of major car companies — General Motors, Volvo, Ford, Jaguar — and they all loved it. He also approached the travel industry,



describing to vacation marketers how to produce video and VR tours of destinations around the world by utilizing PDF eDocuments. Now BrainTrain has a number of rich media PDFs in production for these clients and others.

Let's take a look at some of the obstacles we faced in producing one of BrainTrain's first embedded rich media PDF eBrochures. This will provide some insights into what Adobe Acrobat 6 can and cannot do with its new embedded media features. And don't forget: only Acrobat 6 Professional can create this kind of PDF, and only Adobe Reader 6 can read it.

MULTIFUNCTIONAL MULTIPURPOSE MULTIMEDIA

Luxury carmaker Jaguar just released its new 2004 XJ model, and its eBrochure was one of the first we produced. Available content consisted of QuarkXPress files and a DVD with four videos about the various features and capabilities of the car.

The marketing reps at Jaguar were concerned about picture quality in the PDF; they also wanted a great deal of interactive content. They expected high-quality crystal-clear video and virtual reality photos of the interior and exterior of the car — and they wanted still pictures from the printed brochure to be animated with voiceovers, using text from the printed brochure which would be narrated for the eBrochure.

The PDF also had to run on an average home computer under Acrobat 4, and the final file needed to be under 2MB — small enough to allow for download with a dialup modem! And — they wanted everything in French as well for the Quebec market.

We proposed producing three versions of the Jaguar eBrochure. The first would be a standard version that had no “rich media” and would run under Acrobat 4. A second “enhanced” version, still a small file, would run under Acrobat 5 and would contain linked videos and VR. The final “full” version would have all video, slide shows and VR tours embedded inside the PDF. This version would only run under Acrobat 6 or Adobe Reader.

Since the project required video and virtual reality components, we used QuickTime to play back the “rich media”, using the Sorensen codec for the video. This permitted the “enhanced” and “full” versions to run under QuickTime 5. All versions would run under both Mac and Windows.

FULL SCREEN VIEW IS THE KEY

The biggest disadvantage with a PDF eDocument is that if it was designed for print, it's hard to read on screen. To improve on this, the text and pictures on each 8 1/2 x 11 page must be reformatted for landscape display since when an eBrochure is opened, it should fill the screen from edge to edge. It must also be viewed outside the browser window and without the Acrobat browser plug-in; the only way to ensure this is to force the PDF to download to the user's hard drive. In Mac OS X, downloading to disk is standard, but on a Windows computer the PDF loads into the browser window, and that makes the document difficult to read.

Jaguar wanted to send e-mails to its customers to notify them that an eBrochure was available for download from the *Jaguar.ca* website, so we created an e-mail message that contained links to a custom script that forces the PDF to ignore the Acrobat plug-in and prompt the Windows user to save the file to the hard drive. Instead of attaching the PDF to the e-mail, one click on the e-mail's web link would force it to download. And of course the user could also e-mail the eBrochure to others at the same time.

A double-click on the PDF would launch the eBrochure in full screen mode — easy to read and easy to navigate, no scrolling or zooming required, just turn the pages. Since Acrobat's menus at the top are hidden in full screen mode, we had to incorporate buttons to turn the pages and jump to sections of the brochure.

ADOBE JAVASCRIPT — THE LOST LANGUAGE

Acrobat is very limited in its ability to add interactivity to a PDF, so we used a very powerful and underutilized feature — Adobe JavaScript, Adobe's own version of JavaScript, that almost no one understands. It's very similar to the JavaScript used in web pages, but Adobe has altered it to fit into the PDF architecture.

Adobe Javascript allows you to connect interactive online PDF forms to databases via the Internet. This brings the world of PDF catalogues to the fore, where orders can be placed online just like HTML websites. Unfortunately, you can't submit an Acrobat Reader form unless it's in a web browser — and we force the video to download to the hard drive.

But using Adobe Reader, you can export the form's data and e-mail it. And Reader v6 has also now adopted SOAP (Simple Object Application Protocol) to allow database connectivity outside the browser via JavaScript.

ACROBAT 6 EMBEDDED MEDIA — THE HIDDEN MAGIC

The “full” version of our Jaguar eBrochure was the project that most inspired me. Embedding video right into a PDF has been something I've been wishing for since PDF was introduced.

Acrobat 5 had the capability to stream QuickTime video from a server, but now Acrobat 6 has the ability to “stuff” multimedia right inside the PDF. QuickTime, Flash, Real, Windows Media, and mp3 audio can all be self-contained — the rich media is only dependent on what applications are installed on the user's computer. So if a computer doesn't have QuickTime, it won't play the QuickTime video or VR.

Why did we choose QuickTime? We felt that anyone who was going to download the “full” 34MB embedded Jaguar eBrochure more than likely had a high speed connection. And rare is the high speed user who hasn't downloaded QuickTime to view movie trailers or music videos.

QuickTime also gave us the capability to provide virtual reality tours of the interior of the car, whereas IPIX-type VR requires a Java applet and a web browser. QuickTime wired sprites also allow video, JPEG stills, text, MP3 audio, and Flash animation to

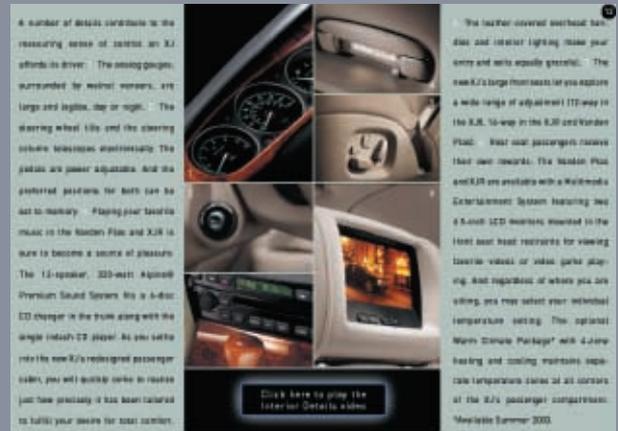
Step by step: producing a rich media PDF



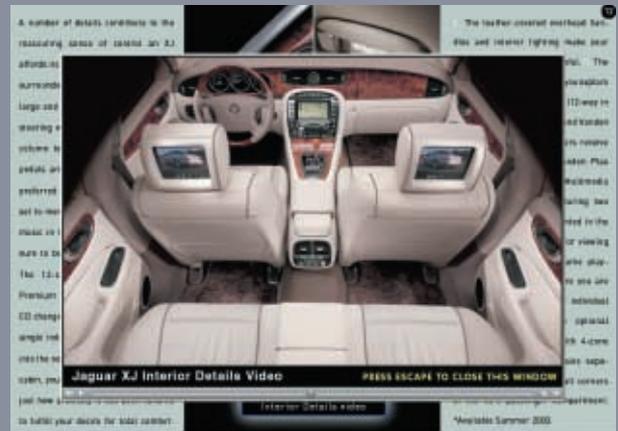
(top) A Jaguar XJ was photographed from eight viewing angles outside the Jaguar warehouse.
 (bottom) After close cropping, the car was composited over a highway image and assembled into a QuickTime VR object movie. Controls were then added to rotate the car.



Instead of using bookmarks, Adobe Javascript pop-up menus provide elegant submenu categories for pages that contain video.



This page from the brochure contains six pictures and text. Each individual picture was used to produce a slideshow.



Still images from the QuarkXPress print document were resized and formatted to produce a QuickTime slide show. Copy from the brochure was used as narration.



Video, still images and text are combined to produce a QuickTime wired sprite movie. Still frame grabs from the video are used to create the background for the video. The text can be synchronized to the video to allow for language captioning.

Step by step: producing a rich media PDF



(top) Lighting for virtual reality photography can be difficult, as shown by the raw shot of the interior of the car.
(bottom) After close cropping to eliminate lights flaring in the windows, the view was replaced with a composited background of the harbour in Victoria, BC.



The page containing information about the interior of the car has a button to launch a 360-degree QuickTime cubic VR. Wired sprite controls are provided to allow for easy navigation.

be contained inside a single QuickTime. And Windows Media will not play on a Mac in Acrobat 6.

The videos for the “enhanced” and “embedded” versions were compressed at a data rate that would permit progressive download streaming through any high speed connection with no wait. We also added a still image background and three small poster frames beside the video to simulate a large almost full screen display.

The virtual reality photography was shot in a warehouse at Jaguar. The cars were not fully certified and could not be driven to a studio, which necessitated a lot of careful lighting and a great

deal of alpha channel cutting and compositing to remove and replace the background. For the interior shots, we used a Nikon 4500 digital still camera and a fisheye lens. We took three pictures to create a complete 360-degree spherical field of view — you can look straight up or down, or even inspect the armrests.

Using Photoshop’s pen tool and cloning stamp, the lights shining in the windows were eliminated and the camera tripod was removed. In the front and side windows we composited an image of Victoria harbour; in the view through the sun roof, we placed a night sky complete with full moon.



STILL IMAGE SLIDE SHOWS VERSUS VIDEO

Although full motion video can be very compelling as a means to demonstrate the features of a car, the constraints of downloading large files on the Internet are a drawback. Fast-moving images can cause pixelation, resulting in a blurry picture.

Whenever possible, we like to combine large still image slide shows and text with MP3 narration in a QuickTime container. Smaller images used in the printed brochure can be enlarged and panned to produce an animated slide show. Using text from the brochure, the narrated script is synchronized to the pictures. Pictures which were not used in the final brochure because of space limitations can now be incorporated into the slide shows. Just think about the hundreds of slides taken during any photo shoot that don't make the final version — now they can be used to bring the pages of the eBrochure to life.

The advantage of a slide show is that even when pictures are displayed full screen, the file size is still very small. They're very quick to stream through a high speed connection, and when embedded into a PDF under Acrobat 6, final file sizes are easily small enough to download.

RESOLVING WEB WARS

The simplest part of the whole process of delivering rich media PDFs is website integration. Often a client's webmaster or web hosting company will frown on outsiders encroaching upon their territory, fearing viruses, password security breaches, and the general anathema of losing control. However the simplicity of a PDF eBrochure allows you to take a "banner" approach.

Just create a button or a banner and ask the webmaster to place it wherever it suits the look and feel of the site. Clients can then extend their marketing reach by putting the same banner on as many other websites as they can find. When visitors click on the banner, a new window pops up, and a web page is called up from the server that describes the three versions of the eBrochure. If the user doesn't have the latest versions of Adobe Reader or QuickTime, the download links are there, with additional links to tech support (just in case).

A script forces the PDF to download from the server. If clients want to host the videos themselves, we just create links to a folder that resides somewhere on their server.

Remember, too, that the public can never view these videos outside the PDF file; a linked QuickTime video can't be saved, and embedded videos cannot be removed without a password, so the individual rich media assets cannot be copied.

And the same web page pop-up window that offers the various eBrochure versions can also be broadcast in e-mail. Then, when users open their mail, they can select their PDF version right in the e-mail, and the same download script will automatically save the file to their hard drives with no need for a connection to the web page at all.

"TOOLS IN DEVELOPMENT," SAYS ADOBE

More often than not, when I demonstrate this technology to clients, they can't believe their eyes. Some sit stunned, wondering, "Why haven't I seen this somewhere before?"

They've all seen PDFs, but they just can't understand where the video is coming from — they're accustomed to seeing video in a web browser or in Windows Media Player, and they find it hard to believe that video can flow directly from within a PDF.

What I point out is that the people who make PDFs aren't familiar with multimedia, and website Flash masters have never touched QuarkXPress or Acrobat. Even large advertising agencies which have departments dedicated to new media think I'm selling something that just can't be done. What proprietary technology will you be selling us? they ask. There's nothing on Adobe's Acrobat 6 website that explains embedded media. Why haven't I heard about this before?

And that's the big question. I signed a non-disclosure agreement with Adobe, so I can't reveal the reason behind Adobe's reluctance to promote embedded media. But I can offer a few comments from Adobe Acrobat product manager Gray Knowlton.

I asked, "Why is there no mention of embedded multimedia authoring capabilities in the Acrobat 6 Professional literature?"

"Acrobat is focused to the print industry," was his reply. "There are tools in Acrobat 6 Professional that allow for the incorporation of interactive video, but they are very difficult to use. We have tools in development that will make that process much easier."

Make the process much easier... yes, I tend to agree. It is quite daunting to create interactive PDF files using Adobe JavaScript and Acrobat 6 Professional — although the potential is enormous. But these "tools in development", which for now must remain unnamed, could revolutionize electronic marketing.

Think for a second about a PDF that can do everything a website can do. You can't download a website. You can't e-mail a website. And you can't e-mail a CD-ROM.

Nearly seventy percent of Canadians with Internet access have high speed connections (in comparison to approximately thirty-four per cent in the U.S.). After Korea, which is almost one hundred percent broadband, Canada is the second most-wired country in the world.

We have the opportunity to create materials targeted for broadband — right now — and to be world leaders with this type of media. They're rich media PDFs, and according to Adobe, digital content creators will have an easier way to make them — soon.

To download a sample of the "full" version of the 2004 Jaguar XJ eBrochure, visit www.gxo.com.

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