



By Tariq Ahmed

1. Adobe's Vision & Direction

Adobe's current vision appears centered on delivering great experiences.

- Great experiences for end users of software built using Adobe tools and delivered with Adobe technologies.
- Great experiences for those designing the experiences.
- Great experiences for those developing the experiences.
- Great experiences for design and developers working together.

From a technology and tooling perspective it breaks down in to 3 categories: **Design, Development, and Deployment.**

1.1 Goal: Completely bridge the gap between designers and developers

In the past Adobe has had collections of products (e.g. Creative Suite), and effort was made to be able to work across the tools by viewing it from an integration perspective (exporting and importing from one format to another).

So as you go from concept, to wireframes, to high fidelity compositions, to developers slicing it up and generating the HTML to pull it back in, to the backend technologies to drive it... you have two problems:

- The sequence is serial.
- Costly to jump back a step and redo.

Adobe's mission is to eliminate this problem and allow designers and developers to work in parallel, and not just limit designers to static compositions but rather enable them to model the entire interaction (how things change, vs. static screens).

1.2 The Platform

To achieve the Designer->Developer gap, Adobe has taken a step back and realized that it's not about integration – it's about a platform. The difference being that integration is about focusing on getting things to work with each other, where as that platform view is about building a foundation and layering tools and technologies on top of one another.

This required putting in the foundation, framework, standards, and capabilities in place in order for all of that to gel:

- Flash Player 10
- Creative Suite 4 (e.g. Photoshop, Illustrator, Fireworks)
- AIR 1.5
- Flex 4
- Interchangeable file formats: XFL, FXG, and FXP.

1.3 Client + Cloud Computing Blend

Adobe intends to balance client capabilities with the trend towards cloud computing. Cloud computing has been a recent shift in the industry and has gained a lot of traction as it frees up organizations from having to incur the heavy overhead of resources and infrastructure needed to host everything themselves.

The Old Enterprise Model:

- Long implementations that tend to fail (cost overruns, time overruns, unrealized ROI, etc...).
- If survived, expensive upkeep.

New Model:

- Pay for what you use (“elasticity”).
- Infrastructure is provided as part of the service (database, security, 24/7 support and maintenance, provisioning).
- Cloud computing allows organizations to ramp up and down on their computing needs by paying for what you need.
- Service Providers are able to pass on large cost savings from the economies of scale.
- Companies are able to spend more time/resources developing applications. More time on innovation vs. infrastructure.

Cloud technology categories:

- **SaaS:** Software as a Service. No install necessary, software is hosted online. Adobe aims to capitalize on this via the client technologies needed.
- **PaaS:** Platform as a Service. Providing default clients, but the infrastructure and APIs to build your own custom solutions without having to worry about the infrastructure aspect. Adobe has a number of PaaS initiatives in the works.

Adobe's Cloud PaaS/SaaS initiatives:

- **Acrobat.com:** Document collaboration (similar to Sharepoint).
- **Photoshop.com:** Media collaboration.
- **Cocomo:** Real-Time Collaboration services (e.g. build your own WebEx service). Create an RTC in only a few lines of code.
- **Wave:** Helps publishers stay connected to users by eliminating email clutter by unifying events/notifications into a centralized mechanism. E.g. Evite, Digg, Pownce, etc... notifications would get aggregated to a central viewer.

**Cloud providers present at Adobe MAX include:**

- **Intuit** with their Quickbooks/Quickbase platform service.
- **Salesforce** with their CRM Pplatform service.
- **Ribbit** with their soft-phone service (VOIP enable your applications).

1.4 Mobile Computing – The soon to be dominant internet device

- With the advent of Smart Phones & PDA, the number of internet enabled mobile devices has surpassed that of desktops/PCs.
- 1 Billion Flash enabled phones by 2009.
- Adobe working with Google Android (e.g. the T-Mobile G1), Nokia (Symbian OS), Apple iPhone, RIMM BlackBerry, Palm Treo, Windows Mobile, etc... to provide the full Flash player. Adobe Demoed prototypes.
- In the near future it will make more sense to design your applications to work with mobile devices first, and then adapt that towards the desktop experiences.
- New York times demo'd their new Flash based reader which dynamically adjusts its layout depending on the dimensions of the screen (thus ensuring usability regardless if mobile or desktop).

1.5 Multi-Screen Computing

- Adobe envisions a future where devices have awareness of other devices.
- Allowing one device to share its screen with another, and move content across screens.
- Adobe demoed a prototype device where images were moved back and forth by sliding it off one screen and onto another.

2. Design

2.1 Highlights

- An interchangeable XFL format introduced to work with files across applications. For example importing an InDesign project into Flash, will still allow you to edit the properties of that object without having to go back to the original application.
- “Round Trip Workflows” (RTW). Using multiple applications at the same time without having to continually save, export, import from various tools. When in tool Y that uses an object from tool X, simply right clicking on it allows you to edit the object in tool X and have those changes automatically updated in tool Y.

2.2 Flash CS4

- Process of animating very easy for novices (i.e. developers don't need to be a Designer to be creative to make a custom animation). Steps involve right clicking on an object, selecting animate, move the object to where it animates to, and you're done. You then have the ability to modify the animation path.
- Bone structure added to link up how an object is pieced together, allowing for refined animation. Adobe demoed taking a static surfboard image and made it dance by adding a few bones to it.
- Ability to publish as an AIR application.

2.3 Photoshop CS4

- Context aware scaling. So that important objects don't get distorted when stretching/shrinking the image, only the background changes.
- 3D abilities. Able to paint on a 3D object, and perspective is preserved. Similarly, being able to merge a 2D object on top of a 3D object.

2.4 Flash Catalyst (formerly known as Thermo)

Fc is positioned as a design tool for the rapid creation of interactive user interfaces with little to no coding. It's a tool that bridges the gap between the designers and developers by leveraging design assets (PSDs, Illustrator files, etc...) from tools designers use (the CS4 suite) to a format that Flex developers could use.

Fc addresses a lot of problems in the Design to Developer workflow, and a lot of those are pretty obvious. For example taking static design compositions from Designers, as a Developer you then burn a lot of time trying to slice it apart into a format you can use – and heavy forbid the design changes. Even small changes can involved redoing it all over again. Creative Suite 3 and Flex Builder 3 did improve some of that with easier to skin controls, but how far you could go was still fairly limited. To make Fc truly successful, the whole platform needed to be evolved.

Part of Fc's success will come from this workflow round trip capability of being able to open an asset in its native tool (e.g. Illustrator), copying it to the clipboard, and then in Catalyst pasting it in. But, if you need to make modifications using that object's natural tooling you just right click on it, select edit, make the changes in the appropriate tool and you're good to go. What makes this possible is this new common interchange file format called FXG.

Catalyst uses the same theme as the rest of the CS4 products, so as a Designer you'll be used to common elements such as layers and what not. You simple import assets from whatever tool, and literally convert any graphical asset on a layer into any kind of object.

When done, you export it into this FXP format (Flex 4 Project), that Flex Builder will completely recognize. As a developer, you can then focus on hooking in remaining business logic, data access, etc... They imply that it's possible for the Designer to update their Design without impacting the Developer.

Until Catalyst, Designers could only model static compositions and then bounce those over as jpegs/pngs to the developers. But they couldn't model the actual interaction (the transitions from one page to another, and how things hide and become visible, etc...). Catalyst gives Designers the ability to do this.

Previously, it'd be up to the Developer to hook in the transitions, effects, and interactions. With Catalyst, it allows the Designer to focus on the experience side of things, and frees up the Developer to focus on the logic.

3. Development/Tools

3.1 Alchemy

C/C++ is one of the oldest languages actively in use, and there hundreds of millions of lines of code out there. Many of which are useful libraries that contain algorithms that would be of value to any platform. At the same time, it's difficult to justify rewriting functioning C libraries if you don't have to.

Alchemy is a C/C++ to Flash converter that leverage the powers of Flash Player 10 and AIR 1.5. Examples:

- Leverage encryption algorithms.
- Media encoder/decoder algorithms not native to the Flash Player (e.g. Ogg Vorbis).

Adobe demo's the Quake video game converted to Flash.

3.2 Bolt – New ColdFusion IDE

- Eclipse based Plug-in
- Includes a server awareness monitor
- Auto-prompting abilities. CFINCLUDEs will automatically popup a window for the file to include, the datasource property of a CFQUERY will have an auto-prompt of the datasources your CF Server are configured with, CFOUTPUT's query property will auto-prompt from previously run CFQUERY's.
- Knows about your Components, so that it can auto-prompt/hint on properties and methods.
- ORM generation (Object Relational Mapping).
- Using the ORM, automatically generate a CRUD AJAX client.

3.3 Flex Builder 4

- Data centric development model makes it easier to generate UIs.
 - Flex Builder and ColdFusion will have some tighter flows.
 - Drag and Drop functions from the CFC into Flex Builder.
 - Auto-generate placeholder Event handlers needed to work with the operations supported by the CFC. You fill in any necessary business logic, but the shell of the function is done saving you time)
 - Improvements on the FB->CF through new data services abilities. Data Services explorer.
 - Generate ActionScript Value Objects based off of a CFC.
 - You can point to a CFC and generate a services layer to work with it.
 - LCDS ties in for automatic recordset paging, synchronize and commit.
- Ability to import the new FXP format (which Flash Catalyst supports).
- Flex Builder's compiler speed, memory usage significantly improved.
- File Templates allow you to create a new file with standard content (e.g. code header).
- Packaging ability.
- Network traffic monitor (similar to ServiceCapture).
- Easier to preview, switch, and apply themes.
- Flex Builder plug-in for Visual Studio in the works.
- Automatic generation of getter and setters functions.
- Flex Builder 3 provided renaming refactoring. FB4 adds move refactoring. Meaning that if you need to move a file, Flex Builder 4 can automatically update all references in your code to accommodate that.

- Library introspection – meaning you can drill into a SWC to see all the classes, their functions, and properties.
- Hover over ActionScript Doc hints (don't need to pull up the API reference to find out what the function does, and what its expected parameters are).
- Debugging Improvements
 - Run to line break point.
 - Conditional break points.
- .NET AMF bridge in the works.

4. Client Technologies

Flash Player 10

- Drastically enhanced typography capabilities. This puts it into the realm of print quality, while at the same time opening up new opportunities for advanced text layout and manipulation.
- New Text Layout Framework available to leverage this typography. Adobe demoed freehand drawing an adhoc path, and the text scrolled along the path smoothly in high quality (that includes text rotations around the curves).
- 3D abilities.
- Leverages graphics card processing.
- Dynamic streaming – the player can detect network conditions and automatically gear up or down as network conditions change in order to optimize the experience.
- Dynamic sound generation – make your own programmatic sounds, or sound manipulations.
- New Vector data type.

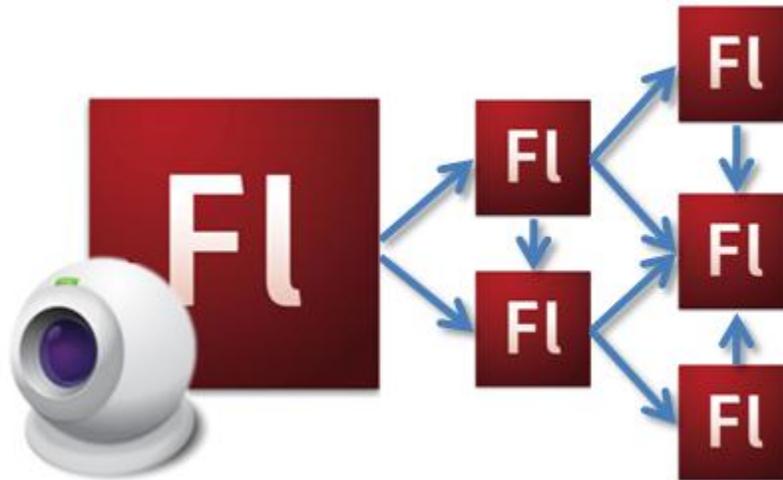
AIR 1.5

- Leverage new FP10 features.
- Squirrelfish – WebKit's latest JavaScript engine. Speeds up execution by 35%.
- Encrypted local database.

5. Sneak Peeks at experimental technologies

RTMFP (Real Time Media Flow Protocol)

- Application level multicast in Flash Player 10.
- Traditionally you have any number of Flash clients connected to a server (e.g. FMS), which handles broadcasting to all clients.
- On a Peer to Peer basis, you could stream one or two webcam feeds to another client, but you wouldn't be able to scale up to 100.
- RTMFP allows a disparate cluster of clients to share fragments of the feed to other clients which then aggregate the content to rebuild the source as a whole (similar to how torrents work).



Nitro

- A widget engine (similar to Yahoo Widgets or Google Gears) that allows you to create widgets that run on multiple devices (mobile, laptop, TV, etc...).
- Common experience regardless of platform.

Durango

- Multi-Client mashups.
- An AIR based client that allows you drag and drop sections of an existing web application to create new applications.
- E.g. grab the search input field from Google, and pipe the results into an RSS reader widget.
- Durango enable applications will automatically communicate with other widget to autowire themselves. But you can also manually wire up non-Durango widgets.
- Can package up and send to others.

Next Generation Imaging

- Image search, find images on the internet that are similar to one that you're looking at.
- Image compositing – automatic blending. Photoshop would be smart enough to copy and paste one image ontop of another and automatically erase the background (unimportant) data from the top image so that it blends into the bottom image (vs. you having to spend a lot of time manually erasing the background).

Content Intelligence Toolkit

- Problem Statement: cataloging video content (who, what, where, when, timestamps, other meta data) is labor intensive. How can that be automated?
- Analyzes video for activity recognition, facial recognition, speech to text analysis.
- Evaluates color tones used (e.g. outdoors vs. inside a house), rate of change (e.g. a car race vs. a sit down interview), faces, and context from text to power a search engine so that you can retrieve all other video footage related to the video you're already looking at.

Dreamweaver support for AJAX widgets

- Working closely with the Open AJAX Alliance.
- Able to plug-and-play a widget (e.g. a jQuery accordion), and manipulate the native properties (color, size, etc...).

Infinite Images

- Using a starting image, it automatically stitches related images to form a continuous video stream of directional movement.
- So starting with an image, it can continuously pan left and automatically stitch in the next sequence of images by analyzing a repository (possibly all images indexed on the internet) of images to determine what the next image in the sequence is. Able to simulate moving forward, backward, and rotation.

Connecting LiveCycle and Creative Suite

- Problem Statement: How can the business process for creative workflows be automated? Currently sending out design comps and video footage for feedback and approval is still a fairly manual process.
- LiveCycle is a business automation tool (e.g. it's been used for automating tax filings, insurance claims, etc...).
- The creative process can be automated using LiveCycle. Where a chunk of video is packaged up as an AIR application with digital rights media to expire the content at some point.
- The next portions of the process include reviewers providing feedback, so they use the AIR app to watch the video and enter in comments – those comments get fed through LiveCycle. That ends that task, and the process then moves back to the owner of the video to then look at the feedback.

MeerMeer Service

- Problem Statement: Web pages look different on different combinations of OS, Browser, and Browser Version. It's difficult to run multiple versions of IE, let alone on many platforms. How can this be streamlined?
- The MeerMeer service let's you compare what a site looks like in any combination of OS and Browser version. You can view them side by side, or layered on top using an onion skin approach.
- With a connector to Dreamweaver, you can then edit the page and see the changes in MeerMeer in real time.

ActionScript on the server

- Client side ActionScript hosted by ColdFusion.
- Use `<mx:Script runAt="server">` to specify which chunks of code run on the client vs. server.
- Since CF is hosting, tight integration abilities, such as running a query from ActionScript.