

Using Flash to implement SVG and its application to XML Slidy

Dave Raggett, W3C & JustSystems

Slide Presentations on the Web

- Requirement for Web based slide presentations that can be viewed using a web browser
- W3C Team expected to eat its own dog food
- slidemaker tool splits html into separate slides
- HTML Slidy and S5 (slide microformats)
 - <http://www.w3.org/Talks/Tools/Slidy>
 - <http://meyerweb.com/eric/tools/s5>
- But many users find HTML and CSS too hard
 - Need to be an expert to create new slide themes

Slide Presentations on the Web

- Strong need for web-based slide editor
 - Problems with HTML content-editable,
 - Browser APIs for keystrokes are a mess
 - Browser native SVG not yet mature enough
- How else to implement a slide editor?
 - Locally installed application
 - Binary Plugin
 - Java VM
 - Flash Player

Adobe Flash Player

- Very popular and used by lots of websites
 - Animated product placement
 - Video, e.g. Youtube, BBC
 - Photo sites, e.g. Flickr
- Available for Windows, Mac OS X, Linux, etc.
- Excellent support for text, graphics, networking
- High performance and small download size
- Good enough support for accessibility
 - Missing ARIA support for author created controls

Adobe Flash Player

Flash Player is installed in nearly all desktop and notebook computers

Worldwide Ubiquity of Adobe Flash Player by Version — June 2008

	Flash Player 6	Flash Player 7	Flash Player 8	Flash Player 9	Flash Player 9.0.115*
Mature Markets¹	No longer surveyed	99.0%	98.7%	97.7%	81.7%
US/Canada	No longer surveyed	99.1%	98.9%	97.8%	83.3%
Europe²	No longer surveyed	98.5%	97.9%	96.5%	78.6%
Japan	No longer surveyed	99.3%	99.3%	98.8%	81.3%
Emerging Markets³	No longer surveyed	97.3%	97.1%	96.2%	82.4%

HAXE



Nicolas Cannasse, inventor of haXe and neko

See <http://haxe.org>

- Strongly typed language similar to Java, but with lots of cool modern features, e.g.
 - Type inference
 - Dynamic types
 - *and many more ...*
- Open source compiler running on Windows, OS X, Linux

haXe generates code for

- Flash versions 6-10
- PHP, JavaScript, AS3
- Neko VM (Apache mod_neko)

20x faster than PHP

Benefits of using Haxe

- Generates efficient code for deploying on Flash Player and Apache web server
- Faster compiler than Adobe's mxmhc
- Cross platform and native Flash libraries
- Strong typing picks up many errors at compile time
- Type inference makes it very easy to use
- Helpful, enthusiastic developer community

Using Flash to implement SVG

Flash library to download
and render SVG

SWF file size of 30KBytes

SVG vs Flash

- SVG and Flash both support matrix transforms and animation
- SVG has cubic beziers, Flash doesn't
 - Subdivide path and substitute quadratic beziers
 - Likewise for rendering SVG's elliptical arcs
- SVG gradient coordinates % of bounding box
 - Flash doesn't know bounding box until it is drawn
 - Solution is to draw path twice
- SVG has dashed strokes, Flash doesn't
 - No problem, subdivide path as needed

SVG vs Flash

- SVG and Flash both support rich text
 - Single and multi-line text fields
 - Embedded and native device fonts
- But Flash doesn't support text on a path
 - Copy glyphs to path as needed
- SVG has much richer model of filters
 - Flash has glow, shadow, blur, bevel, etc.
 - SVG filters are a big challenge for editing tools!
- Too hard to support JavaScript-based scripting
 - Not needed for slide presentations

Using Flash to edit SVG

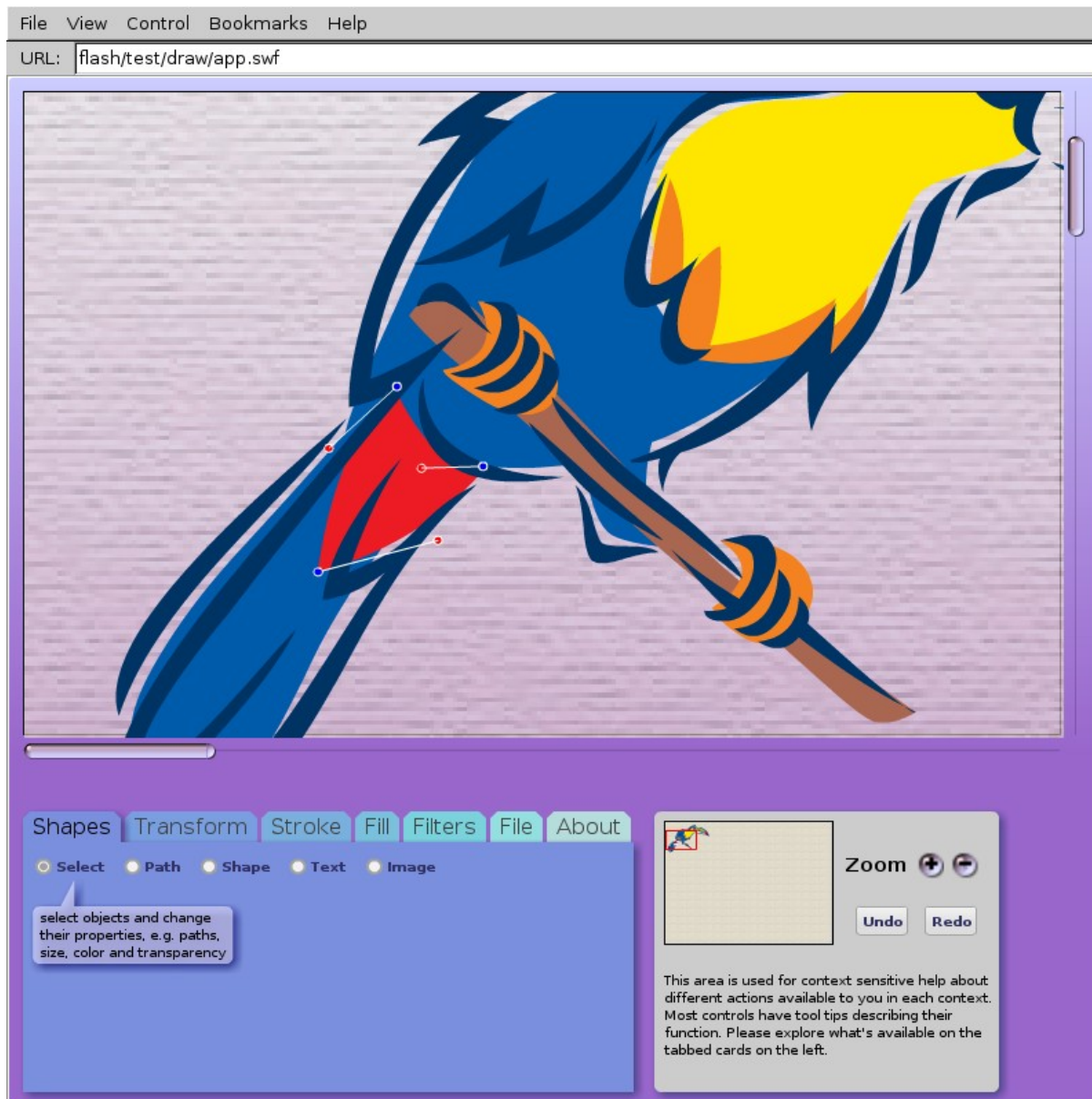
Flash library editor component

SWF file size of 60KBytes including renderer

SVG editor

- Lack of a good web-based graphics editor
- Needed for integration within slide tool
- Must be very easy for people to use
 - If you are under time pressure to create a slide deck you don't want to struggle with a poor UI
 - Use text rather than obscure icons
 - Additional pro-active context sensitive help
- Tabbed panes to save valuable screen space
 - Uncluttered UI that invites exploration
- Thumbnail for locating viewport on big canvas

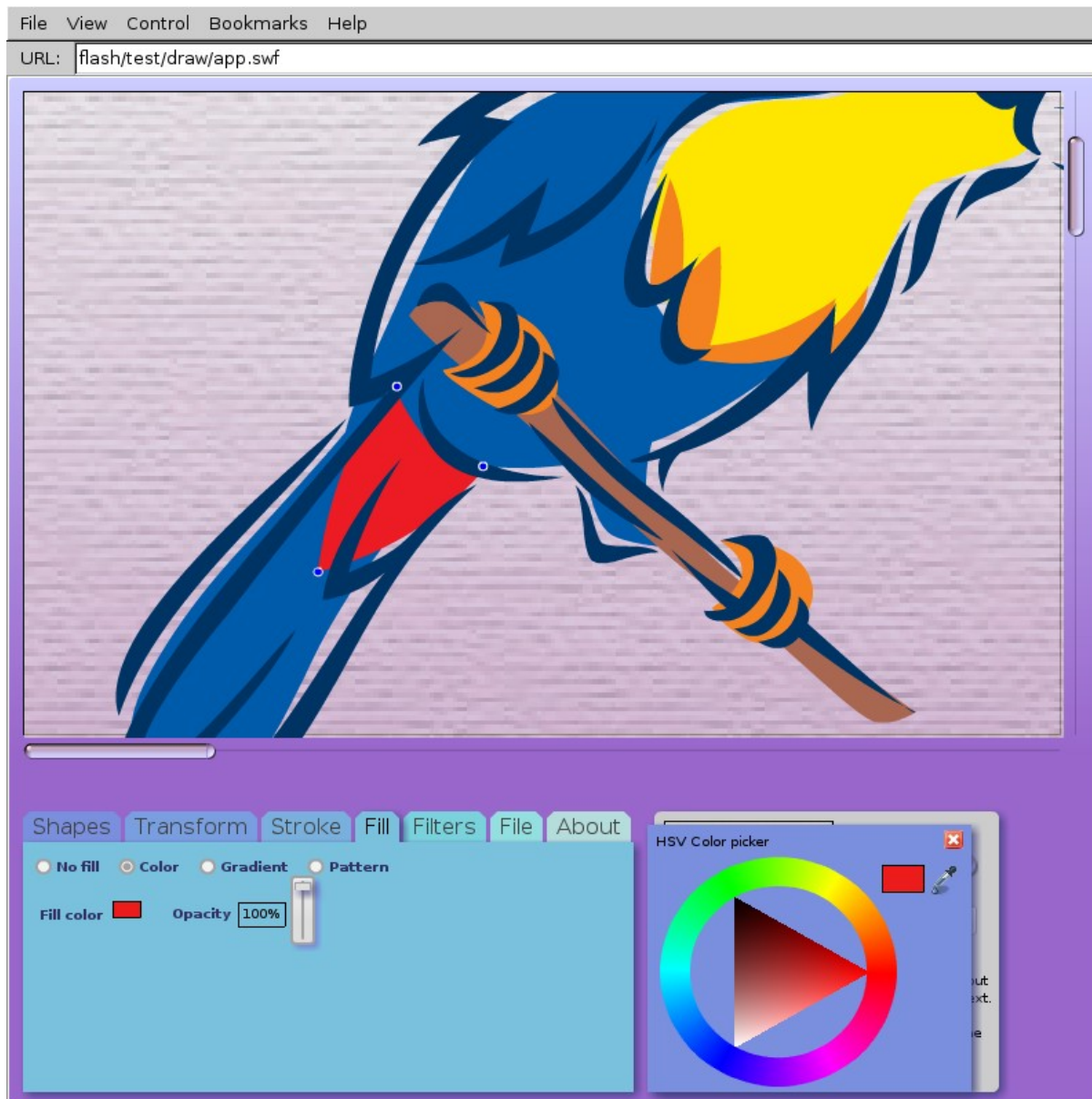
SVG editor



SVG editor

- Each pane shows additional controls depending on top level choice
- For fill pane top level choice is between no fill, color, gradient and pattern
- Pop-up HSV color wheel and dropper tool
- Either type opacity or drag pop-up slider
- Click or drag to select objects
- Click on path object to switch view
 - Transform handles
 - Knots only
 - Knots and control points

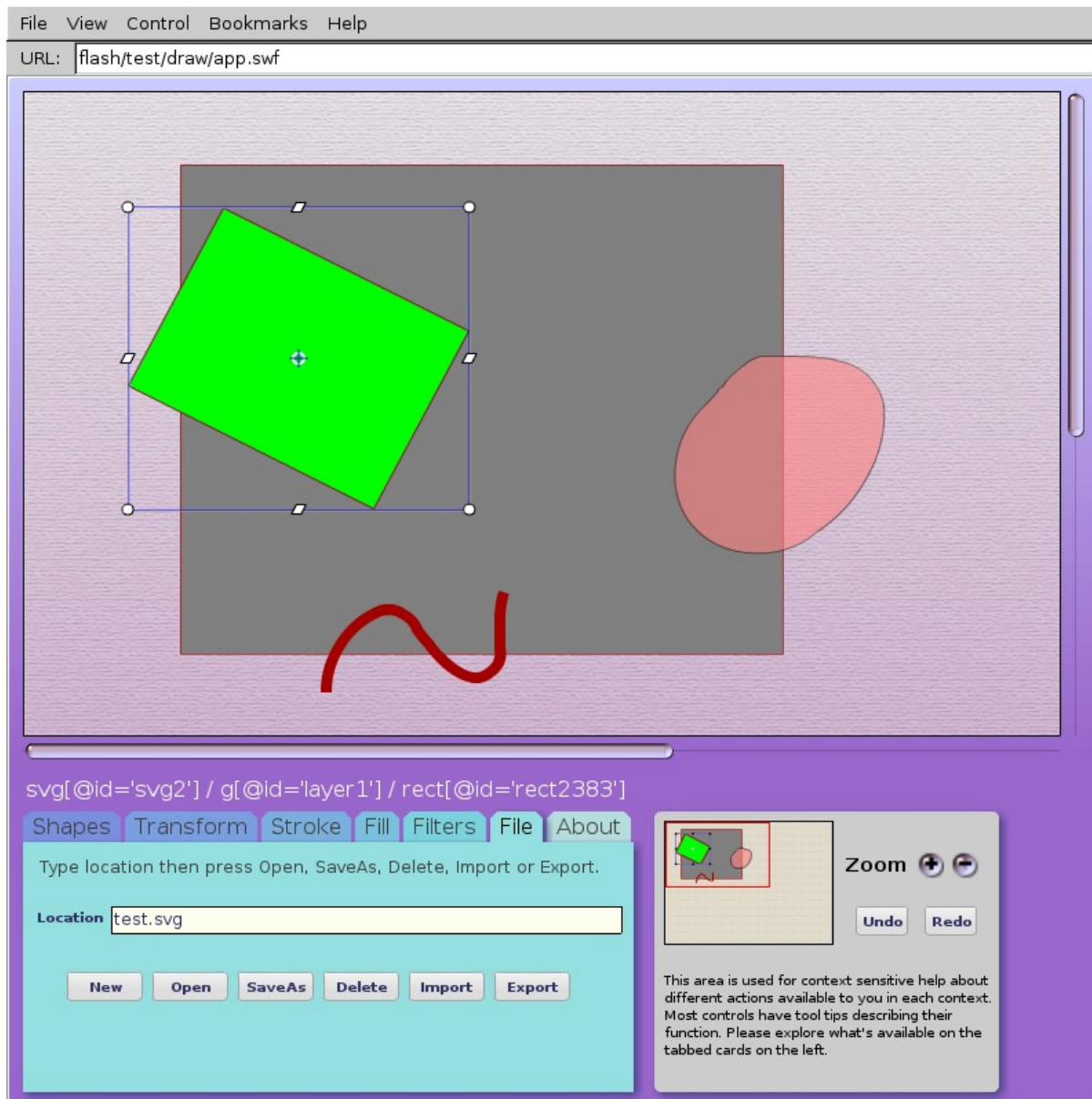
SVG editor



SVG editor

- Position of selected element shown as Xpath
 - Hope to evolve this into a group browsing tool
- Selected object shown with transform handles
 - Stretching (drag bounding frame)
 - Panning (drag object)
 - Skewing (drag skew handlers)
 - Rotating (drag rotation handles)
- Manually enter matrix values on transform pane
- Further shape dependent options on shapes pane

SVG editor



XML Slidy

Flash based slide viewer/editor

XML Slidy

- View and edit slides on web server
 - Ease of use as primary concern
- Slides held as lightweight XML format
 - Much smaller than ODP, Keynote and PPT
 - Neko-based server agent
 - XML hidden behind high level user interface
- Slide content cleanly separated from theme
- Allows simple sharing of theme across different presentations
- SVG used within slides and themes

XML Slidy

```
<slidy version="1.0"
xmlns="http://example.com/ns/2008/03/slidy"
xmlns:xlink="http://www.w3.org/1999/xlink"
xmlns:svg="http://www.w3.org/2000/svg"
xmlns:dc="http://purl.org/dc/elements/1.1/"
viewbox="0 0 1024 768">
  <!-- metadata using Dublin Core and other vocabularies -->
  <about>
    <dc:title>Test deck for XML Slidy</dc:title>
    <dc:creator>Dave Raggett</dc:creator>
    <dc:date>2008-03-21T17:39:34</dc:date>
  </about>
  <!-- link to standard theme defining backgrounds etc. -->
  <theme xlink:href="theme.xml"/>
  <!-- one or more slide elements -->
  <slide template="cover">
    <title>Test Slide Deck</title>
  </slide>
  <slide template="normal">
    <title>Second slide</title>
    <points>
      <p level="1">1st level point</p>
      <p level="2">2nd level point</p>
      <p level="1">Another 1st level point</p>
      <p level="2">Another 2nd level point</p>
      <p level="3">Another 3rd level point</p>
    </points>
  </slide>
</slidy>
```

XML Slidy

```
<theme version="1.0"
xmlns="http://example.com/ns/2008/03/slidy"
xmlns:xlink="http://www.w3.org/1999/xlink"
xmlns:svg="http://www.w3.org/2000/svg">
  <style name="normal">
    <svg:defs>
      <svg:circle id="bullet1" r="7" fill="#FF3399"/>
      <svg:circle id="bullet2" r="5" fill="#FF66FF"/>
      <svg:circle id="bullet3" r="4" fill="#9933FF"/>
    </svg:defs>
    <background>
      <svg:rect x="0" y="0" width="400" height="45"
        fill="#FFEEDD" stroke="none"/>
    </background>
    <style name="title" font-family="serif"
      font-size="36pt" font-color="red"/>
    <style name="points" font-color="blue" x="0">
      <style name="level1" bullet="#bullet1" margin-left="20"
        font-color="blue" font-family="Helvetica" font-size="22pt"/>
      <style name="level2" bullet="#bullet2" margin-left="40"
        font-family="Helvetica" font-size="14pt" font-style="italic"/>
      <style name="level3" bullet="#bullet3" margin-left="60"
        font-family="Helvetica" font-size="10pt"/>
    </style>
  </style>
</theme>
```

XML Slidy

- Themes represented as XML with embedded or linked SVG
- Designed with theme editing tool in mind
- Adopt's SVG's approach to properties as attributes, including support for inheritance
- Simple matching on slide template names and slide components
- Level attribute in place of nested points
 - Simplifies implementation of bullet point component

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Questions