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Scalable Vector Graphics: some visual examples

Handout

The easiest place to begin is with some simple SVG markup. Copy this in a text editor:

```
<sag xmlns="http://www.w3.org/2000/sag" width="600" height="600">
<circle cx="150" cy="100" r="50" fill="#b00"/>
</sag>
```

And save as circle.svg and open it in a browser.

Then add two more circles with different radii and fill:

```
<sag xmlns="http://www.w3.org/2000/sag" width="600" height="600">
<circle cx="200" cy="200" r="150" fill="#b00"/>
<circle cx="200" cy="200" r="100" fill="#f00"/>
<circle cx="200" cy="200" r="50" fill="#888"/>
</sag>
```

And finally add a background rectangle and fill the screen using percents:

```
<sag xmlns="http://www.w3.org/2000/sag" width="100%" height="100%">
<recta x="0" y="0" width="100%" height="100%" fill="#666"/>
<circle cx="200" cy="200" r="150" fill="#b00"/>
<circle cx="200" cy="200" r="100" fill="#f00"/>
<circle cx="200" cy="200" r="50" fill="#888"/>
</sag>
```

From this you can see some of the virtues of SVG – it is human-readable, simple to write,provides access to rich vocabulary of form and color and their interaction, and is scalable.

It is also an application of XML which means it has access of many other applications in that specification, like SMIL, CSS and XSLT. Use of ECMAscript in conjunction with it is all very common.

SVG is often compared to Flash and sometimes to Acrobat. Both comparisons contain some truth because all three have a common base in vector graphics, and SVG can do animations using SMIL and can embed fonts and give extensive control over layout. But I will try to show that SVG has the potential to be something different and more interesting, to me at least, than either SWF or PDF files.

For my presentation I am going to focus, through concrete examples, on what it can do with form and color, which to my mind (I come to SVG from a background in visual art and design) some of the most powerful uses of SVG and do it a ways which create small file and visually rich results.

Among the tools in SVG I use extensively are `<def> <g> <pattern> <symbol>`

<use> and <xlink>
which mean that through reuse and modification a lot can be done without heavy overhead.

For instance, this markup covers the screen with 60 transparent circles on a textured field:

```
<rect x="0" y="0" width="100%" height="100%" style="fill:#800"/>
<rect x="1%" y="1.5%" width="98%" height="97%"
style="fill:url(#leftright);"/>
<rect x="1%" y="1.5%" width="98%" height="97%"
style="fill:url(#across); "/>
<rect x="1%" y="1.5%" width="98%" height="97%"
style="fill:url(#updown);"/>
<use xlink:href="#rondels" x="0%" y="6%" style="opacity: 0.02; "/>
<use xlink:href="#rondels" x="0%" y="26%" style="opacity: 0.02"/>
<use xlink:href="#rondels" x="0%" y="46%" style="opacity: 0.02"/>
<use xlink:href="#rondels" x="0%" y="66%" style="opacity: 0.02"/>
<use xlink:href="#rondels" x="0%" y="86%" style="opacity: 0.02"/>
```

The site is available at this address:
www.personal.psu.edu/faculty/j/x/jxm22/svg/uncutcloth/rondel.svg

SVG files can be viewed in IE with the ASV viewer and with different degrees of support in latest versions Firefox, Opera and Safari, and on Linux using Batik.

All of the SVG files I will be showing are available at:
www.personal.psu.edu/faculty/j/x/jxm22/svg/index.svg

Additional information about Scalable Vector Graphics on the web can be found at these addresses:

http://www.w3.org/Graphics/SVG/

http://wiki.svg.org/Main_Page

http://www.svgopen.org/