Web Development
CSCI-GA 1122

Web Graphics
Raster and Vector
Raster Graphics

Also known as “bitmap” graphics

A grid of picture elements, “pixels,” each of which contain color and brightness information

Pixels can be changed individually or as a group with program algorithms

Contrast vector graphics which describe points and lines
Raster Graphics
Web Formats

JPEG
“Joint Photographic Experts Group”

PNG
“Portable Network Graphics”

GIF
“Graphic Interchange Format”

WebP
Up-and-coming image format, not fully supported in browsers yet
Photoshop
1987

Created by Thomas Knoll, then a PhD student at the University of Michigan

Originally called “Display”

For displaying grayscale images, scanned into a computer

Acquired by Adobe in 1988

Released as Photoshop 1.0 for Macintosh in 1990

Layer support introduced in version 3 (c. 1993)
Creativebits

Font: New York
Size: 14 point
Leading:
Spacing:
Style: Bold, Outline
Italic, Shadow
Underline, Anti-aliased
Alignment: Left, Center, Right
SVG is a language for describing two-dimensional graphics in XML.

SVG allows for three types of graphic objects: vector graphic shapes, images, and text.

SVG drawings can be interactive and even styled with CSS.
To be scalable means to increase or decrease uniformly

In terms of graphics, means not being limited to a single, fixed, pixel size

On the Web, scalable means that a particular technology can grow

SVG is scalable in both senses of the word

Scalable Vector Graphics (SVG) 1.1 Concepts
http://www.w3.org/TR/SVG/concepts.html
Vector graphics contain geometric objects such as lines and curves. This gives greater flexibility compared to raster-only formats. Since all modern displays are raster-oriented, the difference between raster-only and vector graphics comes down to where they are rasterized. Vector graphics are rasterized client side; raster graphics are, by nature, already rasterized on the server.
Most existing XML grammars represent either textual information or raw data. They typically provide only rudimentary graphical capabilities. SVG provides a rich, structured description of vector and mixed vector/raster graphics.

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SVG

Advantages

SVG images can be created and edited with any text editor

SVG images can be searched, indexed, scripted, and compressed

SVG images are scalable, can be printed at any resolution, and are zoomable without degradation

SVG is an open standard

SVG files are pure XML

SVG Introduction

http://www.w3schools.com/svg/svg_intro.asp
XML stands for Extensible Markup Language.

XML is a markup language much like HTML.

XML was designed to carry data, not to display data.

XML tags are not predefined. You must define your own tags.

XML is designed to be self-descriptive.

SVG is written in XML.

Introduction to XML

http://www.w3schools.com/xml/xml_whatis.asp
The advantages of style sheets are now generally accepted, certainly for use with text.

SVG extends this control to the realm of graphics.

It allows for script-based manipulation of the document tree and the style sheet.
SVG
On the Web

There are a variety of ways in which SVG content can be included within a Web page

• A stand-alone SVG Web page
• Embedding by reference, using the HTML ‘img’ element
• Embedding inline
• External link, using the HTML ‘a’ element
• Referenced from a CSS property

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