

# Vectors on the Web

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# What is SVG

- ▶ Scalable Vector Graphics
- ▶ An Open XML specification for the creation of complex vector graphics.



# SVG Benefits

- ▶ Smaller files size than regular bitmapped graphics such as GIF and JPEG files
- ▶ Resolution independence, so that the image can scale down or up to fit proportionally into any size display on any type of Web device
- ▶ Text labels and descriptions that can be searched by search engines
- ▶ Ability to link to parts of an image
- ▶ Complex animation
- ▶ AJAX skills transfer

<b>Browser</b>	<b>Native</b>	<b>Via Plugin</b>
Firefox 1		X
Firefox 1.5	X	
Firefox 2	X	
IE 6		X
IE 7		X
Opera 9	X	
Safari 1		X
Safari 2		X
Safari 3	X	

# Deployment Models

- ▶ Self-Contained
- ▶ XML-RPC
- ▶ XSLT
- ▶ Dynamic Server Generation

# Definition

- ▶ **Sparklines:** Intense, Simple Word Sized Graphs
- ▶ Created by Edward Tufte
- ▶ Must have a transparent background and lack of pixelation to avoid visual clutter.

 Hourly Unique Visitors 47

 Hourly Unique Visitors 47



# Hourly

# Alternative Approaches

- ▶ Flash
- ▶ Automated Image Generation
  - gif, jpg, png
- ▶ CSS / Javascript Voodoo
- ▶ <canvas> tag

# SVG Source

```
<?xml version="1.0" encoding="iso-8859-1"?>
<!DOCTYPE svg PUBLIC "-//W3C//DTD SVG 20001102//EN"
"http://www.w3.org/TR/2000/CR-SVG-20001102/DTD/svg-20001102.dtd">
<svg xmlns="http://www.w3.org/2000/svg" xmlns:xlink="http://www.w3.org/1999/xlink"
width="100%" height="100%" >

<defs></defs>

<!-- *** render line graph *** -->
<g transform="scale(.4,.2)">
<rect x="0" y="20" height="30" width="100" fill="#9ECD16" opacity=".6" />
<path d="m100,50
-7,-7 -7,-14 -7,7 -7,-14 -7,7 -7,-21 -7,-7 -7,14
-7,-14 -7,21 -7,7 -7,14 -7,14 -7,-21 -7,7"
style="fill:none;stroke:black;fill-opacity:1;stroke-width:2pt;" />
<ellipse cx="100" cy="50" rx="5" ry="8" fill="red" />

</g>
</svg>
```

# SVG Generator

```
<?php
    header("Content-Type: image/svg+xml; charset=utf-8");
    echo "<?xml version='1.0' encoding='utf-8'?>\n";
    $data =
        array(204,32,87,207,94,114,189,118,113,154,119,161,129,49,209);
?>
```

```
<?php
    $max = max($data);
    $min = min($data);
    $len = count($data);
    $xOld = 100;
?>
```

# SVG Generator

```
<path d="m<?php
for ($i = $len - 1; $i >= 0; $i--) {
    $yNew = ($data[$i] - $min) / ($max - $min);
    $yNew = (int)($yNew * 100);
    $xNew = ($i / $len) * 100;
    $xNew = 100 - (int)$xNew;
    if ($i == $len - 1) {
        echo 100 . "," . (100 - $yNew) . " ";
        $yDot = 100 - $yNew;
    }
    else {
        echo ($xOld - $xNew) . "," . ($yOld - $yNew) . " ";
    }
    $yOld = $yNew;
    $xOld = $xNew;
} ?>"
```

The King Is Dead

Rest In Peace

Adobe SVG Viewer

# Long Live the King

- ▶ Make everyone use Firefox / Opera
- ▶ Open Source Alternatives under active development
- ▶ IBM SVG Applet
- ▶ SVG -> Canvas js
- ▶ SVG IE