

Scalable Vector Graphics (SVG)

Ivan Herman, W3C

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Slides are available at:

<http://www.w3.org/2005/Talks/1110-Delhi-IH/>

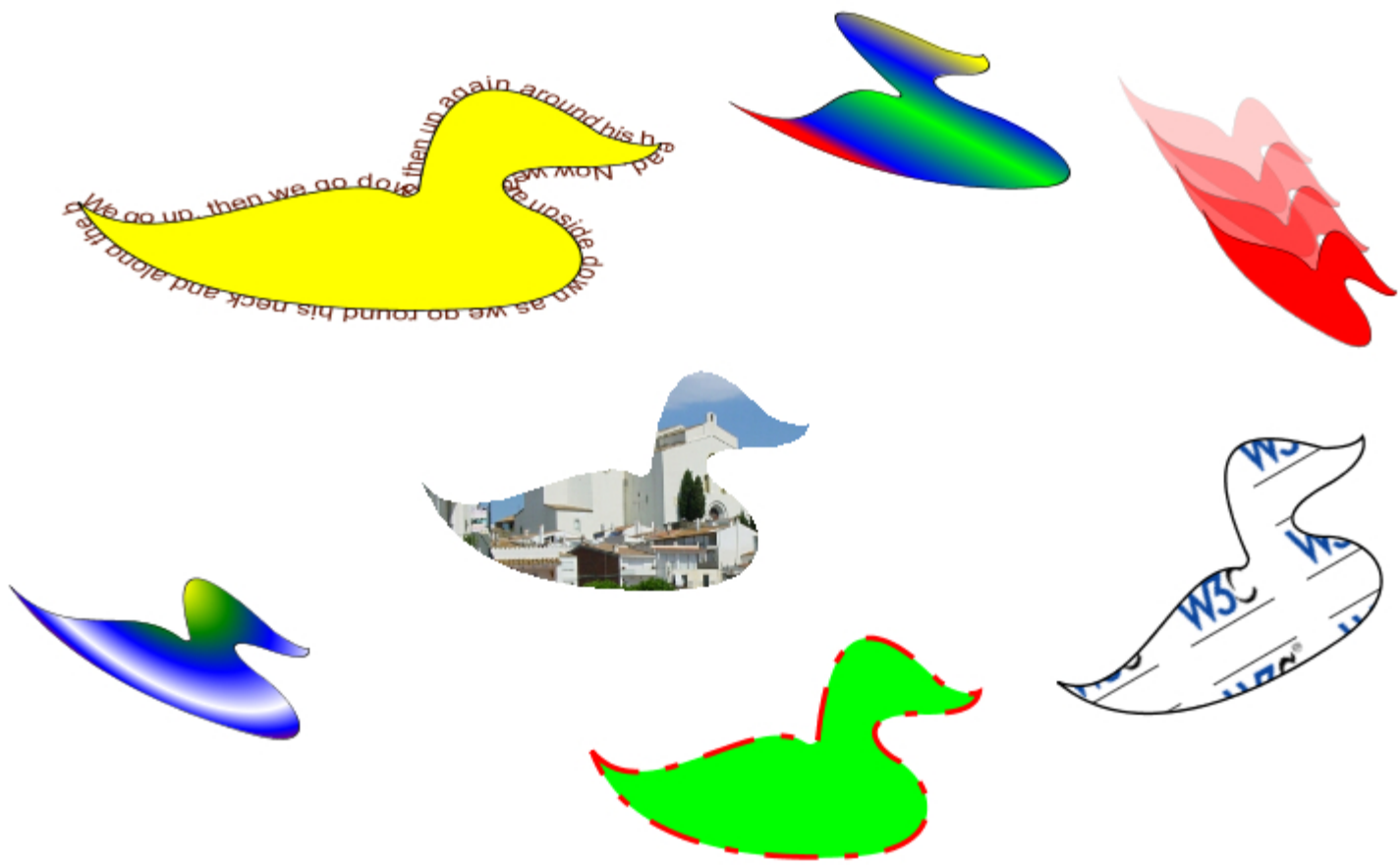
- Pixel based images (gif, png, jpeg, ...)
 - Fixed resolution
 - Can be very large
 - Original “information” is lost
 - difficult to add metadata
 - difficult to adapt to viewing environment
 - Limited interaction (except for animated gifs and the like)
 - Client/server side image maps for linking
 - clumsy, requires separate authoring tools
- Other, proprietary solutions
 - proprietary authoring tools, players, ...

- Vector graphics (i.e., describe geometry, not pixels)
 - resolution independent
 - keeps “content” information
 - but should allow the “inclusion” of, e.g., photographs
- Textual encoding (too)
 - searchable
 - easy to edit, add links, etc
 - makes “programming by example” easy...
- Based on XML
 - to integrate with the rest of the Web

Scalable Vector Graphics (SVG):

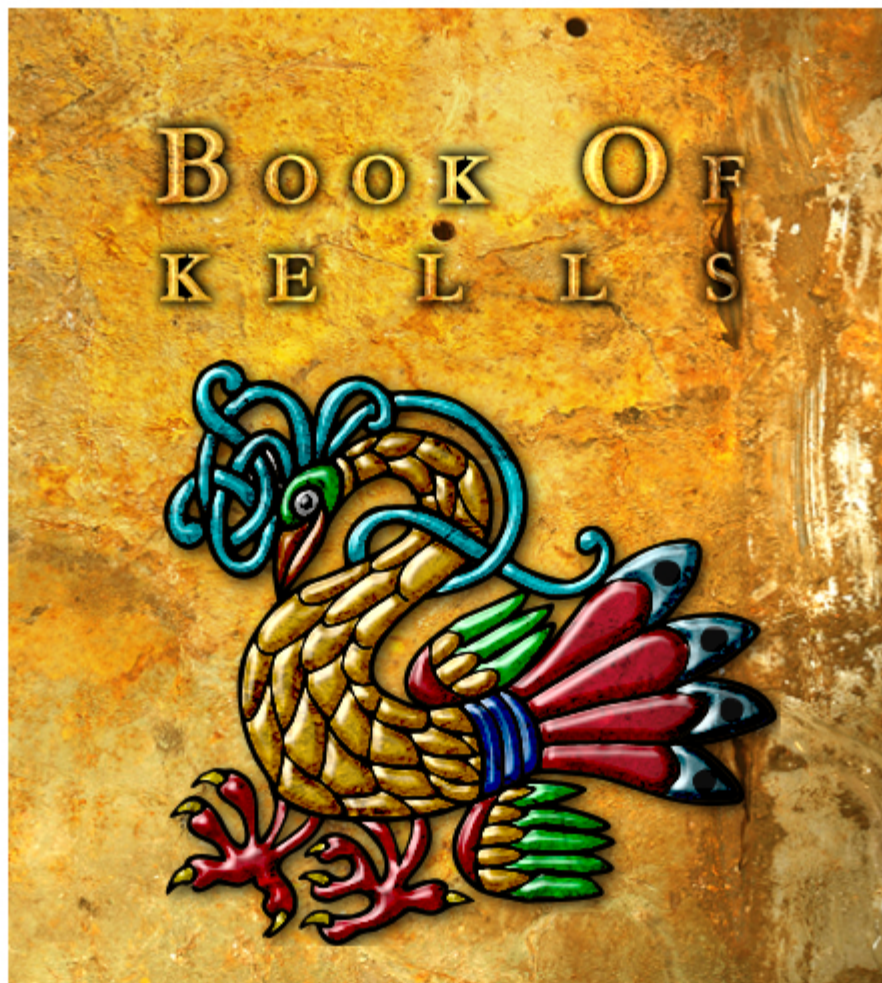
- W3C Working Group was created in 1998
- Specification quite stable by 2000, with first implementations
- Updated version in 2001
 - inclusion of “mobile profiles”
- Work is continuing...

“SVG is the HTML for Graphics”



```
<?xml version="1.0" encoding="UTF-8"?>
<!DOCTYPE svg PUBLIC "-//W3C//DTD SVG 20010904//EN"
  "http://www.w3.org/TR/2001/REC-SVG-20010904/DTD/svg10.dtd">
<svg width="600" height="300">
  <g transform="translate(10 10)">
    <g stroke="none" fill="lime">
      <path d="M 0.0 112 L 20 124 L 40 129 L 60 126 ...
        ...
      </path>
    </g>
  </g>
</svg>
```





Interaction
domain

Technology and Society
domain

W3C WORLD WIDE WEB
consortium
Web Accessibility
initiative

Architecture
domain



Convolution matrix over pixels

```
<filter id="blur">
```

```
  <feConvolveMatrix order="3" kernelMatrix="3 0 3 0 0 0 3 0 3"/>
```

```
</filter>
```

```
...
```

```
<image ... filter="url(#blur)"/>
```



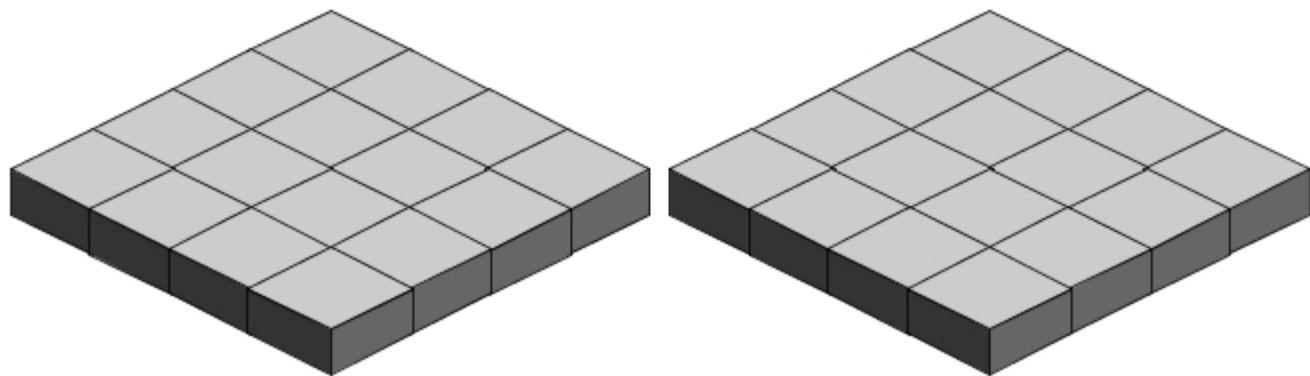
blurring matrix =

$$\begin{matrix} 3 & 0 & 3 \\ 0 & 0 & 0 \\ 3 & 0 & 3 \end{matrix}$$


sharpening matrix =

$$\begin{matrix} -1 & -1 & -1 \\ -1 & 9 & -1 \\ -1 & -1 & -1 \end{matrix}$$

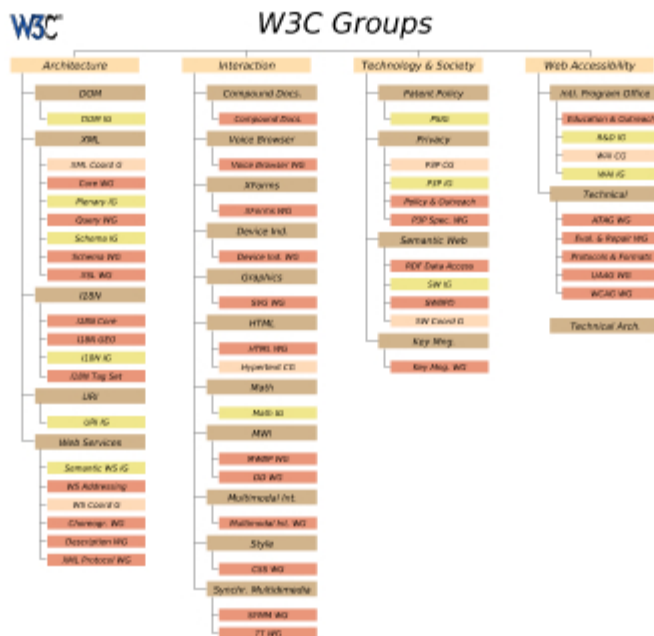




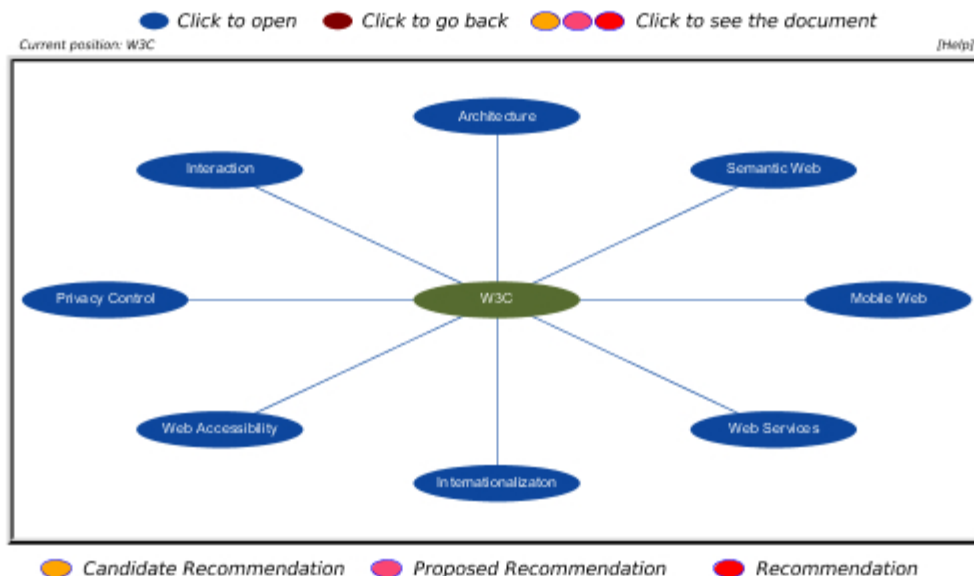
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- After all, there are other technologies that can do that...
- But: *SVG is integrated*
 - SVG is not a “technology island”, but...
 - ... it is an XML applications that is well integrated with the Web
- What this means is that:
 - SVG relies on a series of other specifications
 - XML tools (editors, parsers, validators) can be used directly
 - some of the general W3C concerns are valid to SVG, too
- It also has “social” benefits:
 - “programming by example” becomes possible
 - one can inspect the SVG code directly
 - there is a vibrant SVG community out there!

- General XML tools can *generate* images on the server side
 - if you know how to generate XML on the server...
 - ...you know how to generate SVG
- Example: W3C Organization diagram (generated automatically...)



- If necessary, dynamic aspects of SVG can also be programmed
 - if you know how to (ECMA)script an HTML page...
... you (almost 😊) know how to script SVG!



- Numerical calculations
- Access to some system resources (e.g., clock)
- Complex animation and/or interaction
 - complicated visual effects
 - need for the state of interaction
- Random features (e.g., random choice among alternatives)
- Client/server type applications
- Managing application data embedded in the SVG content


```
<g onload="Start(evt)" ... >  
...  
function Start(evt)  
  var now=new Date();  
  clockObj.adjustTime(now);  
}
```



Japanese:
Webの可能性を最大限に導き出すために:

English: Leading the Web to its Full Potential...

Catalan: Duent la Web al seu ple potencial...

Dutch: Het Web tot zijn volle potentieel ontwikkelen...

French: Amener le Web vers son plein potentiel...

German: Alle Möglichkeiten des Web erschließen...

Greek: Οδηγώντας τον παγκόσμιο ιστό στο μέγιστο των δυνατοτήτων του...

Hungarian: Hogy kihasználhassuk a Web nyújtotta összes lehetőséget...

Italian: Sviluppare al massimo il potenziale del Web...

Chinese: 引发网络的全部潜能...

Korean: 웹의 모든 잠재력을 이끌어 내기 위하여...

Portuguese: Levando a Web em direção ao seu potencial máximo...

Russian: Раскрывая весь потенциал Сети...

Spanish: Guiando la web hacia su máximo potencial...

Swedish: Se till att Webben når sin fulla potential...

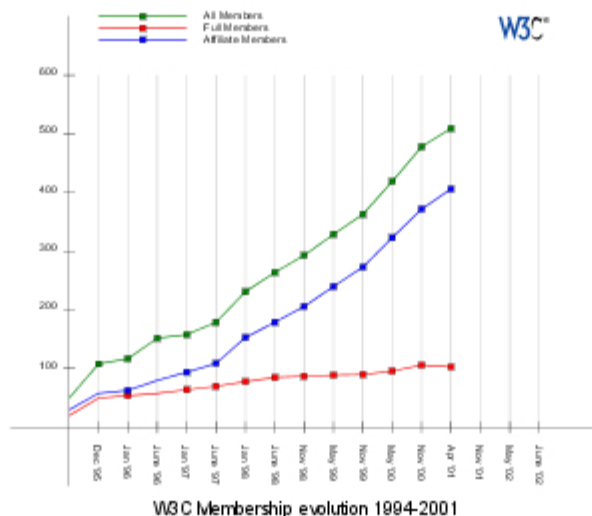
Finnish: Ohjaamassa Webin kehittymistä täyteen mittaansa...

Hebrew: להוביל את הרשת למיצוי הפוטנציאל שלה...

Arabic: لإيصال الشبكة المعلوماتية إلى أقصى إمكاناتها...

Chinese:
网络的全部潜能...

- Convey the meaning of a figure through text:
 - add *metadata* to the image describing the content
 - let a tool produce some **simple output** using the metadata
 - use a standard metadata formalism
- This can be done as a result of the smooth integration of SVG



- SVG has “smaller” versions: *Basic* and *Tiny*
- Has become *the* vector graphics tool for Mobiles
 - on Windows CE, Symbian, for J2ME...
 - a number of phones come with SVG built-in
 - integration browsers is also happening



Loading...

- Adobe's plugin for IE, Firefox, Opera, ...
- Firefox 1.5 has SVG *natively*
- Opera 8 has SVG Tiny *natively*
- *Lots* implementation of SVG Tiny on phones
 - around 80 different SVG aware mobile phone types
- Graphics editors (Sketsa)
- Drawing tools can often produce SVG (Adobe Illustrator, OpenOffice.org)
 - latest release of Illustrator can generate SVG Tiny, too
- See <http://svg.org/> for further links

- Example: South Carolina's Hurricane Evacuation Decision Support

South Carolina Hurricane Tracking Map

HURRICANE TRACKING CHART

Feature Layer

- Ocean
- Grid/Minor
- Grid/Major
- Land/Poligon
- Land/Poligon/Inset
- Grid/Border
- State/Boundary
- Int/Dependency
- Coastline
- City/Point
- Int/Text
- Region/Text
- State/Text
- City/Text
- Tbl/Text
- Lego40
- Lego41
- Lego42
- Lego43
- Lego44
- Lego44Text
- Lego45
- Lego46
- Tropical Depression
- Tropical Storm
- Hurricane
- Hurricane Position
- SCDC/Poligon
- Lego

ATR Reports

ATR Name:

Days to Report:

Speed Traffic

Report Date: 09/16/2004

Hour:

SCDOT On the Web

Internet

These slides:

<http://www.w3.org/2005/Talks/1110-Delhi-IH/>

Mail me if you want:

ivan@w3.org