

Work in Progress: SVG (Scalable Vector Graphics) at the Met Office

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EGOWS 2005

Exeter 21-24 June 2005

Outline

- Current situation
- SVG Overview
- Examples
- Current plans
- Future
- Some Issues
- Questions

Current situation

- Lots of vector graphics applications, products, expertise, systems
- Legacy software: Calcomp, GKS & CGM
- Industry support for GKS & CGM almost gone
- Web products still mainly raster based (Gif, PNG, Jpeg)
- Industry support for Web and XML substantial
- WebCGM too late, not a success
- Still many vector graphics libraries (X, OpenGL, Microsoft, ...)

What is SVG?

- 2D generative web-based graphics
- Actually an implementation of XML
- like CGM/GKS but with:
 - more structure and re-use (e.g. symbols, paths)
 - better text support
 - hyperlinks
 - animation
 - built in compression
 - wider industry support than CGM

What is SVG? (2)

- Open, published, vendor neutral, standard
- W3C Recommendation V1.0: 4 Sept 2001
- V1.1: 14 Jan 2003 modularises and adds profiles:
 - ‘Full’
 - ‘Basic’ for PDA s (scripting optional)
 - ‘Tiny’ for phones (no scripting)
- V1.2 Working Draft under development since 2003:
 - Sophisticated text flow
 - sXBL (SVGs XML Binding Language): arbitrary XML -> SVG
 - Some features for ‘Tiny’

What is SVG? (3)

- Lots of tools now available:
 - Adobe plugin V3 for IE & Netscape (PC & Mac), V2 for Linux
 - Adobe plugin V6 (V1.2)
 - Native support in Firefox and Opera (plugins also)
 - XML editors
 - Graphical editors (e.g. PaintShopPro)
 - Converters (Postscript, CGM, WMF, etc.)
 - Output drivers (e.g. Photoshop)
 - Mobile phone toolkits: built-in and add-in

Why use SVG?

- Web graphics are images (GIF/JPEG/PNG)
- CGM support seems to be declining
- Cost, vendor neutrality (not Flash)
- Some browsers will have native support
- Zoom and pan
 - Searchable picture text content and metadata
 - Cut and paste text content
 - Customisation with style sheets
 - Multi-language support
 - Integrates neatly with other technologies (e.g. JavaScript)
 - Integrate with audio, video

What did we do (1)?

- Hand edited a Clear Text CGM into SVG
 - ASXX/FSXX
- Wrote Perl to do the same, tested on different CGMs :
 - SIGWX chart
 - NCAR graphic (flat structure)
 - Plotted chart
- Converted Daily Weather Report for Royal Meteorological Society
- Developed product for oil industry
 - Still converted to PNG for display
 - Can change product with style sheet

What did we do (2)?

- Aviation product demo for SITA
- Refined into a suite of potential products
 - Africa
 - Europe
 - USA
 - NATS
- Version for marine hydrographic charts

Current plans

- Re-engineer production chain
 - CGM / Perl conversion?
 - Native generation from Fortran/C/Visual Basic/Java ?
 - Develop XML data streams for XSLT processing?
- Sell to aviation industry
- Still sell niche products
- Explore marine products

Future

■ Niches:

- Phones: √√√ (e.g. Opera)
- Unix/Linux: √√ (Firefox)
- GIS √
- Mac: √? (Safari support rumoured)
- MS Win: √? Longhorn / Avalon / XAML (like SVG)
- But √ √ (Firefox, Opera)

■ SVG V1.2 sXBL: support for arbitrary XML -> SVG (Adobe Plug-in V6)

■ 4th SVG Open, Enschede, Netherlands, August 15-18, 2005

■ Now is almost too late to plan and experiment?

■ Microsoft/Adobe-Macromedia/ESRI attitudes ?

Some Issues

- Industry support?
- Simple declarative graphics vs. scripting?
- Declarative vs. Procedural programming?
- Will XSD/XSLT based processing be good enough?

¿ Questions ?

¿ Questions & Answers ?

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Thank you

Xie xie
Domo arigato
Merci
Danke
Gracias
Grazie
Obrigado
Ευχαριστώ
Mulțumesc
Koszönöm

Tak
Tack
Takk
Dank U
спасибо
Koszönöm
Kiitos
Teşekkür
Hvala
Děkuji

Way forward

- Agree Roadmap, with contingencies
- Identify quantifiable business benefits
- Some customer driven
- Simplify production chain
 - next generation workstation
 - international projects
- Explore use of COTS software to replace home grown
- Explore efficiency issues/dependencies
- Identify any technical barriers

SVG vs CGM

- ✓ Intersperse script and content
- ✓ Server or client processing
- ✓ Style sheets
- ✓ Very thin client
- ✗ Un-zoom on transform sometimes
- ✓ Plug-in support good (Adobe)
- ✓ Native browser and tools support developing (Firefox, Opera, Safari?)
- ✓ SVG similar size to Clear Text CGM
- ✓ Zipped SVG similar size to Binary CGM

SVG Tiny restrictions

- No scripting
- No filters
- No nested SVG
- No external objects
- No CSS
- No symbols
- No text on paths
- No text selection or cut and paste
- No ellipses