WebCGM
The Choice for Technical Illustrations
Presented at XML Europe 2001
Berlin, Germany
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Agenda

• Requirements - an historical perspective
  – Interchange
  – Reuse
  – Intelligent graphics

• Web delivery of vector graphics
  – WebCGM
  – SVG

• Conclusion
Requirements

Technical illustrations

• Complex line art
• Large volume of illustrations
• Long life cycle
• Frequent revisions
• Reused in different applications
Requirements - interchange

The way it was internally

Engineering Systems

Illustrating Systems

Plotting Systems

Illustrating System

Filters

Engineering Systems

Publishing Repositories

Plotters

Filters

Filters

Filters

Filters
Requirements - interchange

Internal

Proprietary Formats
Requirements - interchange

The way it is now internally

- Engineering Systems
- Illustrating Systems
- Plotting Systems
- CGM Import Filters
- CGM Export Filters
- Illustrating System
- Publishing Repositories
- Plotters
- CGM

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Requirements - interchange

The way it was (heading) externally

Application 1

Graphic Format from Supplier A

Illustrations

Application 2

Graphic Format from Supplier B

Application 3

Graphic Format from Supplier C
Requirements - interchange

External

Proprietary Formats

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Requirements - interchange

The way it is now externally

- Engine Mfrs
- Airframe Mfrs
- Component Mfrs
- Airlines

CGM connections between entities.
Requirements - reuse

Manufacturers

Editing for reuse

Authoring

Multiple models
Multiple documents

Manufacturing

Illustrating systems
Requirements - reuse

Airlines

Editing for reuse

Maintenance procedures

Equipment Mods

Revised Proc

Internal documentation

Job Cards

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Requirements
Intelligent graphics

Power Drive Unit and Components Installation
Figure 201 (Sheet 1)
Requirements
Intelligent graphics

(3 LOCATIONS)
34. WASHER
(3 LOCATIONS)

33. MAIN ALTERNATE
(EMERGENCY) DRIVE
POWER CONNECTOR

32. DRIVE
SHAFT
SEE B

28. BOLT
29. WASHER
30. CLAMP-UP BUSHING
31. NUT

27. MOUNTING
LUG
Requirements
Intelligent graphics

DRIVE SHAFT

40. SPLINE

39. SCREW
(2 LOCATIONS)

41. COUPLING SLEEVE

DRIVE UNIT
Requirements
Intelligent graphics

Trouble-Shooting
- Part Desc
- Sys Desc
- Sys ID

Illustrated Parts
- Part Desc
- Part ID
- Part Num
- Sys Desc
- Sys ID

Maintenance
- Part Desc
- Part ID
- Part Num
- Sys ID
- Wire ID
- Hook-up ID
- Sys ID

System Schematics

Elec. Spec. Data

Wiring Diagrams
Requirements

Solution

Air Transport Assn.

• ATA Spec 2200 Graphics GREXCHANGE
  – Graphics interchange with CGM V4 support
• ATA Spec 2200 Graphics IGEXCHANGE
  – Intelligent graphics interchange with CGM V4 model
Web delivery Model

Manufacturers

Airlines

Publishing

Load text objects & graphics

Information Repository

Trouble Shooting

Maintenance

Illustrations

Parts

Wiring

Web browsing

Upload changes

Download for review

Engineering

Maintenance

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Web delivery
Vector formats - WebCGM

- Based on ATA GREXANGE
  - Tailored to technical documentation
  - ATA navigation requirements
  - ATA reuse requirements
- Collaborative effort between CGM Open and W3C graphics expertise
Web delivery
WebCGM - W3C history

• 1995 - CGM became a registered mime type
• 1996 - W3C published “Scalable Graphics Requirements”
• 1997 - W3C published “Use of CGM as a Scalable Graphic Format”
• 1999 - WebCGM 1.0 approved in January
• 2001 - WebCGM 1.0 Release 2 (watch this space)
Web delivery
Vector formats - SVG

• Developed as a new effort
  • Wide range of application support
  • Integrated, dynamic, animated websites
  • XML tagset and fully stylable

• W3C sponsored collaborative activity with wide vendor participation
Web delivery
SVG - W3C history

- 1996 - W3C published “Scalable Graphics Requirements”
- 1998 - SVG committee convened
- 1999 - First draft of SVG
- 2000 - W3C candidate recommendation
- 2001 - Awaiting recommendation status
Summary

- **WebCGM**
  - Profile of established ISO Standard
  - Based on years of industry use in ATA
  - Editors/plugins/applications available

- **SVG**
  - W3C candidate recommendation
  - Newly developed technology
  - Editors/plugins/applications available

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Summary

Lets try some viewing
Technical illustrations

Review

• Complex line art
• Large volume of illustrations
• Long life cycle
• Frequent revisions
• Reused in different applications
Conclusion

WebCGM