Real-World Applications of the DOM

Presented at XML DevCon Fall 2000

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Contents

- What is the W3C DOM?
- Current Status
- DOM uses
- Some implementations
- In-depth examples

Who am I?

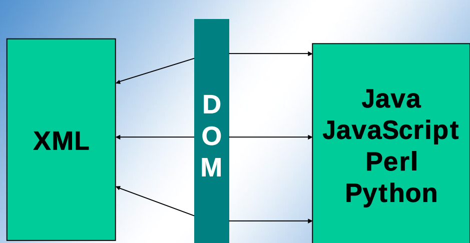
- Director of Product Technology, SoftQuad Software
- Chair, W3C DOM WG
- Co-designer of XMetaL

These slides

The final version will be available at

http://www.laurenwood.org/talks

The DOM is the Glue



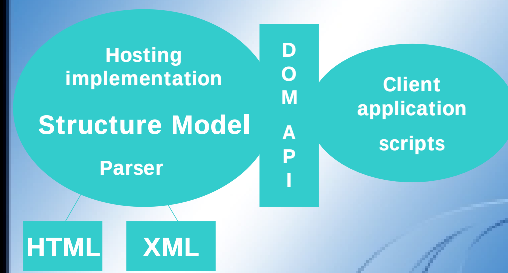
Accessing XML

- Access all the parts of an XML document
- Find the content of every element
- Find the attributes for every element
- Find the text of every entity

Access, Change, Create

- Access data
- Change data
- Create data
- Events when data modified
- Easy ways to navigate
- Flexible views

Basic Architecture



Trade-offs

- Define more = more interoperability
- Define less = easier to define correctly
- Define less = easier to implement correctly
- Define less = more flexibility in the future
- But also need to define at least the minimum that's useful

Level 1 Modules

- Core fundamental
- Core extended (XML)
- HTML (HTML 4, not XHTML)

Level 2 Modules

- Level 2 Core (Namespaces)
- Stylesheets
- CSS Styles
- Event model
- Range
- Traversal
- HTML
- See other talks here for more details

Level 3 Modules

- Content models, validation, lexical checking
- Views and formatting
- Load, save
- Events
- Core

DOM Status

- Level 1 Recommendation October 1, 1998
- Level 2 Recommendation November 13, 2000
  (not HTML)
- Level 3 first Working Drafts September 1, 2000
- Watch www-dom@w3.org and http://www.w3.org/DOM for announcements

Incorporating the DOM

- Mathematical Markup Language
  http://www.w3.org/Math
- Scalable Vector Graphics
  http://www.w3.org/Graphics/SVG
- Web3D DOM (Web3D Consortium)
  X3D (ISO/IEC 14772:200x) interface uses DOM
- Sun's Java API for XML Processing 1.1

Some Types of DOM Usage

- Dynamic XML/HTML
- Customizing
- Accessing XML
- Application Linkage
- All of the above

Dynamic XML/HTML

- Dynamic HTML
- Dynamic XML
- DOM Level 2 adds:
  - CSS
  - Events
  - Traversal
- Typical implementation: browsers

Customizing

- Customize the tool according to the use and the schema
  - Media Design In*Progress XML software for Mac
  - SoftQuad Software's XMetaL
  - Arbortext's Epic editor
  - Zveno's Swish editor (soon to be renamed)

Accessing XML

- Databases
  - Oracle's XML utilities
    - Including Level 2 Core and Traversal
  - DOM APIs for databases
  - Software AG's Tamino

Accessing XML cont.

- E-Commerce systems
  - Excelon
  - SoftQuad's MarketAgility
- Other places XML is present
  - Apache SOAP implementation
  - xmlBlaster – XML-based middleware
- Microsoft's Windows DNA and .NET

Plug-and-Play

- Apache projects
  - Xerces
  - Xalan
- Sun's SVG slide set (uses Xalan)

Application Linkage

Different Languages

DOM implementations in

- Perl
- Python
- Windows Scripting Host (several languages)
- Tcl
- Lisp
- C++ and C
- Java
- RPG, PL/SQL

Why the W3C DOM?

- Why have so many companies implemented the W3C DOM?
- Why are other APIs based on the W3C DOM?
- Why do competing APIs compare themselves to the W3C DOM?

It works!

- Language and platform-neutral
- Designed to be extended
- Designed to be used by different types of implementations
- Consensus (committee view)
- Many different companies on the WG
- Non-proprietary

Benefits for Developers

- One model to understand
- Change the syntax to match the application
- Reviewed by other W3C WGs
- Public review process
- It's been implemented a lot, in different languages

More Links

- Robin Cover's DOM pages
  http://www.oasis-open.org/cover/dom.html
- Open Directory Project
  http://dmoz.org/Computers/Programming/Internet/W3C_DOM/
- W3C DOM pages
  http://www.w3.org/DOM

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