

# XML3D

## 3D Technology for the Web

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# Browser Evolution



NCSA Mosaic, 1993

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NCSA Mosaic, 1993



Google Chrome, 2011

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NCSA Mosaic, 1993



Google Chrome, 2011

**Browser is not just hypertext anymore,  
it's a platform for web-applications**

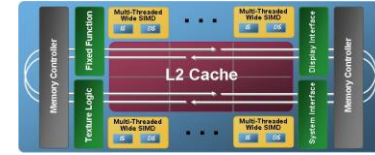
# 3D Internet



WIKIPEDIA  
*The Free Encyclopedia*



# 3D Internet



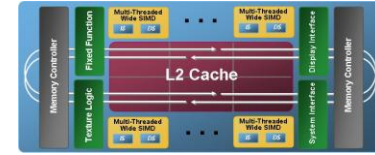
Intel Larrabee



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Intel Larrabee



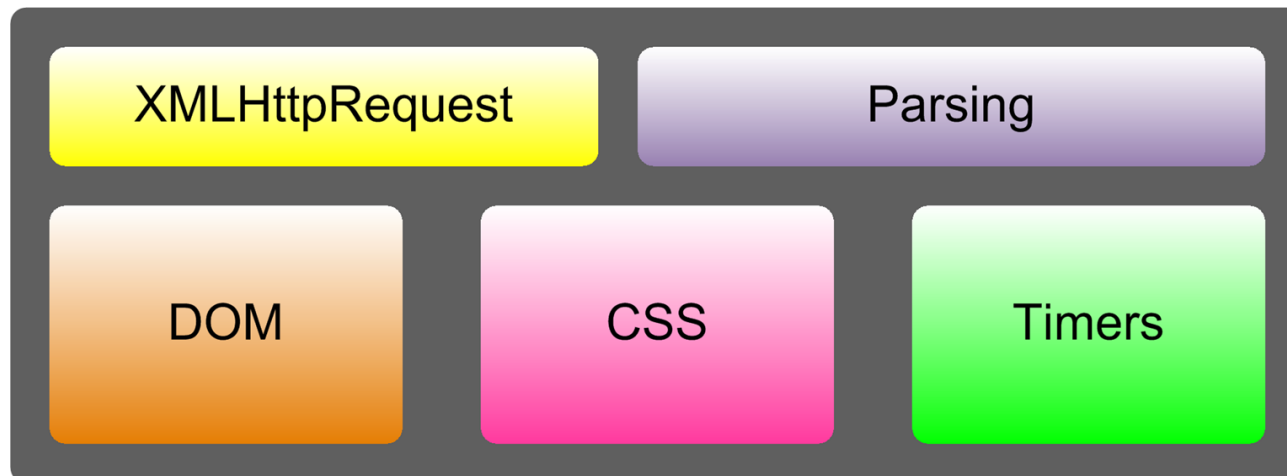
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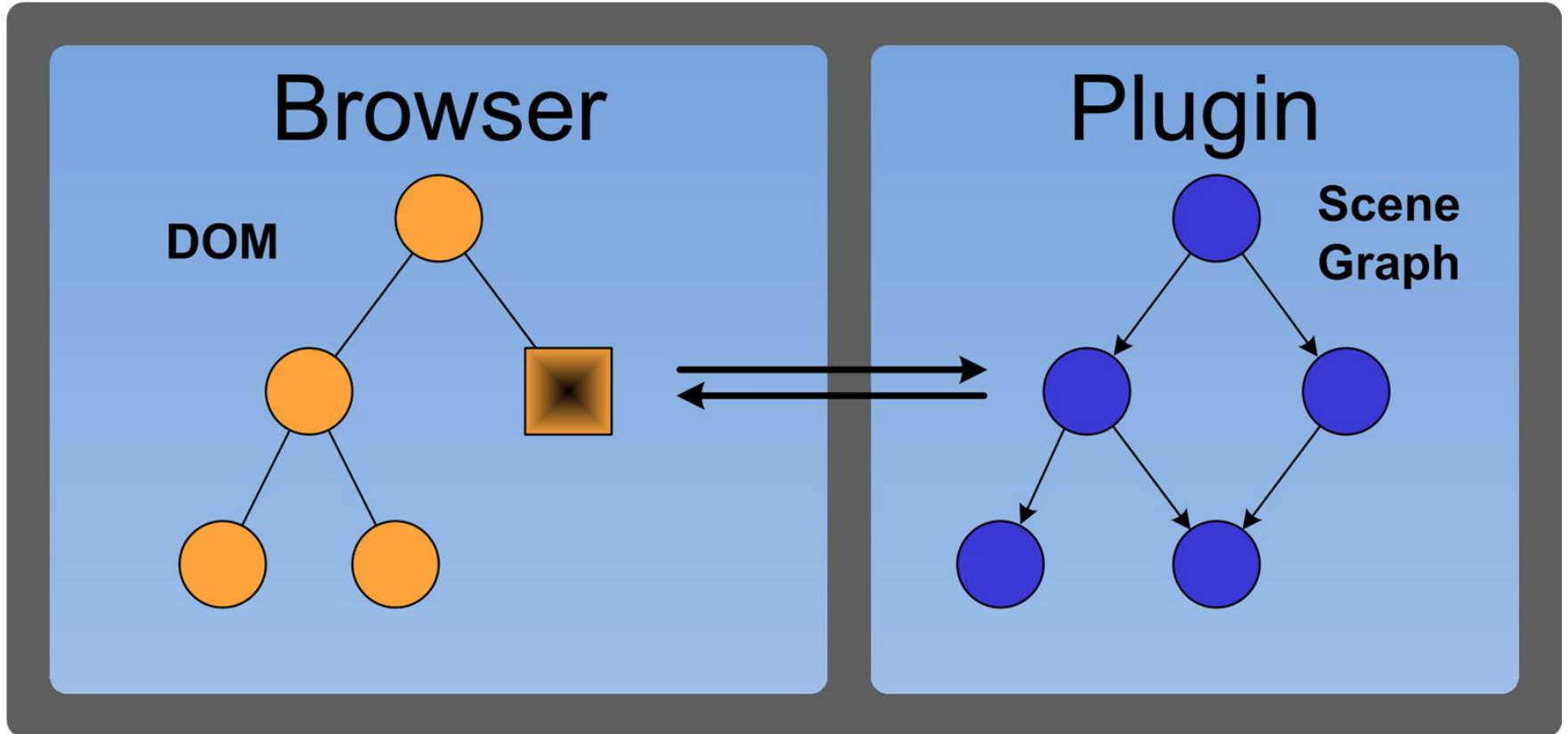
**But there is hardly any 3D content on the Internet!**

# Architecture Based on Components

- Almost all of the web-applications are using SOA or other component-based architecture
- Developer is presented with a set of *components* in the browser and *combines them using JavaScript* into an application

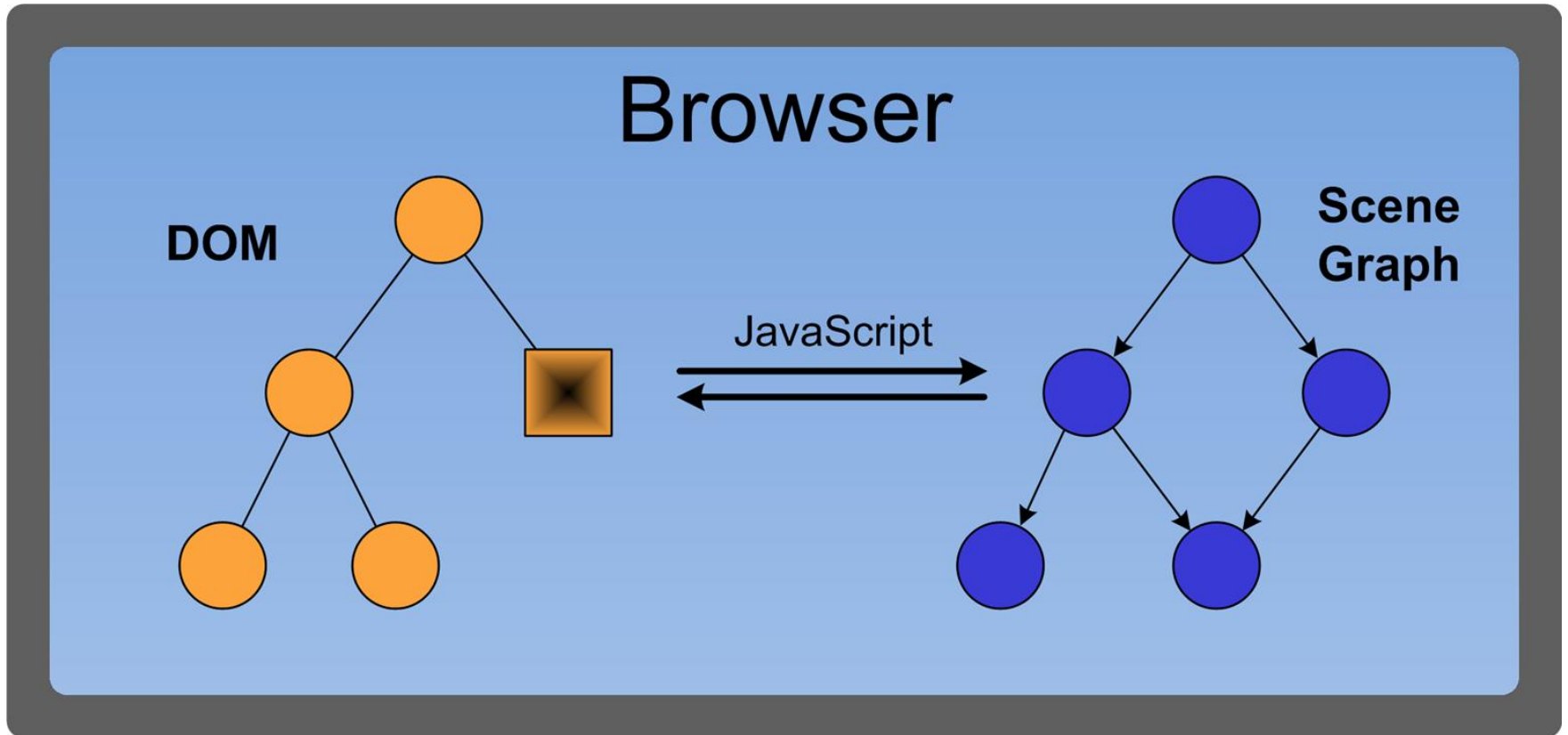


# 3D Internet Component



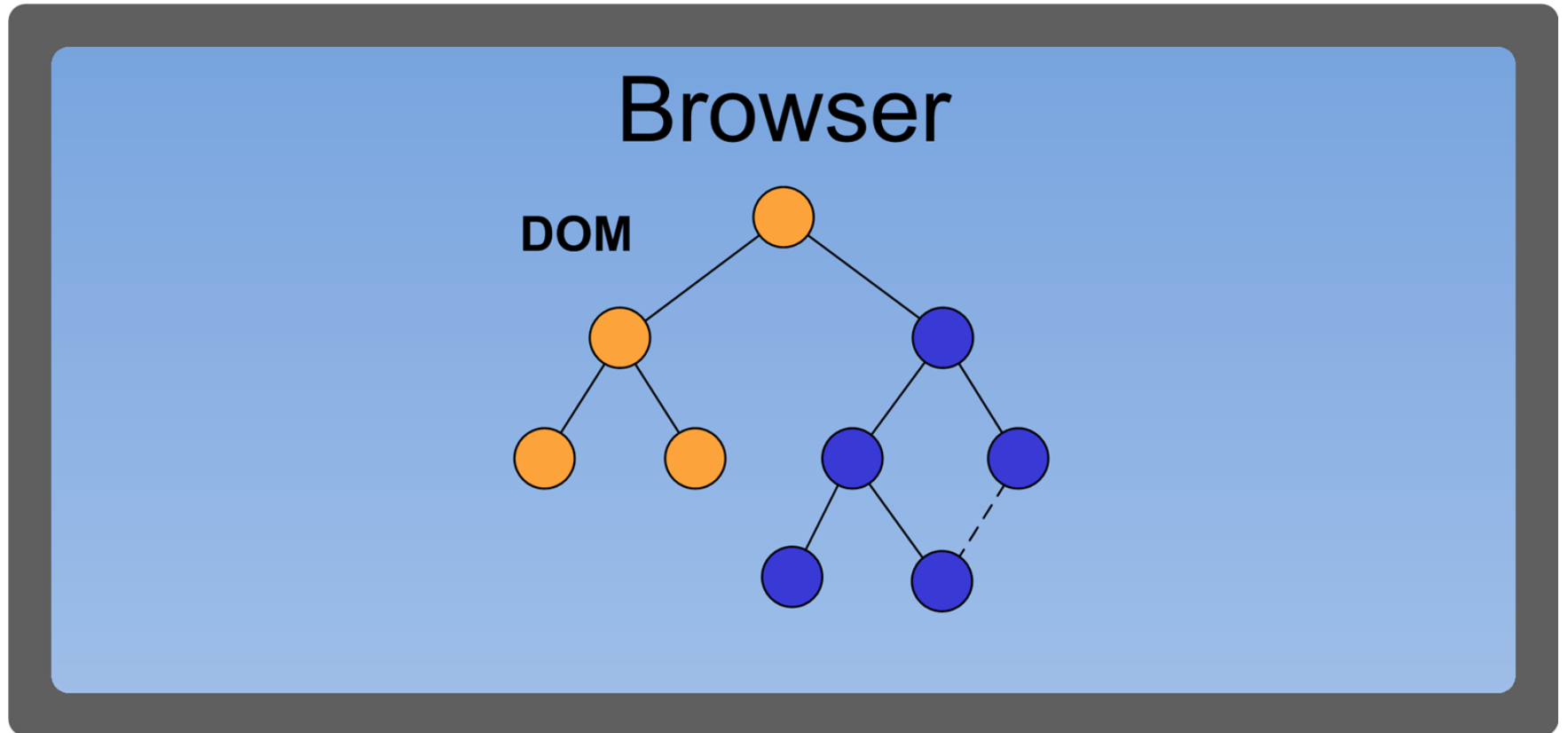
Adobe Flash, VRML, X3D

# 3D Internet Component



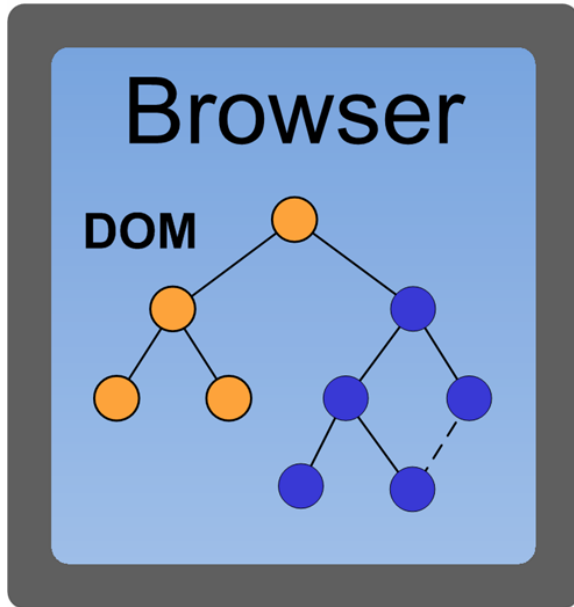
Google O3D, GLGE

# 3D Internet Component



**XML3D, X3DOM**

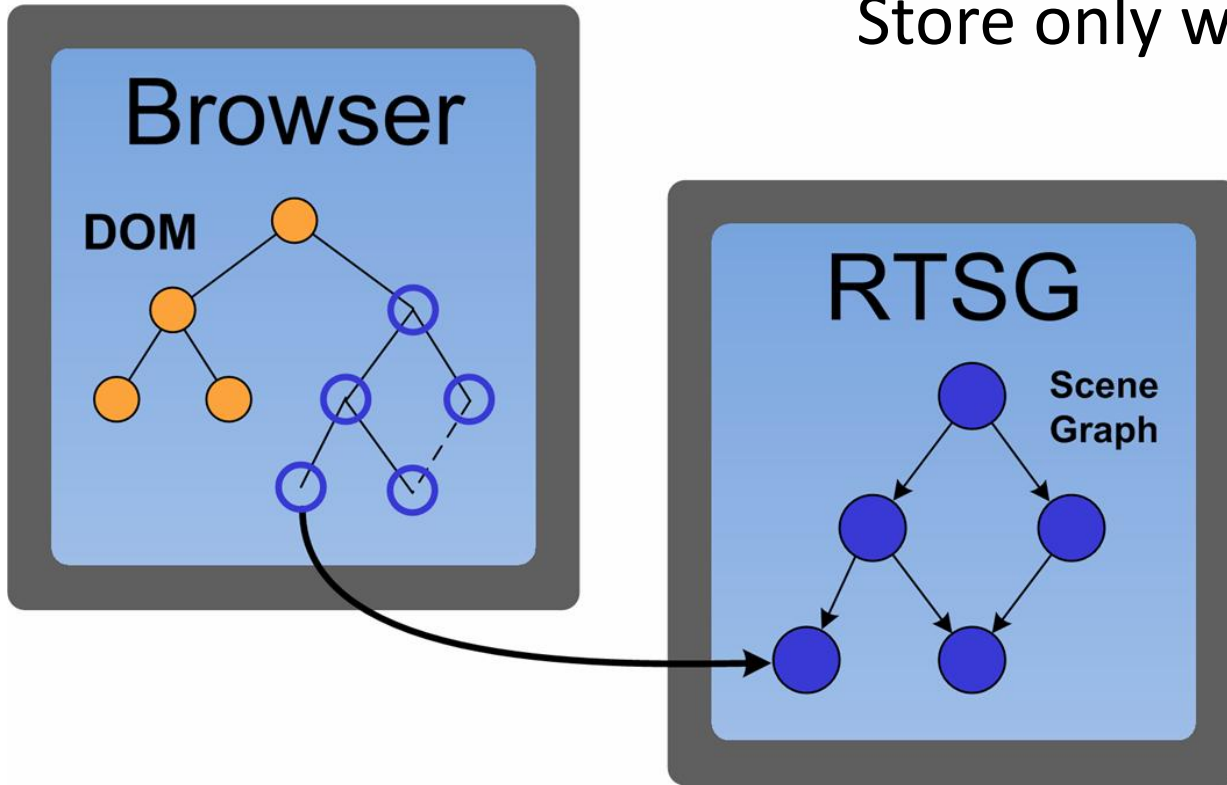
# Large 3D Scenes and DOM



XML3D, X3DOM

# Large 3D Scenes and DOM

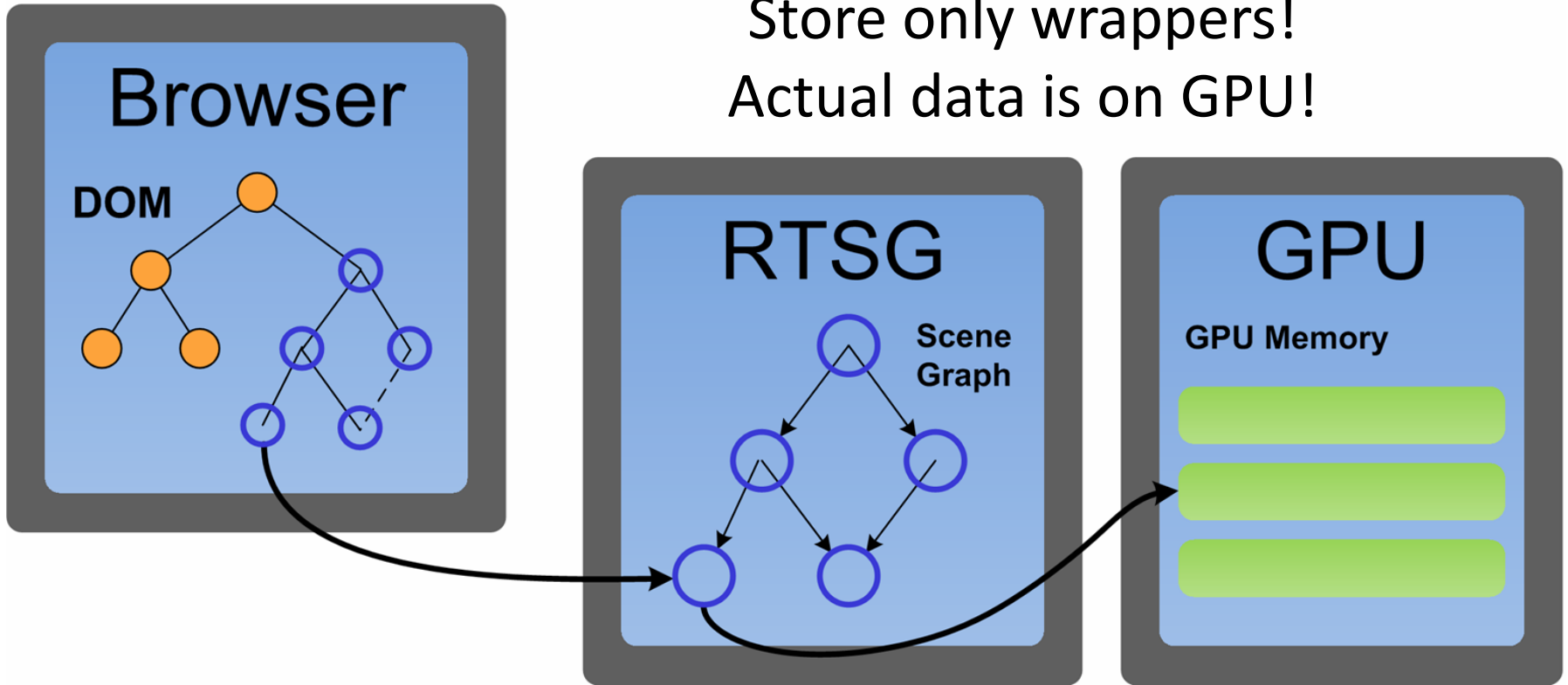
Store only wrappers!



**XML3D, X3DOM**

# Large 3D Scenes and DOM

Store only wrappers!  
Actual data is on GPU!



(IndexedFaceSet)

**XML3D, ~~X3DOM~~**

# XML3D – Design and Principles

- Easy-to-use
  - Designed with Web-developers in mind
- Hardware-friendly
  - Data structures are compatible with GPU
- Describes run-time environment
  - Interactivity in application (animations, events)
- Open to use and extend

# XML3D – Design and Principles

- Simple application development without compiling
- Integration with Web technologies
  - Ajax
  - DOM Events
  - JavaScript libraries
    - e.g. jQuery
- Reference by id

```
$("#sphere").addEventListener(  
  "mouseover",  
  function (e) {  
    e.target.shader = $("#glowShader");  
  }  
);
```

```
<html>  
  ...  
  <xml3d xmlns="...">  
    <div>...</div>  
  </xml3d>  
  ...  
</html>
```

```
<xml3d>  
  <shader id="redMetal">  
    ...  
  </shader>  
  
  <mesh id="Teapot42">  
    ...  
  </mesh>  
  
  <group shader="#redMetal">  
    <use href="#Teapot42"/>  
  </group>  
</xml3d>
```

# DEMO

How can this be useful?

Thank you  
Questions?