WebGL 1.0

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What is WebGL?

- **WebGL brings 3D to the Web**
  - 3D is a First Class Member of the Modern Web
  - Supported in Modern Web Browsers

- **Familiar OpenGL ES API**
  - Already used by developers

- **Integrated into Web**
WebGL is HTML

• 3D is not trapped in a rectangular window
  - 3D can overlay and underlay HTML content
  - Easy to make HUDs or user interfaces

• WebGL has strong ties with HTML5
  - Integrate WebGL with HTML5 <video>
  - Use canvas as a texture
  - Advanced transforms and special effects

• No Plugin Required!
Modern Web Browser

- HTML content generated by layout engine 'on page'
- CSS Layout and Transforms
- Off-screen content Composition
- <video>
- <canvas>
- JavaScript
WebGL is OpenGL

- WebGL based on OpenGL ES 2.0
  - Strong market penetration and device support

- Not a new 3D standard
  - Leverages all developer knowledge from mobile and desktop 3D app development

- Fast Learning Curve
WebGL Implementations

Content downloaded from the Web
Middleware can make WebGL accessible to
non-expert 3D programmers

Browser provides WebGL functionality
alongside other HTML5 specs
- no plug-in required

OS Provided Drivers. WebGL on
Windows can use Google Angle to create
conformant OpenGL ES 2.0 over DX9
WebGL Timeline

- **Provisional WebGL Available Since Early 2010**
  - Significant web community engagement during creation of specification
  - Desktop: Firefox 4.0 Beta, Chrome 9 Stable Channel, Mac OS Safari nightly builds
  - Mobile: Firefox 4.0 Beta, Chrome OS

- **Extensive WebGL Middleware already available**
  - GLGE, SpiderGL, X3DOM, EnergizeGL, SceneJS, O3D, CopperLicht, CubicVR, ...

- **Many demos and apps in progress**
WebGL 1.0

- WebGL 1.0 Specification is available today
  - Available freely from khronos.org

- Conformance Program & Test Suite
  - Focus on interoperability

- Ecosystem
  - webgl.org
Demos
Upcoming Speakers

- Kathleen Maher, Jon Peddie Research
- Ken Russell, Google – WebGL in Chrome
- Tim Johansson, Opera – WebGL in Opera
- Mark Callow, HI – Attractions of WebGL
- David Ligon, Qualcomm – Mobile WebGL
- Vangelis Kokkevis, Google – Google Body Browser
- Neil Trevett, NVIDIA – Khronos Ecosystem