WebGL BOF - SIGGRAPH 2014

Shape Resource Container
Progressive mesh/texture transmission

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Motivation

• Container for Dec3D/X3DOM
  – Large Model
  – Progressive Data

http://x3dom.org
Recap: POP Buffer

Pacific graphics 2013 paper, http://x3dom.org/pop
Recap: POP Buffer

• Open points:
  – No (binary) streaming XHR → separate files
  – Data described in declarative layer (X3DOM), actual buffers from external binary files (cp. gltF)
  – Format not self-contained, bound to X3DOM

Pacific graphics 2013 paper, http://x3dom.org/pop
The SRC Format

• SRC = Shape Resource Container

• Self-contained/single-resource: header + multiple binary chunks
Streaming

• Chunks enable **interleaved** transmission ...
  – ... of mesh data (e.g., vertex data and indices)
  – ... of **mesh and texture data**
# Features

<table>
<thead>
<tr>
<th>Feature</th>
<th>gltF</th>
<th>X3DOM Con.</th>
<th>SRC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct / zero copy GPU Upload</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Progressive</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
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<tr>
<td>Multiple meshes per container</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
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<tr>
<td>Self-contained</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Compression</td>
<td>Yes</td>
<td>Quantization</td>
<td>Quantization</td>
</tr>
<tr>
<td>GPU-friendly Texture Encoding</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
</tbody>
</table>
http://x3dom.org/src

- Web3D 2014 paper + supplemental material
- Basic AOPT commands to try out
- Basic C++ writer source code
  - Will move to github after siggraph
- js reader: X3DOM code
Open Points & Demo

• XHR: Binary streaming capability missing

• WebGL 2.0: (Occlusion culling)