

WebGL BOF - SIGGRAPH 2014

Shape Resource Container

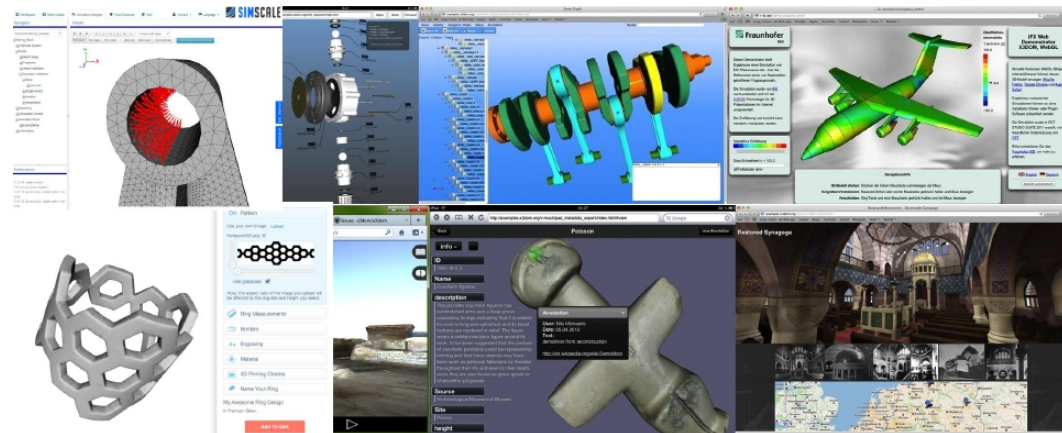
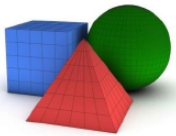
Progressive mesh/texture transmission

Johannes Behr, Max Limper, Christian Stein

Fraunhofer IGD

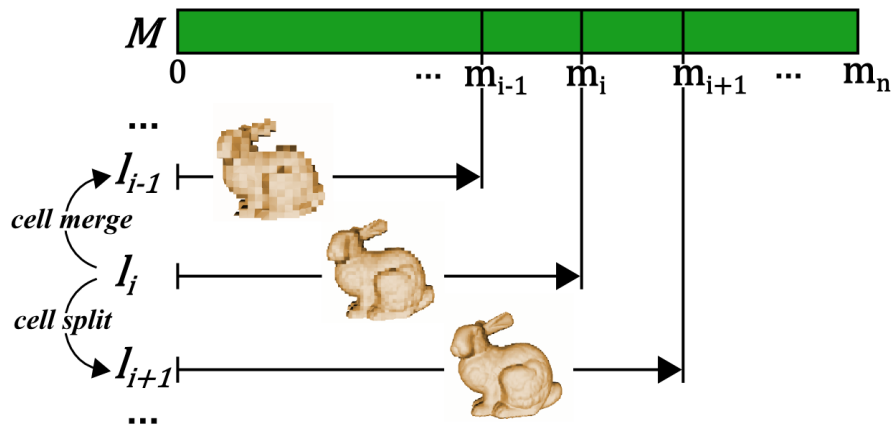
Motivation

- 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

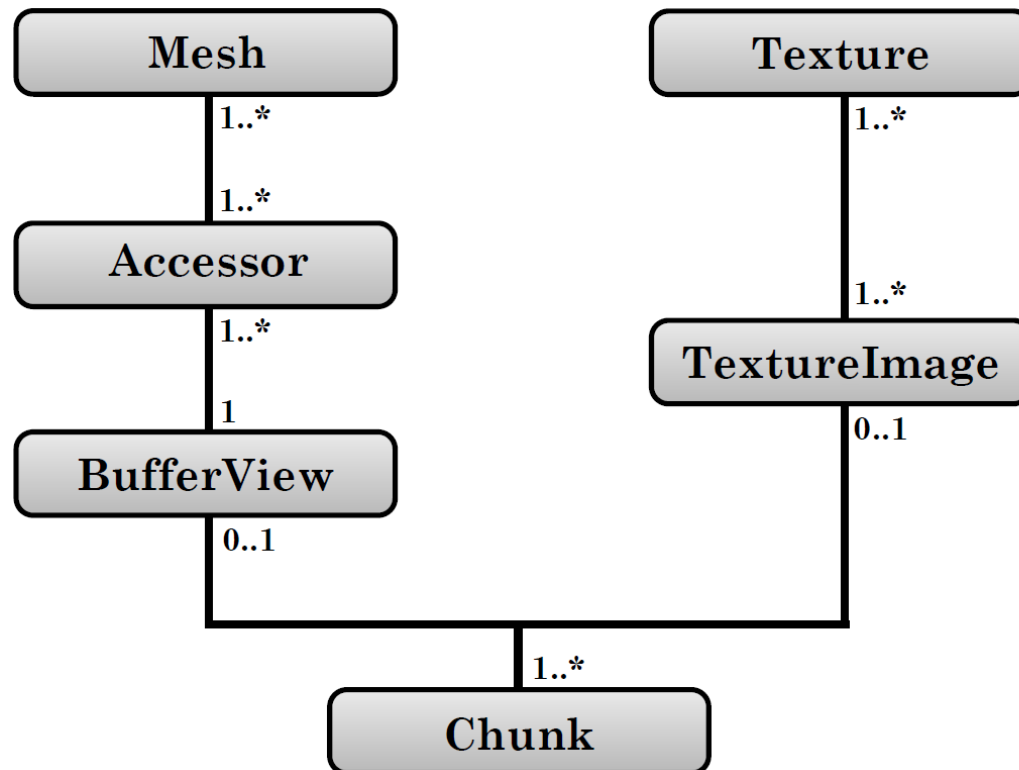
- Open points:
 - **No (binary) streaming XHR** → separate files
 - Data **described in declarative layer** (X3DOM),
actual buffers from external binary files (cp. glTF)
 - Format **not self-contained**, bound to X3DOM

Pacific graphics 2013 paper, <http://x3dom.org/pop>

The SRC Format

- **SRC = Shape Resource Container**
- Self-contained/single-resource:
header + multiple binary chunks

Structure



Streaming

- Chunks enable **interleaved** transmission ...
 - ... of mesh data (e.g., vertex data and indices)
 - ... of **mesh and texture data**



Features

Feature	glTF	X3DOM Con.	SRC
Direct / zero copy GPU Upload	Yes	Yes	Yes
Progressive	No	Yes	Yes
Multiple meshes per container	Yes	No	Yes
Self-contained	No	No	Yes
Compression	Yes	Quantization	Quantization
GPU-friendly Texture Encoding	No	No	Yes

<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)

