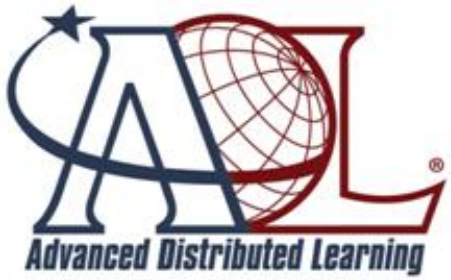


The Power of Global Collaboration

Defense | Government | Industry | Academia

3D Repository Overview and Update

Austin Montoya

I/ITSEC 2011

The Problem

EDGE

SECOND LIFE

MOSES

unity

DELTA3D

OpenSimulator

Commercial Platforms

- Turbosquid
  - Input: Heterogeneous forms of content (.zip)
  - Output: Zip file containing author-defined content

Google 3D warehouse

- Google 3D warehouse
  - Input: Homogeneous forms of content (.kmz)
  - Output: COLLADA (.dae) or .skp

OurBricks

- OurBricks
  - Input: COLLADA (.dae), .obj, .fbx, .dxf, .kmz
  - Output: WebGL View or COLLADA (.dae)

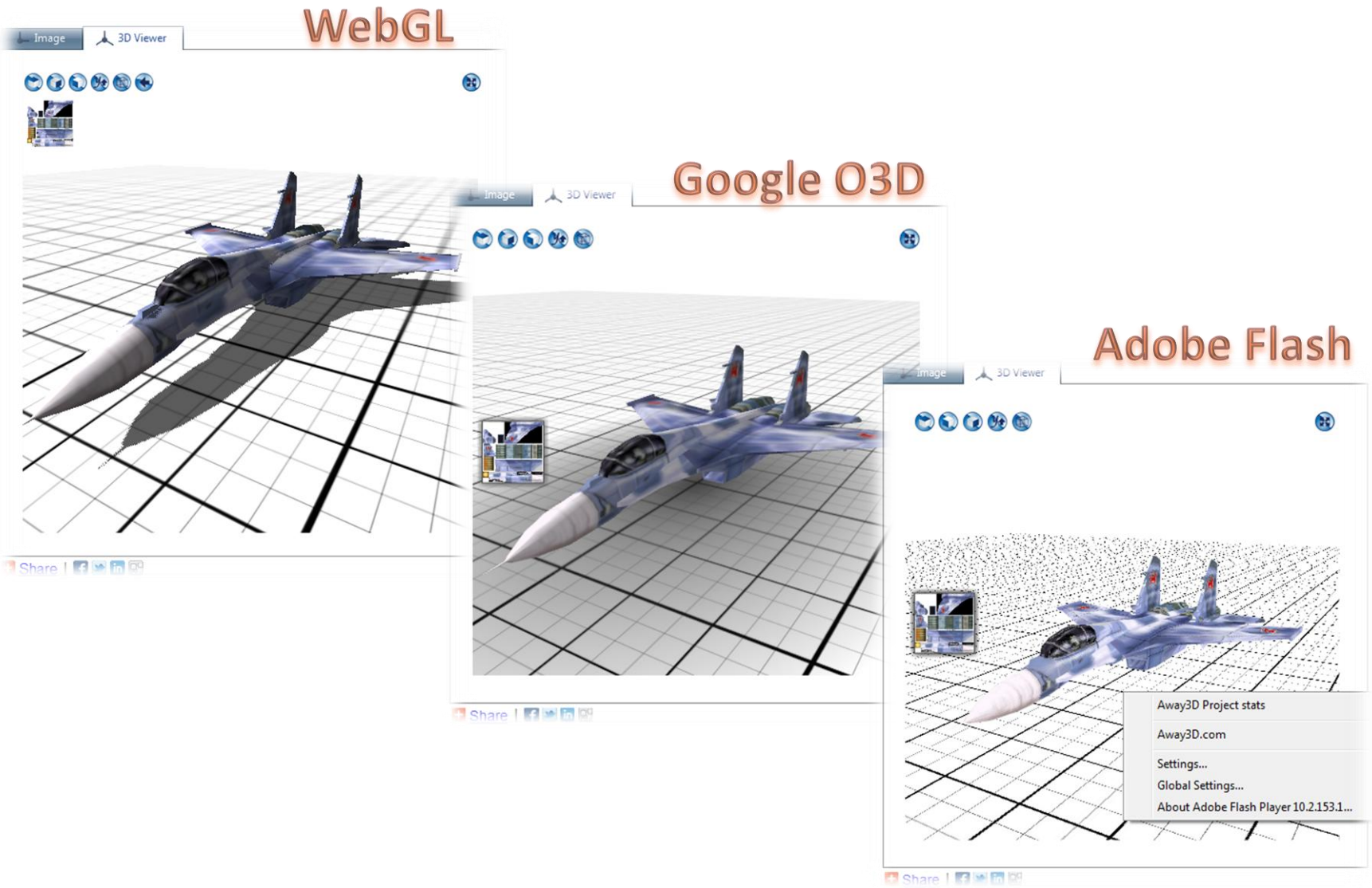
Solution Requirements

- Distributed Approach
- Easy Access
- Open Source
- Federated
- Usability
- Easy upload, search, and download
- Value-added services
  - Automatically generate metadata
  - Web browser 3D previews
  - Conversion services (COLLADA)
- API

3DR Features

- Social media features
  - Ratings and reviews
- Upload and download
- Upload and download in a variety of formats
- Automatic parsing of content for metadata
- Real-time previews
  - Using several technologies for browser support

Real Time 3D Viewers



Model Conversion and Conditioning

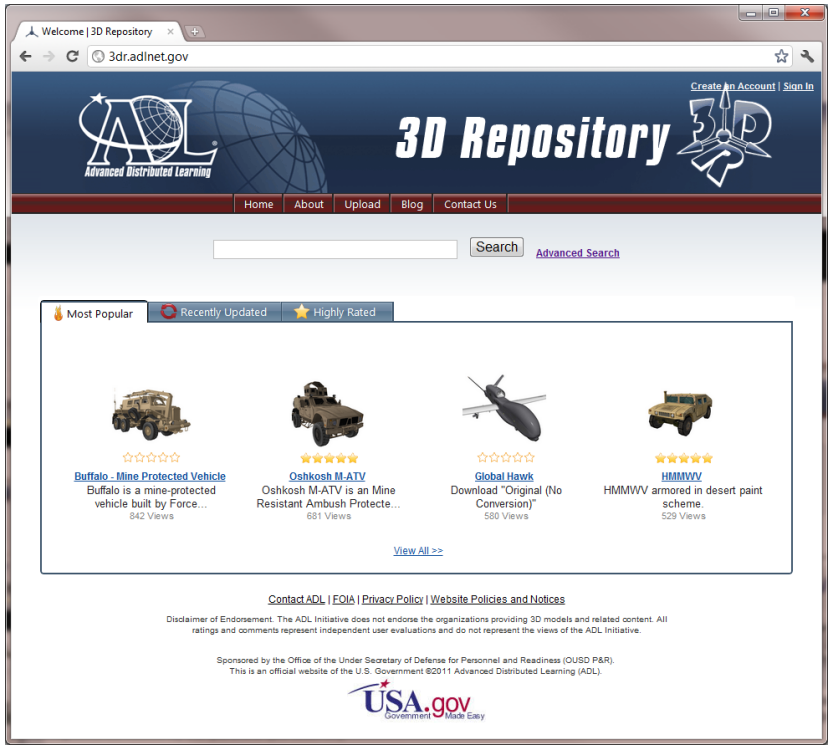
- Conversion to Collada on upload
- Models are split up into triangles
- Textures are formatted in PNG, scaled to 512x512
- Hierarchy is flattened
- 3D texture coordinates flattened to 2D
- Models available for download as FBX, DAE, OBJ, 3DS or JSON

3D Services API

- Allows machine-to-machine negotiation of content
  - Search
  - Download
  - Query Metadata
- Write software that leverages the 3DR
- Allows federation
- RESTful design

Prototype Usage Statistics

- Over 70 countries visited
- 3D models uploaded: 255
- Registered Users: 326
- Model Views: 27,000+
- Model Downloads: 2200+

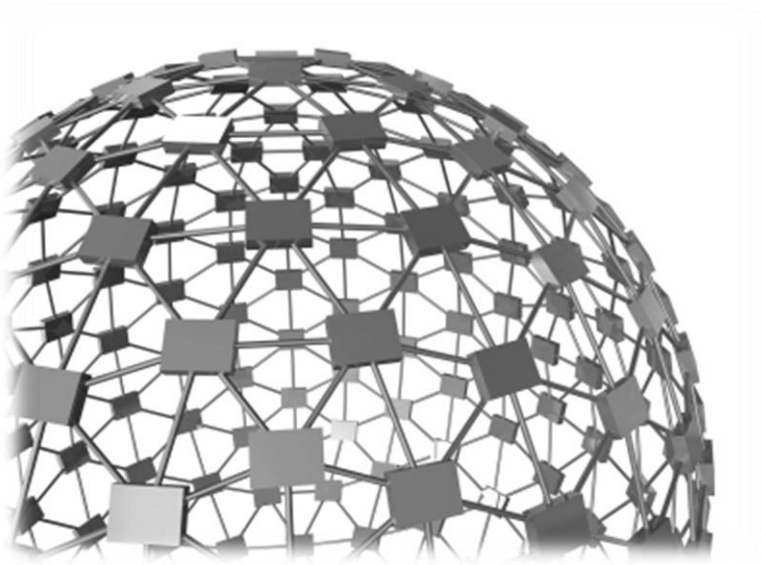


http://3dr.adlnet.gov

3D Models Uploaded

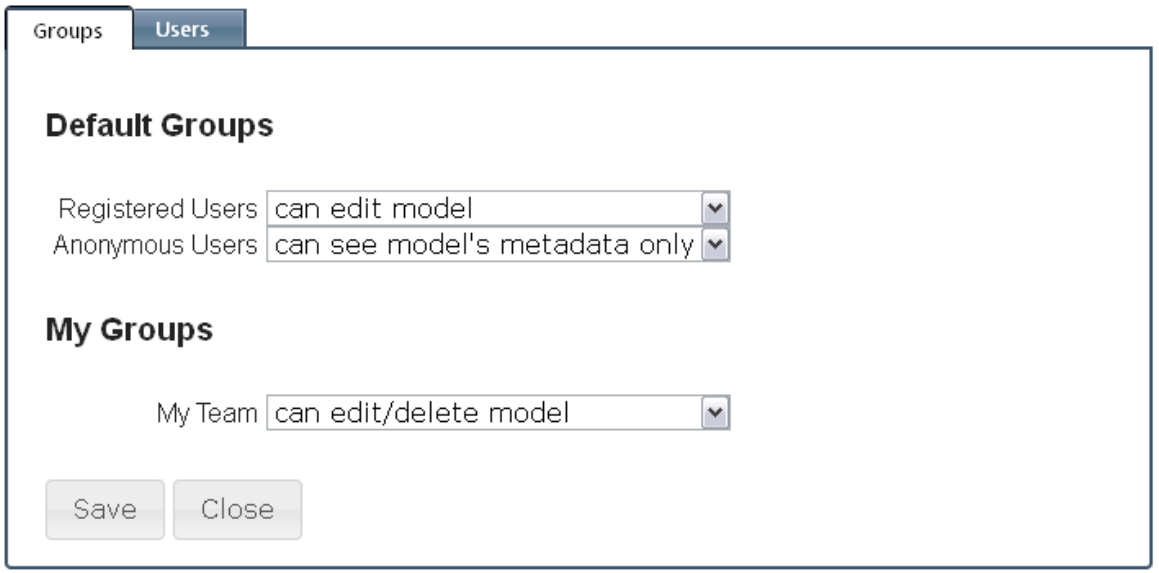
Federation

- Distributed search
- Forwards content requests to federates
- Search and share in one place, but host your own data
- Allow users to see, but not access content



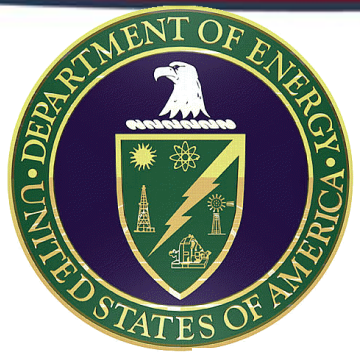
Access Control (Permissions)

- Similar to Google+ “Circles”
- Done on a per-model basis
  - Permissions range from invisible to fully editable
- May set permissions on users individually
- Groups allow permissions to be set for multiple users at once



Partners

U.S. ARMY SIMULATION & TRAINING TECHNOLOGY CENTER
FT. PAUL SMITH


DEPARTMENT OF ENERGY
UNITED STATES OF AMERICA

PROJECT MANAGER
CONSTRUCTIVE SIM

EDGE

DAU

DELTA 3D

ADL
Canada
Partnership Lab

Sandia
National
Laboratories

ENGINEERING & COMPUTER
SIMULATIONS
ECS
DELIVERING INNOVATIVE RESULTS

TECH WIZARDS

vastpark

REACTOR
ZERO

Future Role

- ADL Best Practices Guide
  - Contracting
  - Licensing
  - Release
- ADL's new role
  - R&D vs. sustainment
  - Transition open source software
  - Demand-driven
  - Federation

Future Work

- Permissions
  - Fine-grained control over access to models
- Expanded API
  - Upload as well as download
- Additional Format Support
  - Expand supported file formats
  - Expand supported features for Collada

Questions?

Thank you!

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