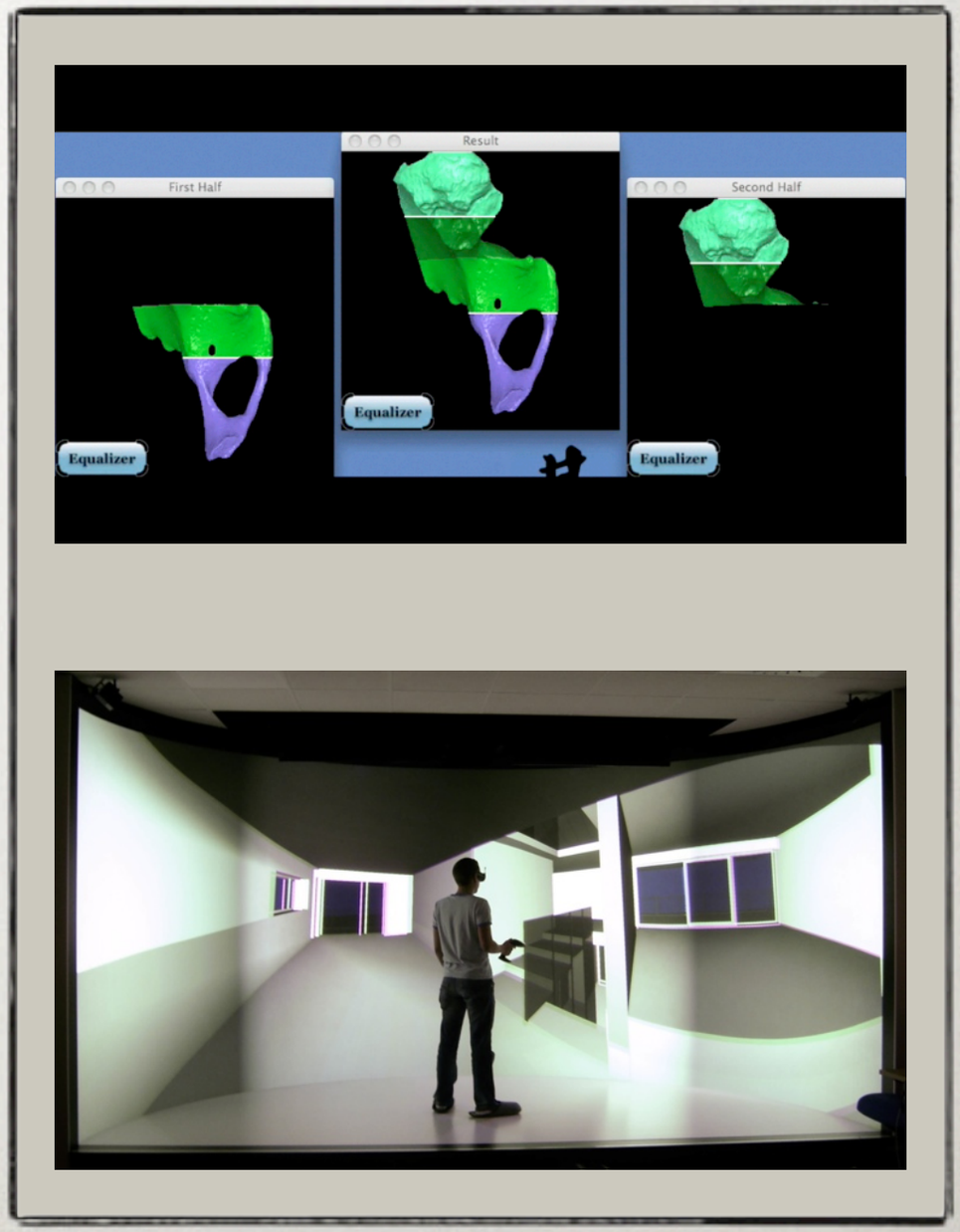
Equalizer BOF

Equalizer: Past, Present and Future

Virtual Architecture with Equalizer and OpenSceneGraph

Performance Optimizations for Image Compositing

Open Discussion, Q&A



Equalizer: Past, Present, Future

Eurographics'09 Birds of a Feather

Stefan Eilemann, Eyescale Software GmbH

Past

Past

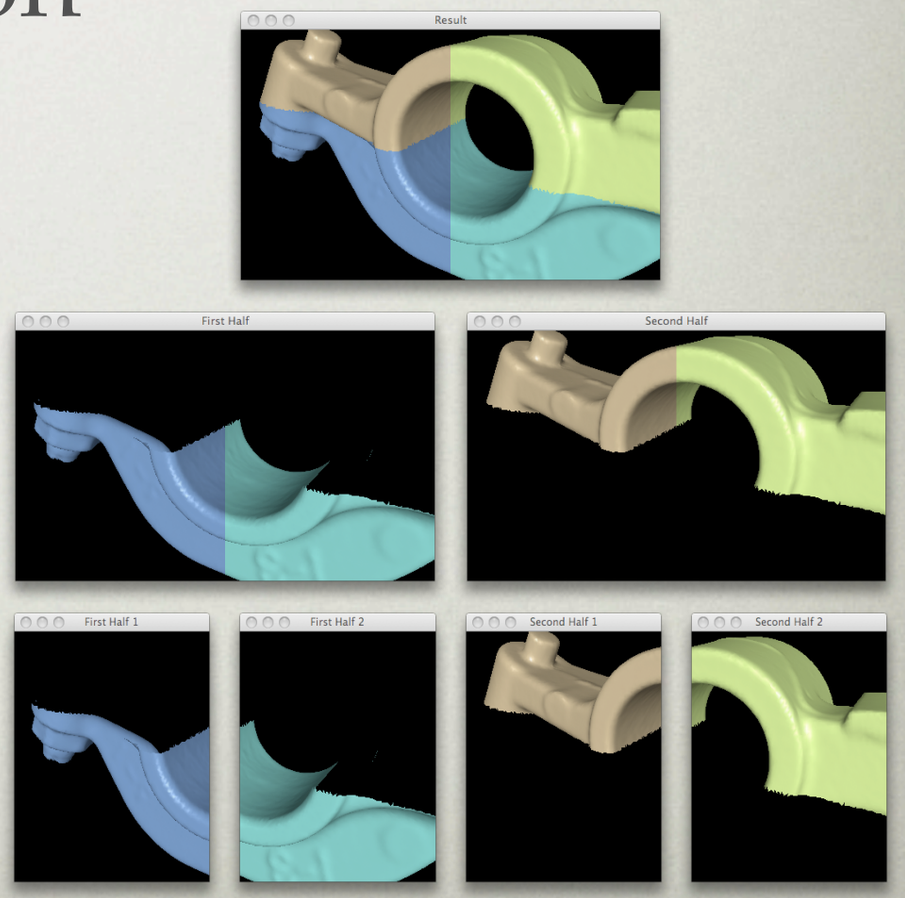
- 199?: Cavelib
- 2000: SGI OpenGL Multipipe SDK
- 2005: Project Equalizer
- 2006: 0.1, 0.2 Multi-View, Scalability
- 2007: 0.3, 0.4 Windows, eVolve
- 2008: 0.5, 0.6 Load-balancing, PBuffers

Present

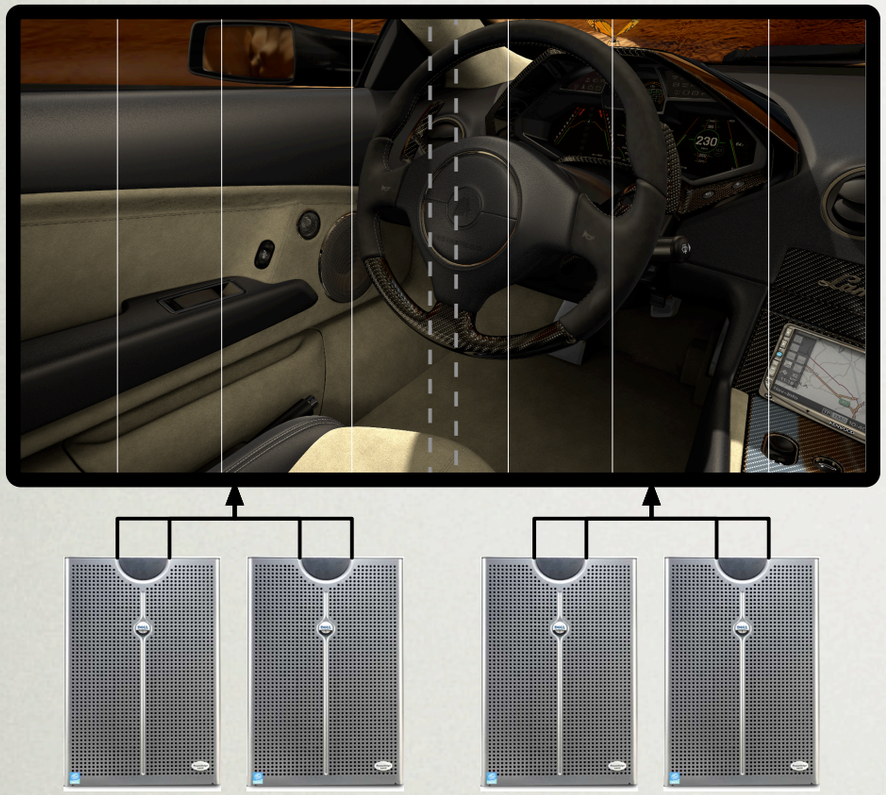
- Flexibility, Scalability
- Minimally Invasive
- Distributed Object API
- Comprehensive Documentation
- Active Community
- Open and Independent

Present

- Multi-Display and Immersive
- 2D, DB, Stereo, DPlex, Pixel compounds
- Dynamic Frame Resolution
- Parallel Compositing
- Mix-and-match features



Selected Use Cases



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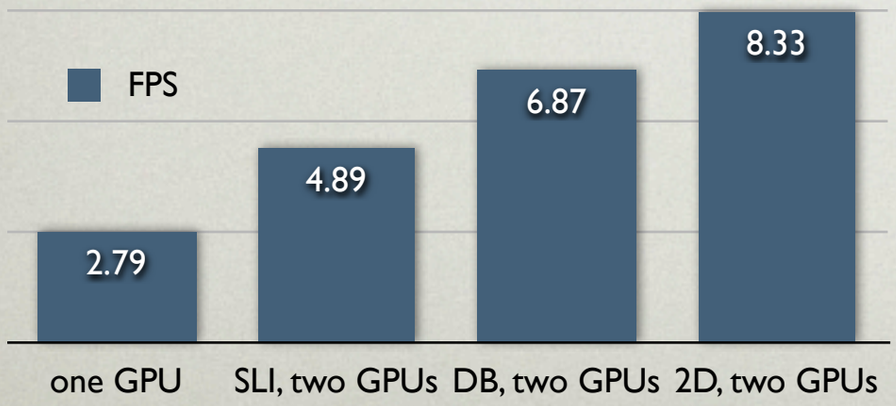
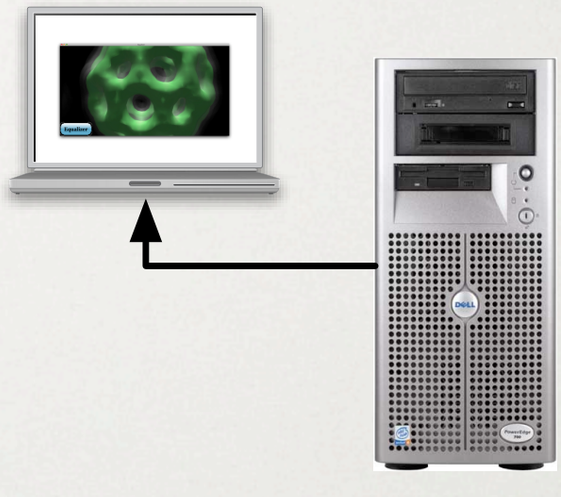
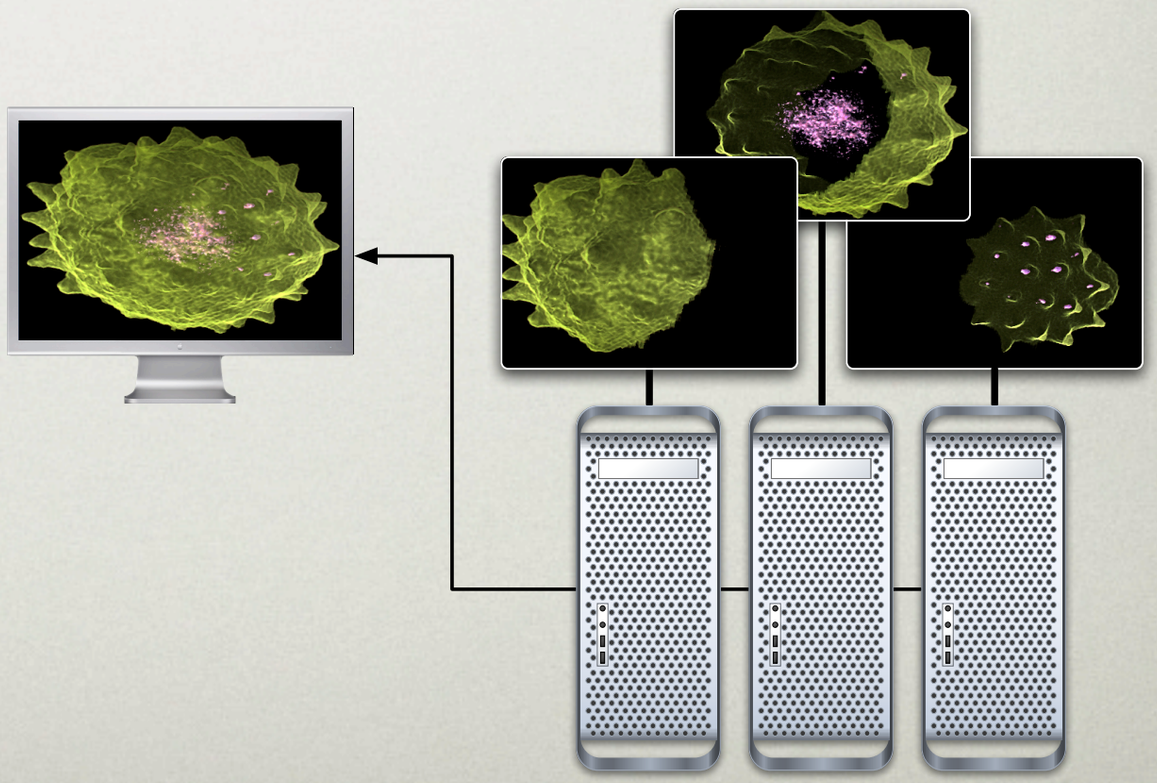


HP xw9300, Quadro FX 4500x2, eqPly, 12.6M triangles

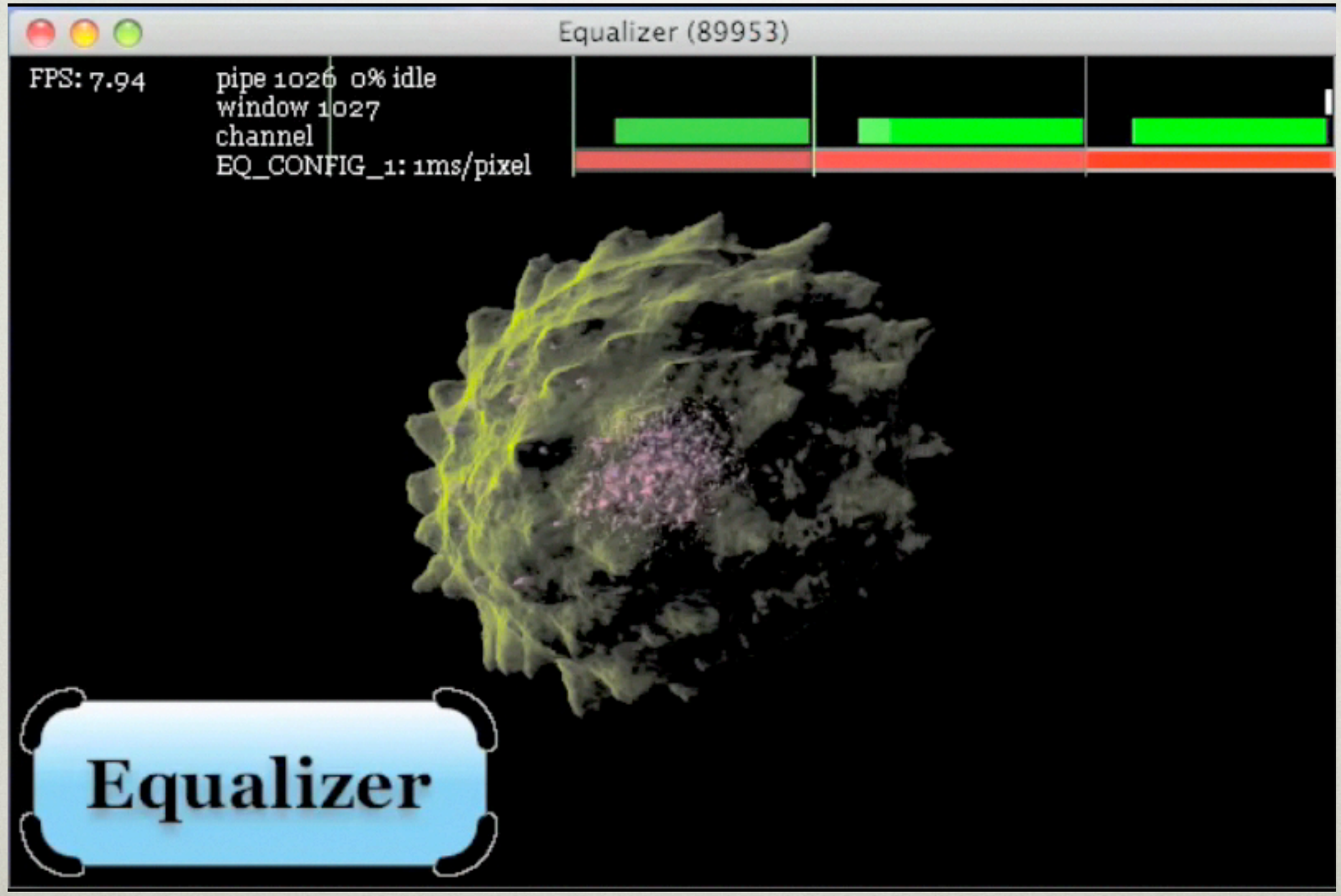




Dynamic Frame Resolution

- Trade quality (resolution) for performance (framerate)
- Fill-rate bound applications: Volume rendering, raytracing, Shaders
- Combinable with scalable rendering

Dynamic Frame Resolution



Sort-last Compositing

- serial, binary-swap, direct-send, streaming, ...
- Example: Stream Compositing
  - Mode ‘3D’ in MPK: n frames latency
  - New configuration file in Equalizer
  - 1-2 frames latency to hide compositing pipeline

DB Stream Compositing

Near Future

- Image Compression + Plug-In API
- Modularization: Network API
- Multi-Display Load-balancing
- OpenSceneGraph Integration
- Compositing Optimizations

Future

- Visualization Server
  - Multi-application
  - Remote Rendering (WAN/MAN)
- Data Processing and GPGPU
- Failure Tolerance

Final Words

- LGPL license: commercial use welcome
- Open standard for scalable graphics
- Minimally invasive: easy porting
- Clusters and shared memory systems
- Linux, Windows, Mac OS X
- More on: www.equalizergraphics.com