Remote Visualization on the Access Grid

A Year Later

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Retreat 2002

Last Year

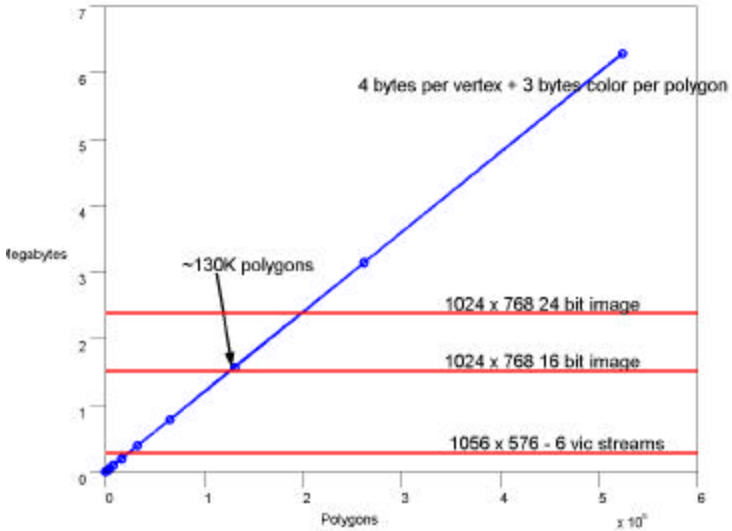
Is visualization needed?

- Collaboration is:
  - More than just talking and looking at slides …
  - Exchanging ideas
  - Asking questions
- What is available?
  - AGAVE – Electronic Visualization Laboratory
  - vtk/vic – Argonne National Laboratory
  - Flatland - University of New Mexico
  - Chromium-vic – Argonne National Laboratory

Last Year

Issues and Requirements

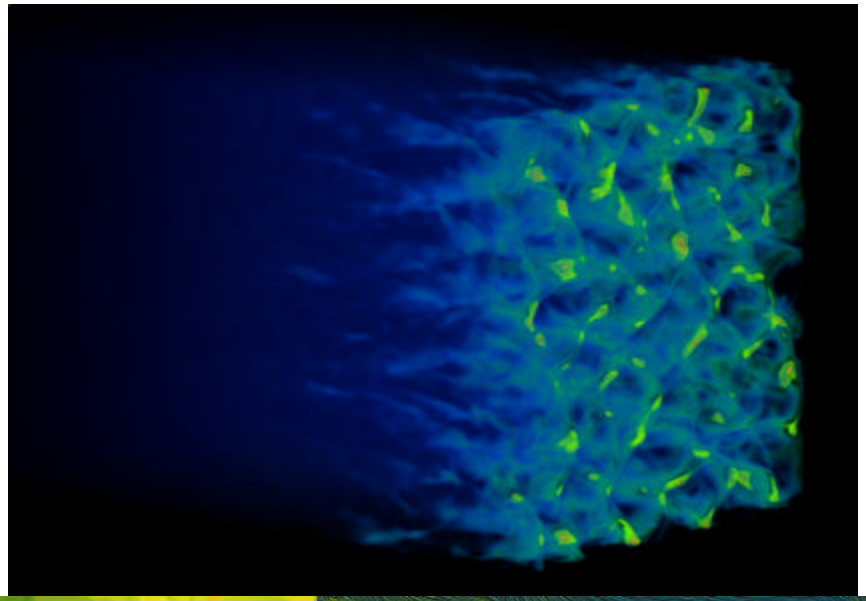
- Issues
  - Pixels versus polygons?
  - Compute /Graphics power
  - Bandwidth / Latency
  - Interaction
- Requirements
  - Portable
  - Lightweight
  - Interactive
  - Multiuser

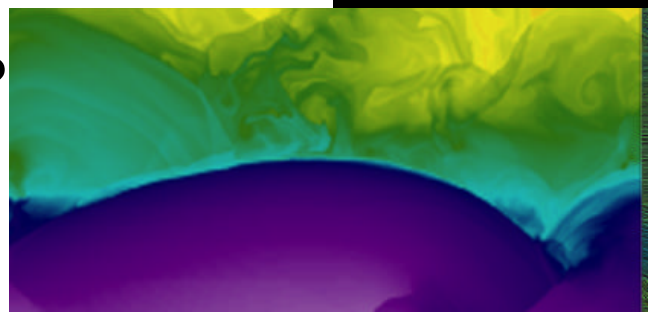


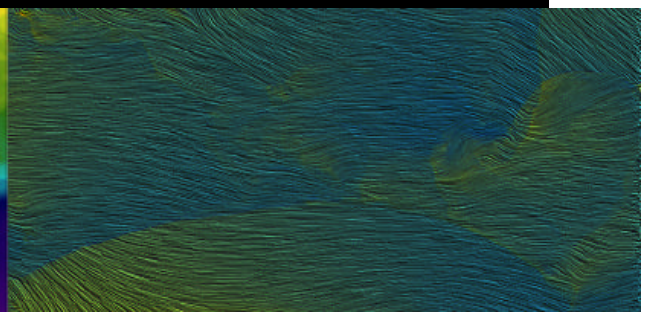
Last Year

What we need to do?

- We need get visual content to users
- We need to do this in
  - Adaptable manner ?
    - High Fidelity, low latency
  - Reliable ?
  - Recordable ?

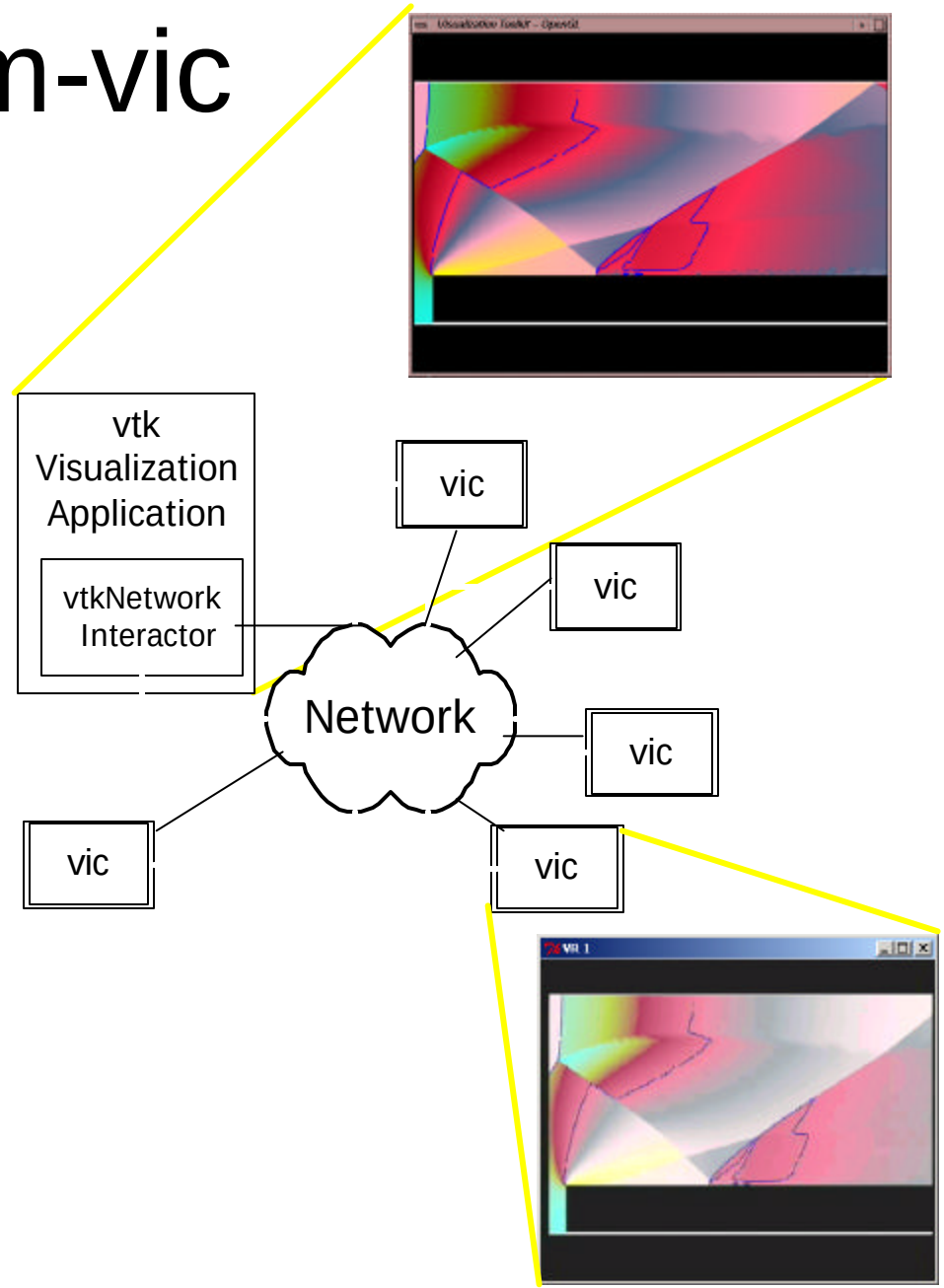






Chromium-vic

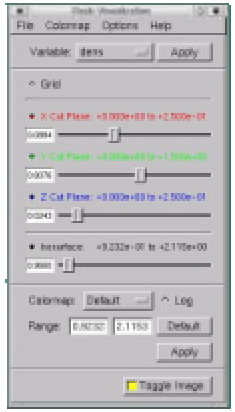
- Lessons learned from vtk/vic
- Chromium (sourceforge.net/projects/chromium/)
  - Transparent to most OpenGL applications
  - Sort-first rendering
  - Custom applications (Sort first, sort last, parallel constructs)
- vic – same old vic

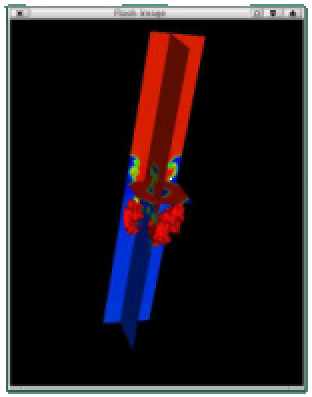


Chromium-vic

OpenGL Application

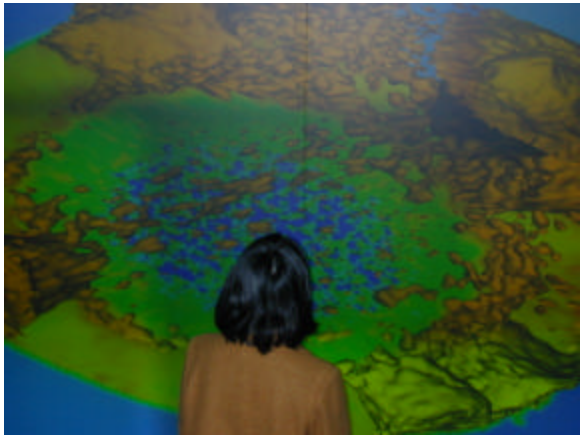
OpenGL Library

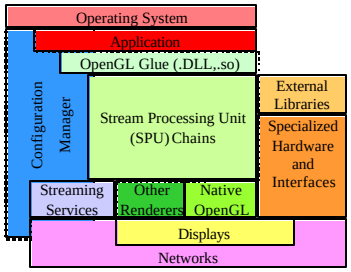




OpenGL Application

Chromium Library



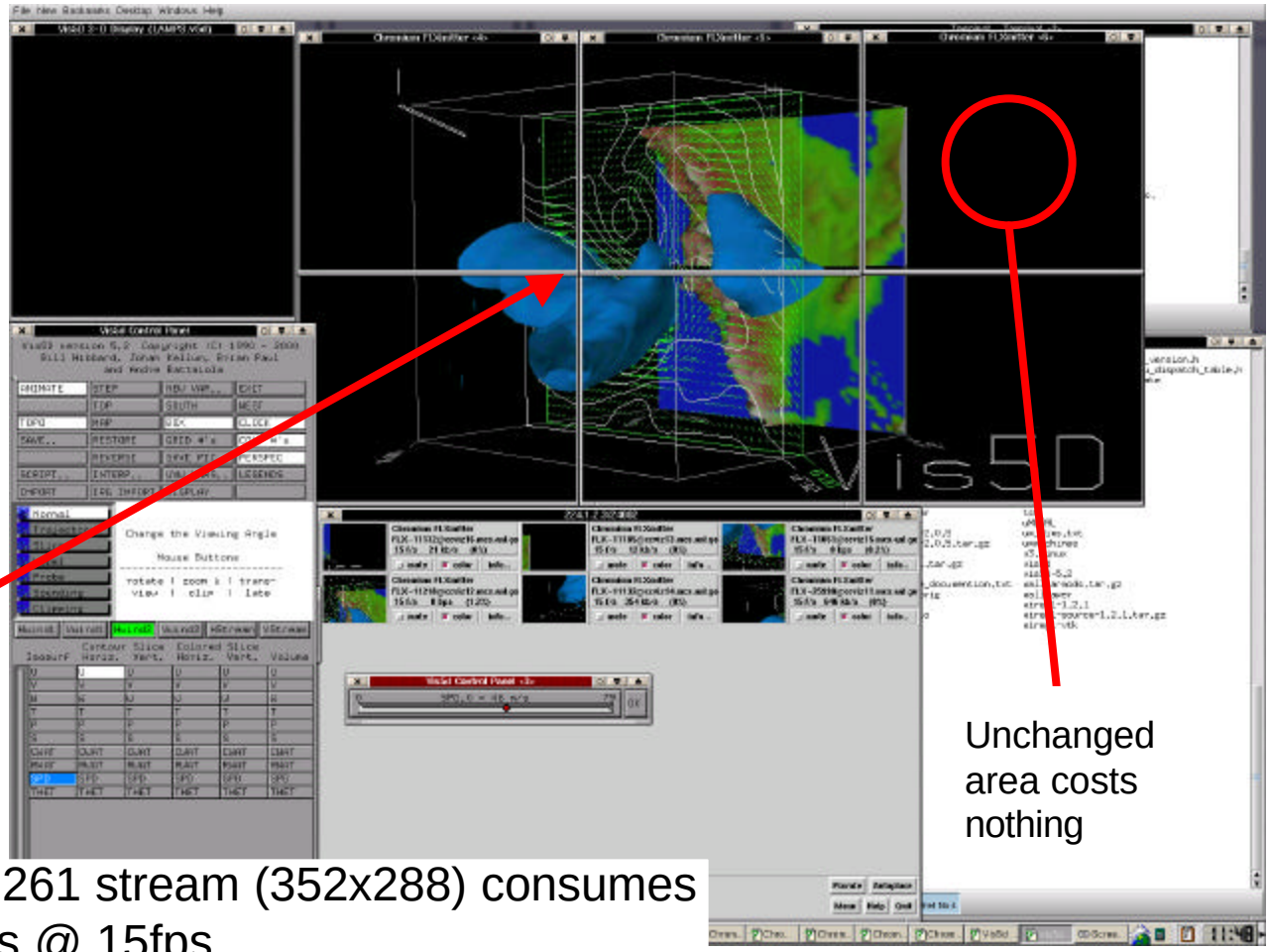


ACCESS GRID Retreat 2002

Vis5d Running over Chromium-vic

Open Issues:

- Multiple tiles
- Existing Interfaces



Borders go away

Unchanged area costs nothing

Single H261 stream (352x288) consumes ~1.1Mb/s @ 15fps
Six H261 streams (1056x576) consumes ~2.7Mb/s @ 15fps

Multiple Tiles

Pros

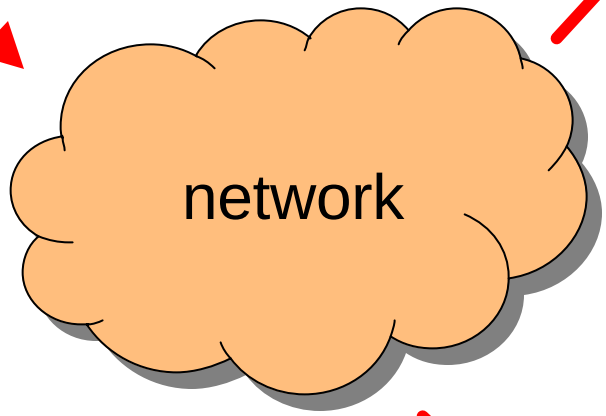
- Configurable
- Fits in existing framework

Cons

- Put the puzzle together

❑User application that merges streams

Existing Interfaces



Option
s

VNC
DMX
XMX

XMOVE

VNC

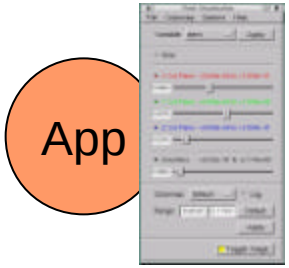
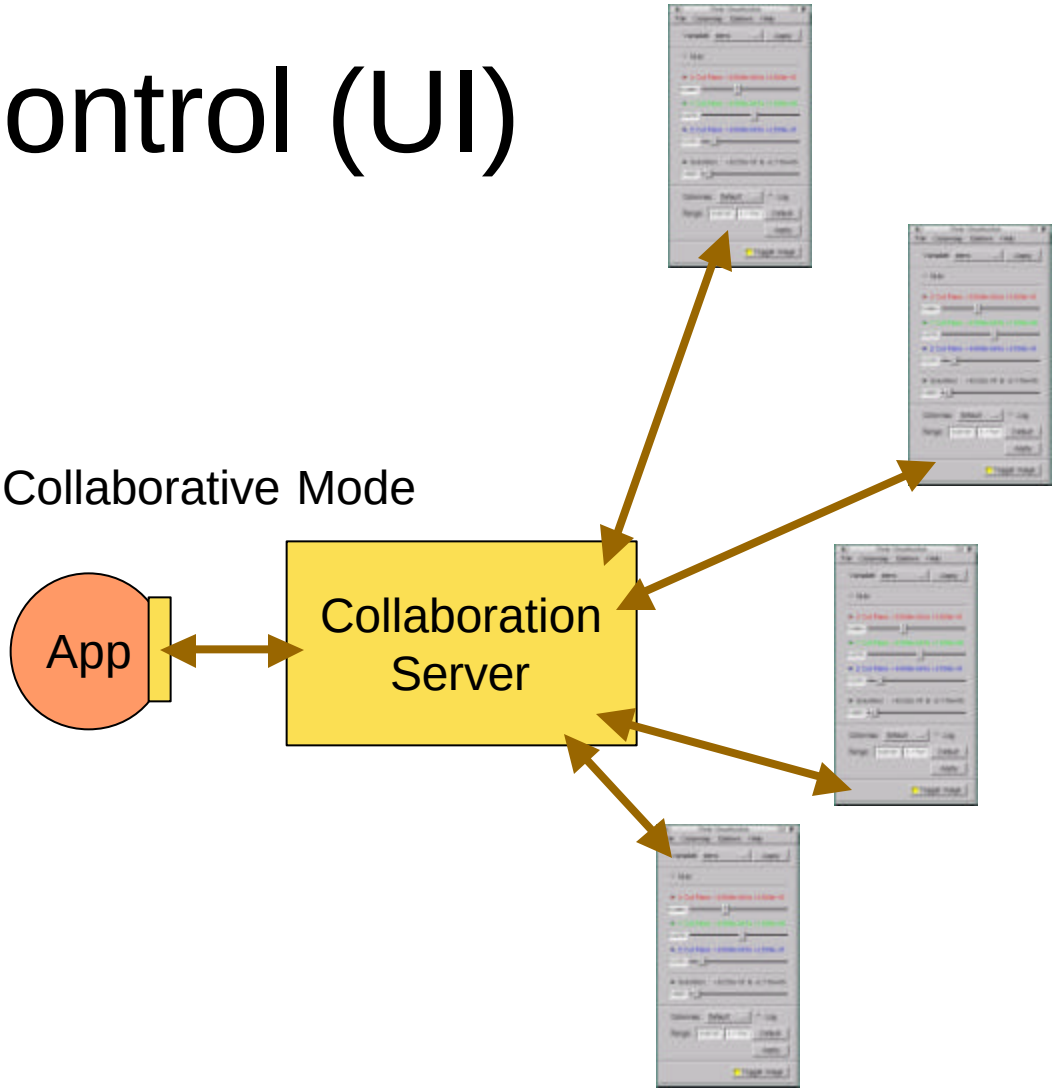
- Security
- Scalability

AG Applications

- Control (UI) needs to be flexible
  - Desktop mode - individual
  - Collaborative mode – AG
- Distributed (tool and users)
- Full integration with AG 2.0
  - Description (tools)
  - Discovery (capabilities)
  - Distribution (make available)

Control (UI)

Single User Mode



Collaborative Mode