

Software environments

www.evl.uic.edu/cavern/sage

SAGE: Scalable Adaptive Graphics Engine



vis.ucsd.edu/~cglx/

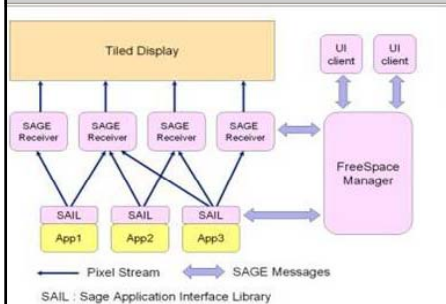
CGLX: Cross-Platform Cluster Graphics Library

www.rockclusters.org

ROCKS: / CentOS - cluster management

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SAGE Software



Operating System
for OptIPuter Displays

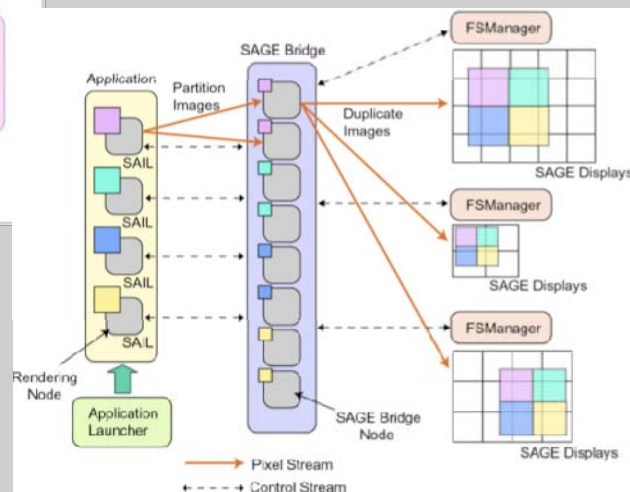
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code.google.com/p/sage-graphics

B. Pailthorpe, UQ at QuestNet, July'10



Byungil Jeong, Luc Renambot, Jason Leigh
UI, Chicago - EVL



Luc R et al, *Future Gen Comp Sys*
Fig. 4. New SAGE architecture. 25, 161-168 (2009)

SAGE Architecture

B Jeong et al, *IEEE Comp Graphics*
xx, 71-83 (2010)

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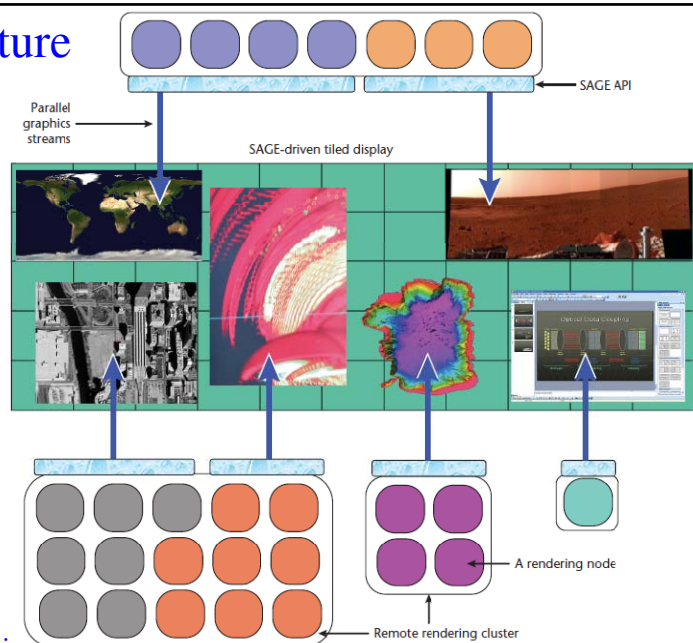
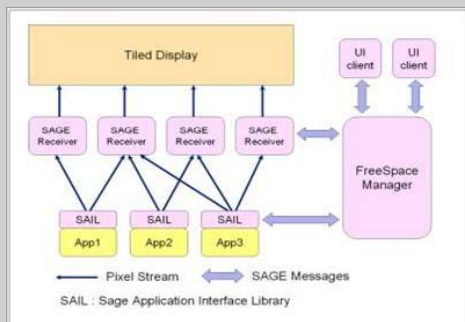


Figure 2. The SAGE (Scalable Adaptive Graphics Environment) architecture. Each visualization application runs on nodes in a distributed rendering cluster. The node color represents the application running on the node. SAGE manages the parallel graphics streams between the rendering nodes and tiled display nodes.

The Challenge: scalable I/O ?

Figure 8 - Remote rendering: X11 protocol, VNC, GLX protocol, video streaming, ...

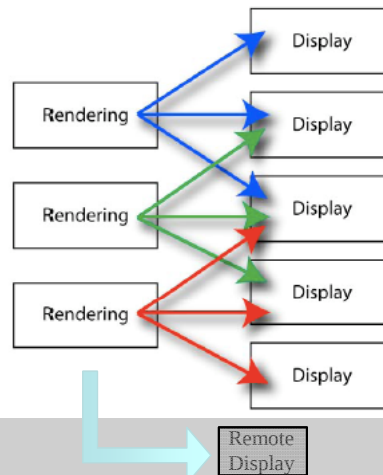


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Rendering pipelines in SAGE

Figure 11 - SAGE on local area network

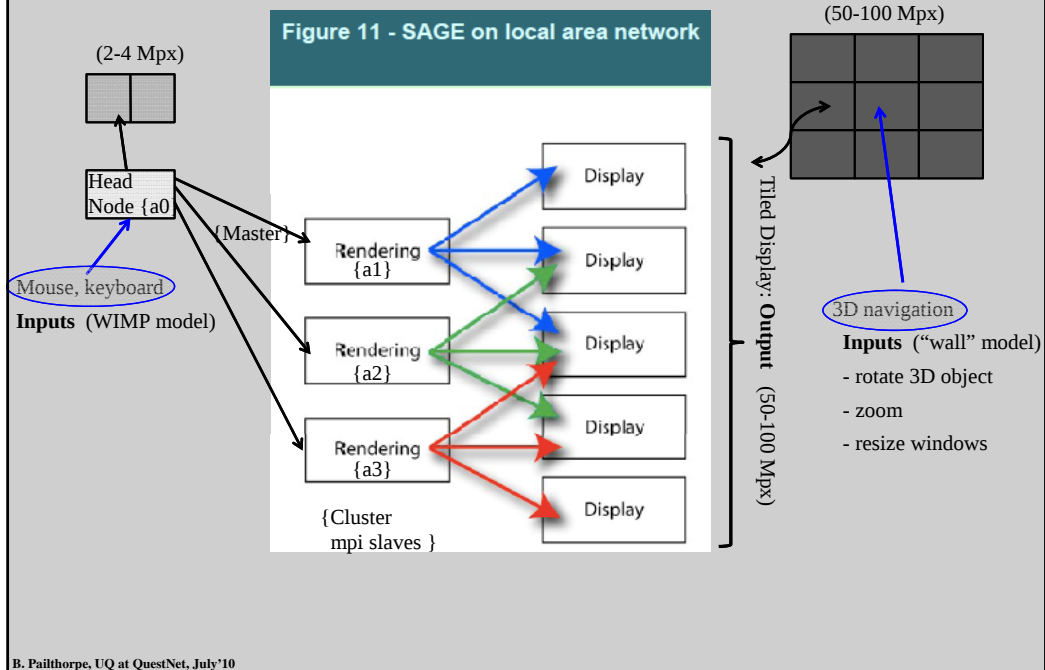
Source: SAGE Documentation, EVL (2005)



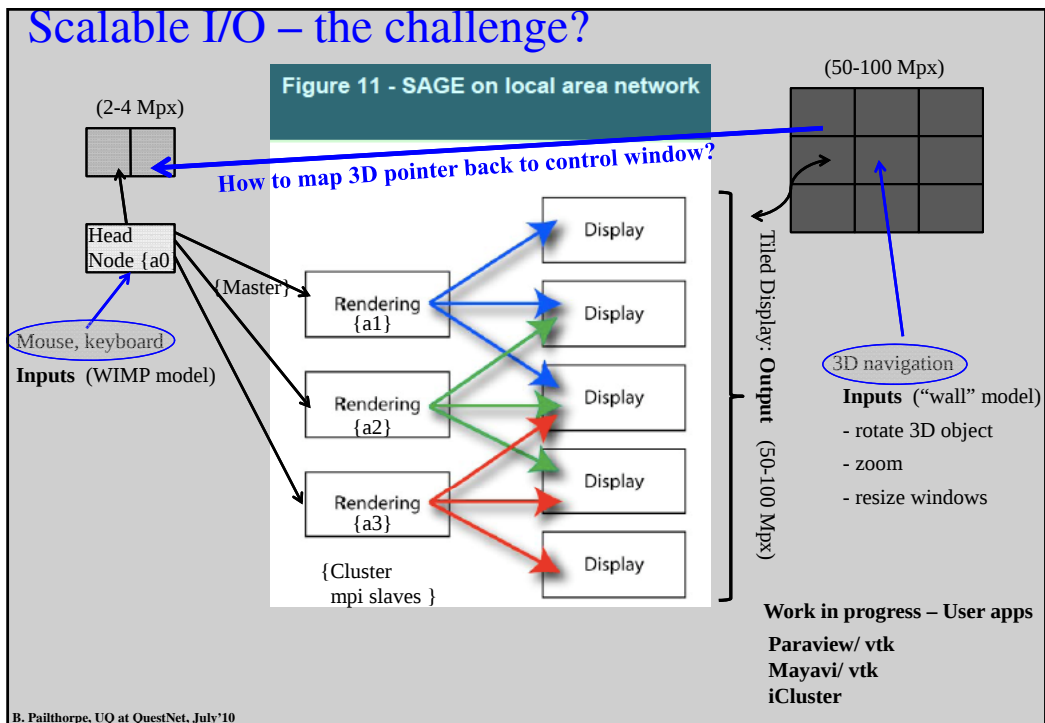
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code.google.com/p/sage-graphics

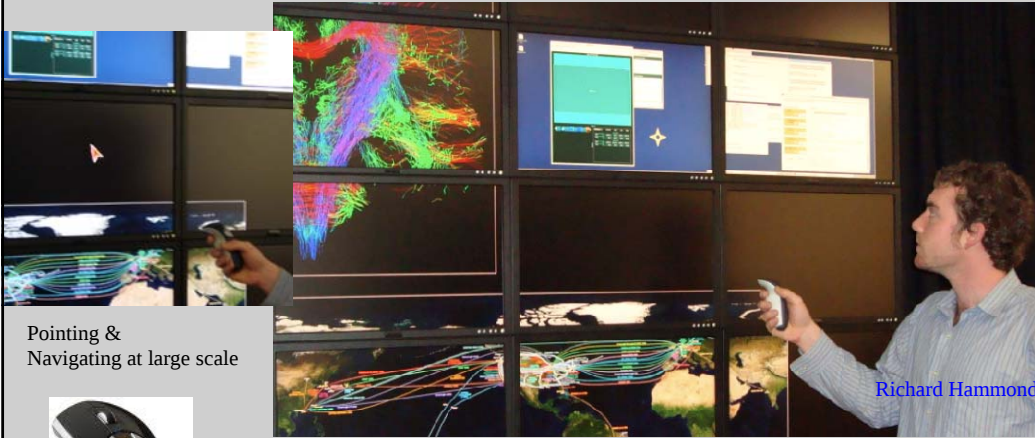
Scalable I/O for software apps in SAGE



Scalable I/O – the challenge?



3D Interaction with the OptIPortal, SAGE & apps



Pointing &
Navigating at large scale



3D gyro mouse
www.gyration.com

Input. Activating menu control buttons in app's window
(copied from head Node) – separate from 3D navigation.

Output. Atlantis "screen saver" app is mpi distributed across cluster
(Chris Willing: at 11:25 talk + demos)

B. Pailthorpe, UQ at QuestNet, July '10