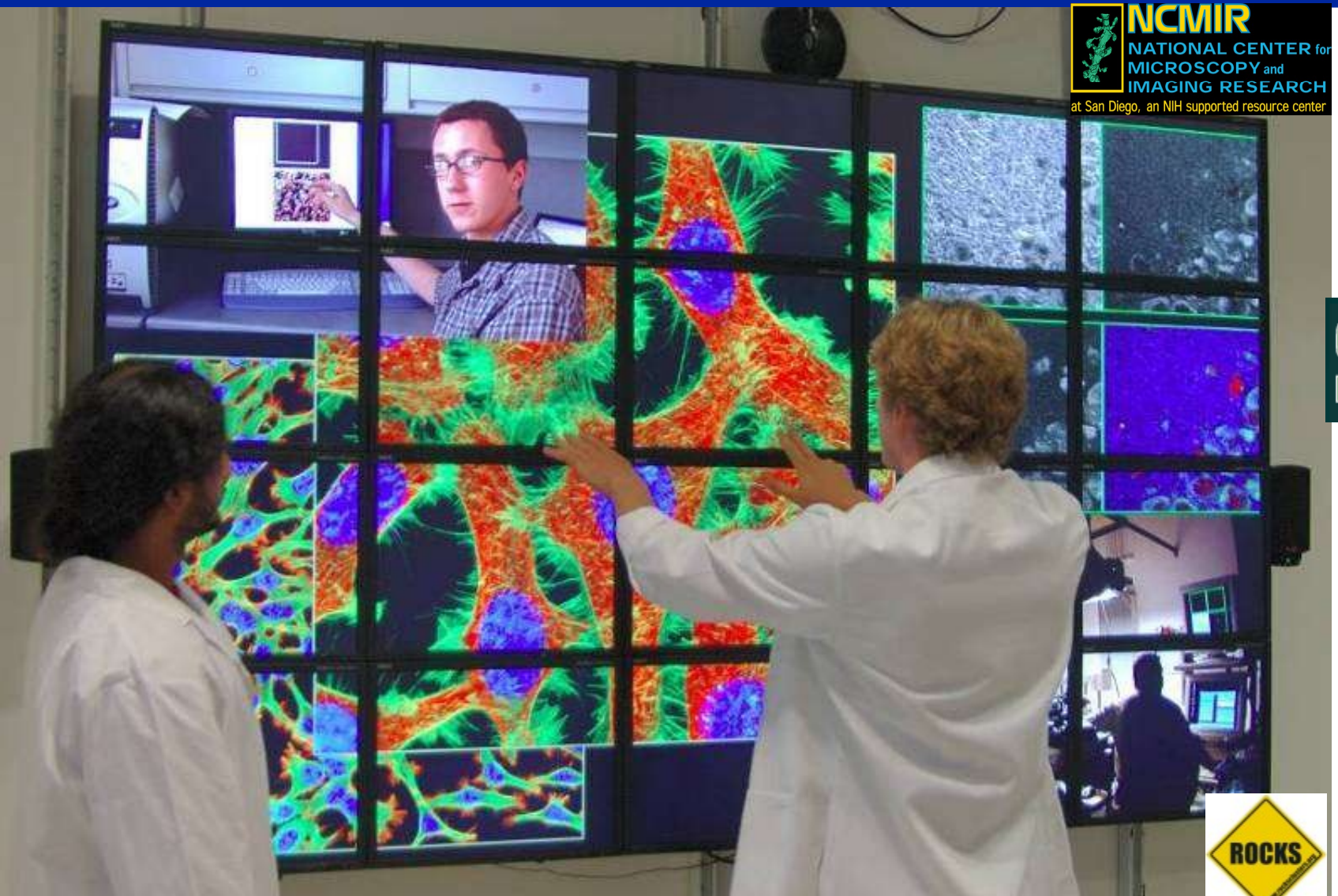
The OptIPortal, a Scalable Visualization, Storage, and Computing Termination Device for High Bandwidth Campus Bridging

Presentation by Larry Smarr to the NSF Campus Bridging Workshop
April 7, 2010
University Place Conference Center
Indianapolis, IN

Calit2@UCSD: Tom DeFanti, Qian Liu, Joseph Keefe, Greg Hidley, Greg Dawe, Bryan Glogowski, Ian Kaufman, Jurgen Schulze, Kai-Uwe Doerr, Falko Kuester, Larry Smarr
SDSC@UCSD: Phil Papadopoulos, Mason Katz
EVL@UIC: Jason Leigh, Luc Renambot, Alan Verlo, Lance Long, Maxine Brown, Dan Sandin
ANL: Venkatram Vishwanath
Qualcomm, Inc.: Javier Girado
TACC@UTA: Byungil Jeong

The OptIPuter Project: Creating High Resolution Portals Over Dedicated Optical Channels to Global Science Data



NCMIR
NATIONAL CENTER for MICROSCOPY and IMAGING RESEARCH
at San Diego, an NIH supported resource center

Scalable Adaptive Graphics Environment (SAGE)

SAGE

evl electronic visualization laboratory

NSF

ROCKS

Picture Source: Mark Ellisman, David Lee, Jason Leigh

SDSC it²

Calit2 (UCSD, UCI), SDSC, and UIC Leads—Larry Smarr PI

Univ. Partners: NCSA, USC, SDSU, NW, TA&M, UvA, SARA, KISTI, AIST

Industry: IBM, Sun, Telcordia, Chiaro, Calient, Glimmerglass, Lucent

OptIPuter

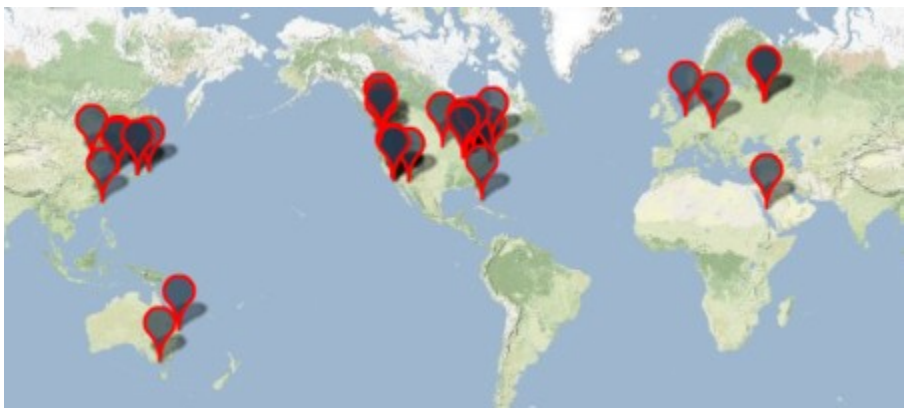
On-Line Resources Help You Build Your Own OptIPortal

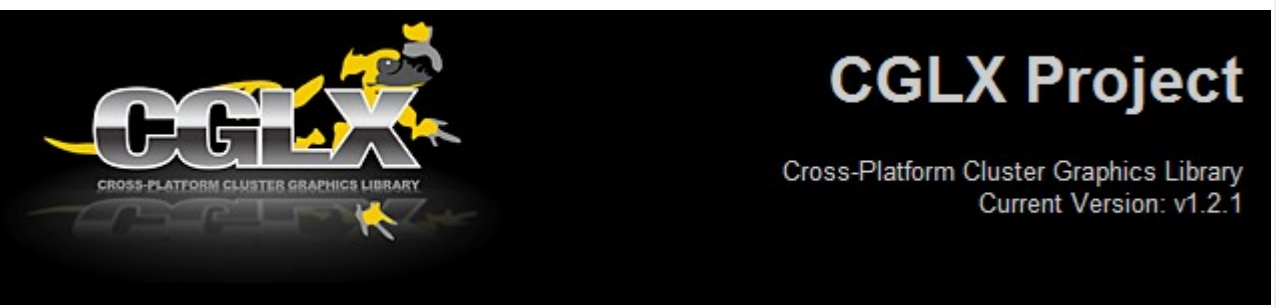
www.optiputer.net

http://wiki.optiputer.net/optiportal



www.evl.uic.edu/cavern/sage/





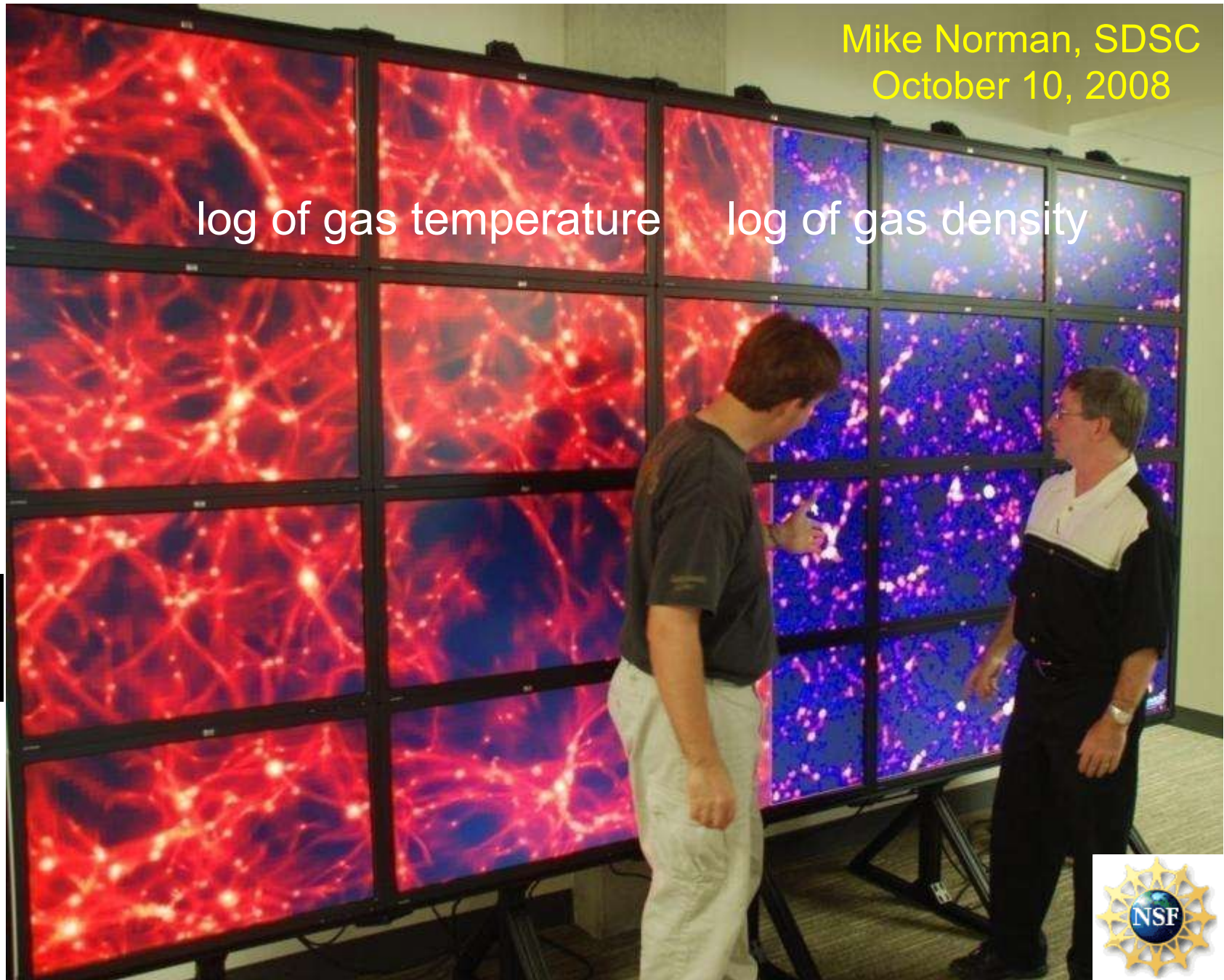
http://vis.ucsd.edu/~cglx/



OptIPortals Are Built
From Commodity PC Clusters and LCDs
To Create a 10Gbps Scalable Termination Device

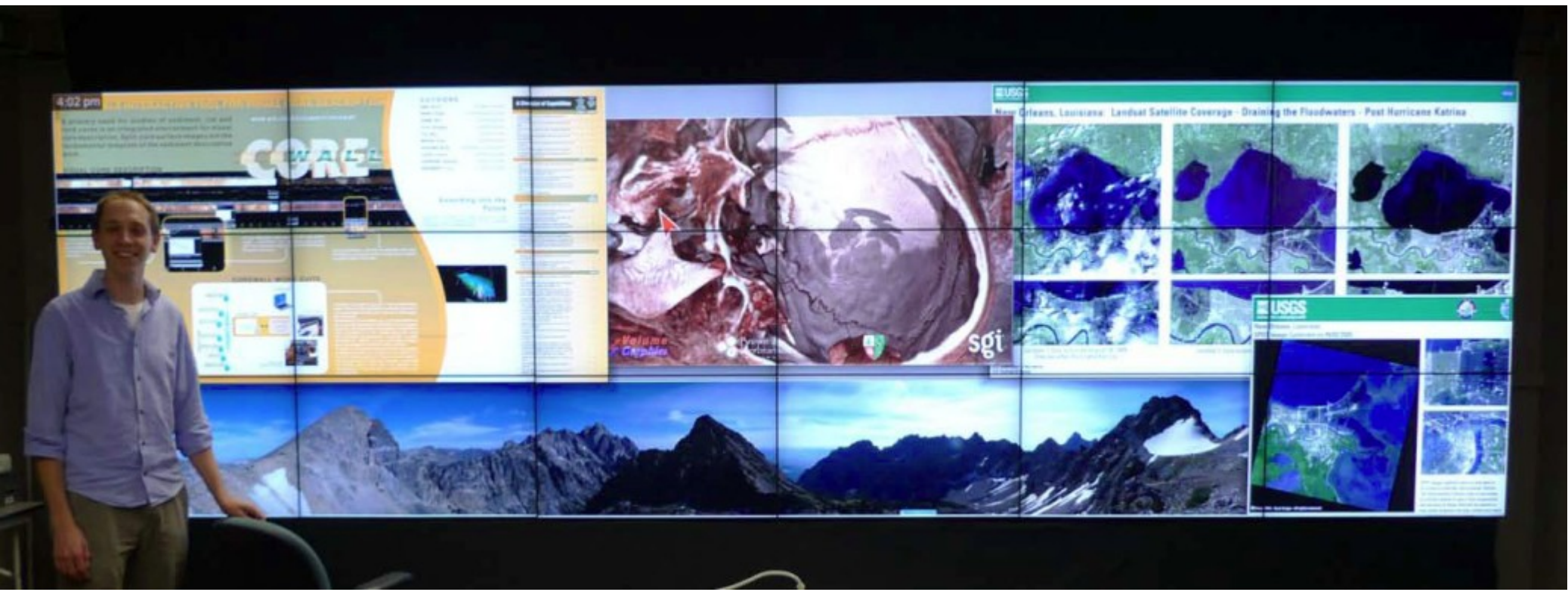
Providing End-to-End CI for Petascale End Users

Two 64K Images From a Cosmological Simulation of Galaxy Cluster Formation



the AESOP Nearly Seamless OptIPortal

46” NEC Ultra-Narrow Bezel 720p LCD Monitors



Source: Tom DeFanti, Calit2@UCSD;

3D Stereo Head Tracked OptIPortal: NexCAVE



Array of JVC HDTV 3D LCD Screens
KAUST NexCAVE = 22.5MPixels

www.calit2.net/newsroom/article.php?id=1584

Source: Tom DeFanti, Calit2@UCSD

High Definition Video Connected OptIPortals: Virtual Working Spaces for Data Intensive Research



NASA Interest in Supporting Virtual Institutes

CGLX

LifeSize HD

evl

SDSC

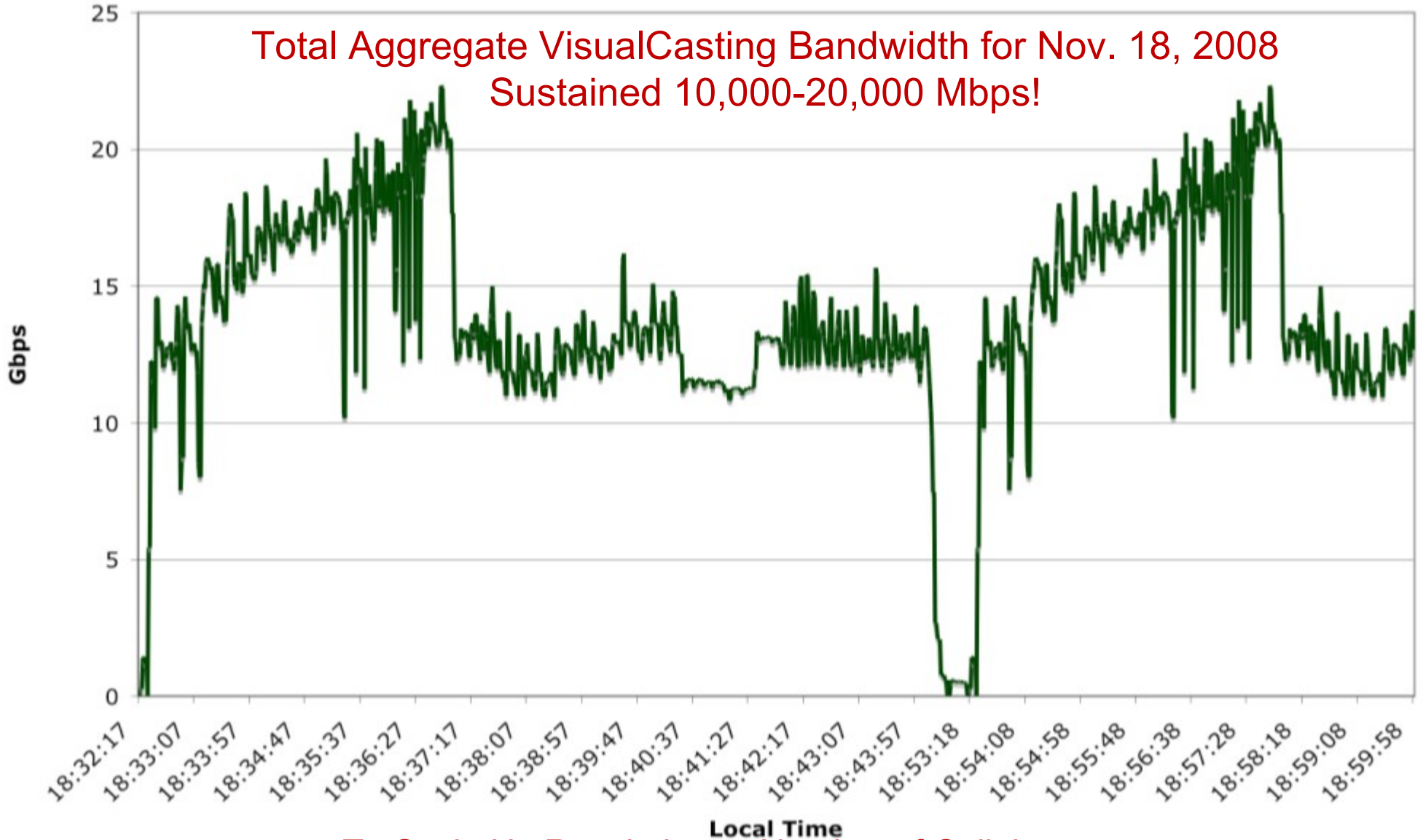
it²

NASA Ames
Lunar Science Institute
Mountain View, CA

OptIPuter

Source: Falko Kuester, Kai Doerr Calit2; Michael Sims, NASA

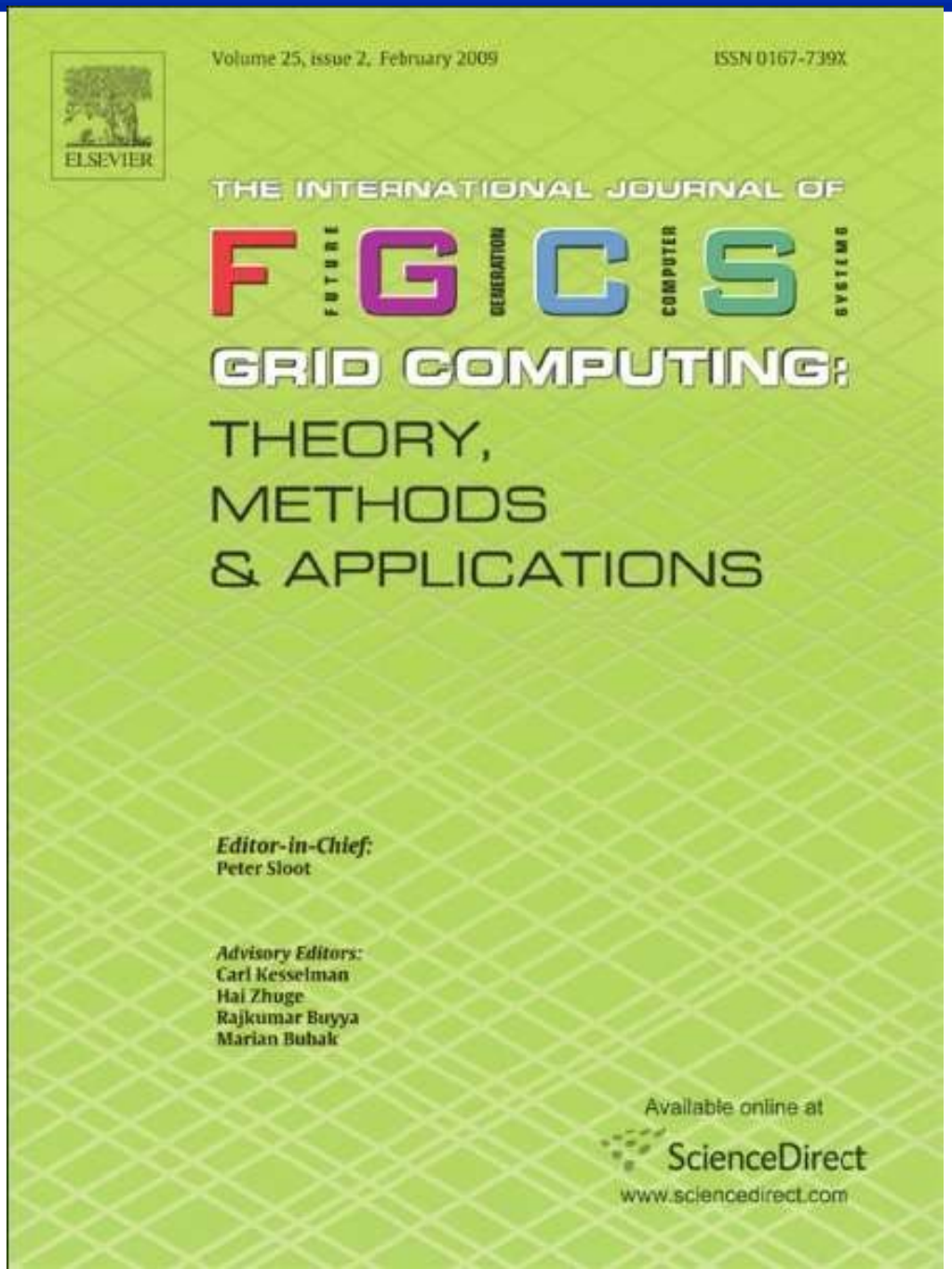
EVL's SAGE OptIPortal VisualCasting Multi-Site OptIPuter Collaboratory



To Scale Up Resolution or Number of Collaborators,
You Increase Number of Cluster Nodes

Source: Jason Leigh, Luc Renambot, EVL, UI Chicago

For Technical Details
On OptIPuter Project and OptIPortals



"OptIPlanet: The OptIPuter Global Collaboratory" –

Special Section of
Future Generations
Computer Systems,

Volume 25, Issue 2,
February 2009

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