Calit2:
An Experiment in Social Networks

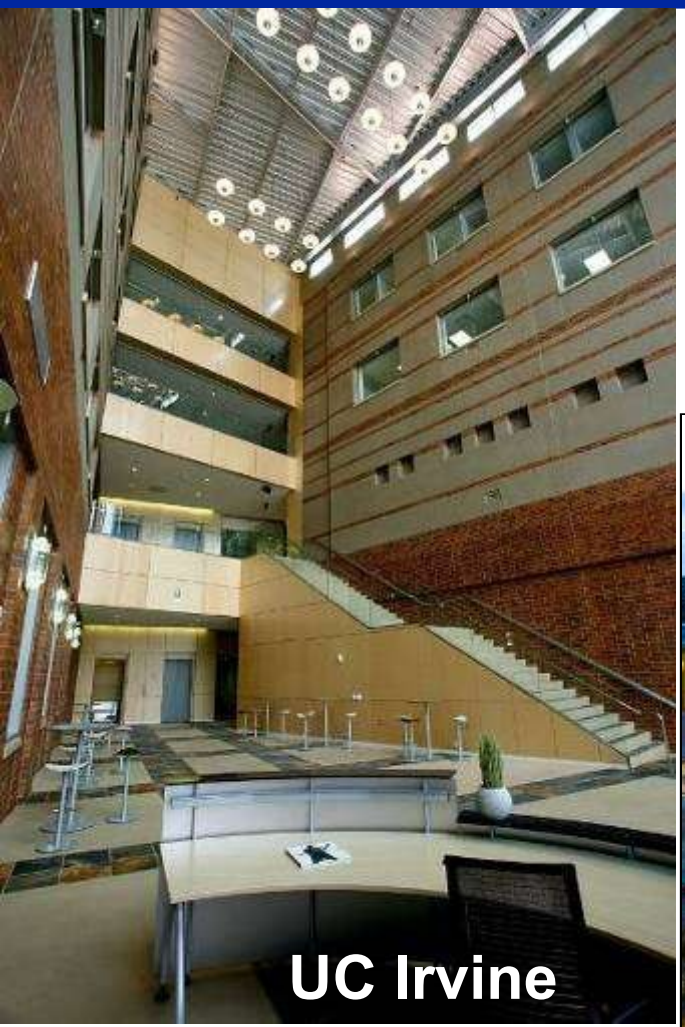
Conversation on Social Networks, Social Movements
Third Annual Seminar in Experimental Critical Theory
University of California Humanities Research Institute
University of California, Irvine
Irvine, CA
August 16, 2006

Dr. Larry Smarr
Director, California Institute for Telecommunications and Information Technologies
Harry E. Gruber Professor,
Dept. of Computer Science and Engineering
Jacobs School of Engineering, UCSD

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it²

Two New Calit2 Buildings Provide New Laboratories for "Living in the Future"



- **Over 1000 Researchers in Two Buildings**
  - Linked via Dedicated Optical Networks
  - International Conferences and Testbeds
- **New Laboratories**
  - Nanotechnology
  - Virtual Reality, Digital Cinema



www.calit2.net

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Preparing for a World in Which Distance is Eliminated…

it²

Calit2 is Experimenting with Open Reconfigurable Work Spaces to Enhance Collaboration







Over Two Dozen Departments in the Building

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Photos by John Durant; Barbara Haynor, Calit2

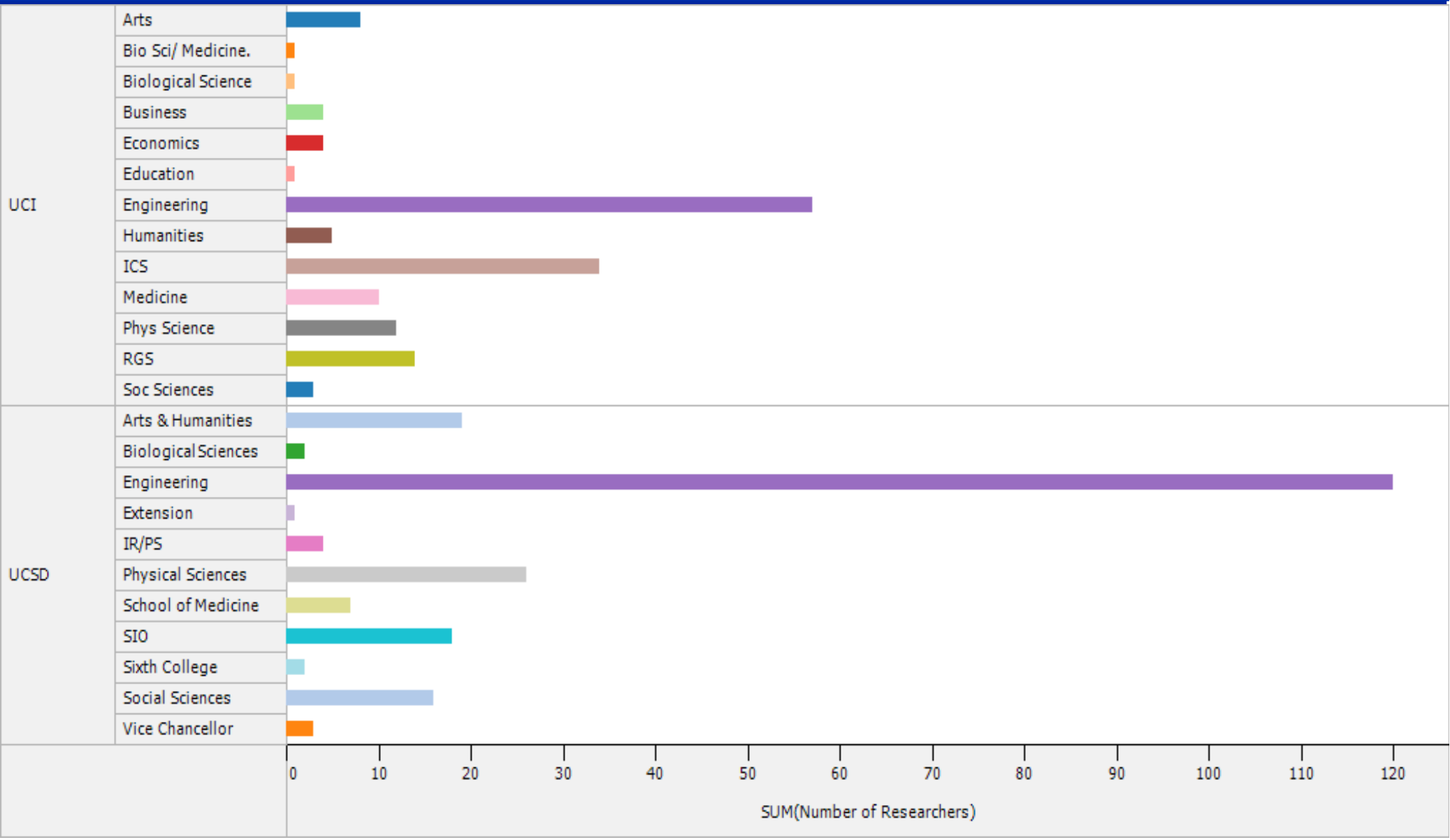
Calit2 Has Assembled a Complex Social Network of Researchers

- Started with Blank Page Six Years Ago
- 372 Faculty Associated With Calit2
  - 154 with Calit2@UCI
  - 218 with Calit2@UCSD
  - Two Dozen Departments on Each Campus
- 340 Federal Research Grants
- Hundreds of Students
- Over One Thousand Researchers In Two Buildings
- 100-200 Companies

How Can Social Network Analysis Tools Be Applied to this Dynamic Social Network of Researchers?

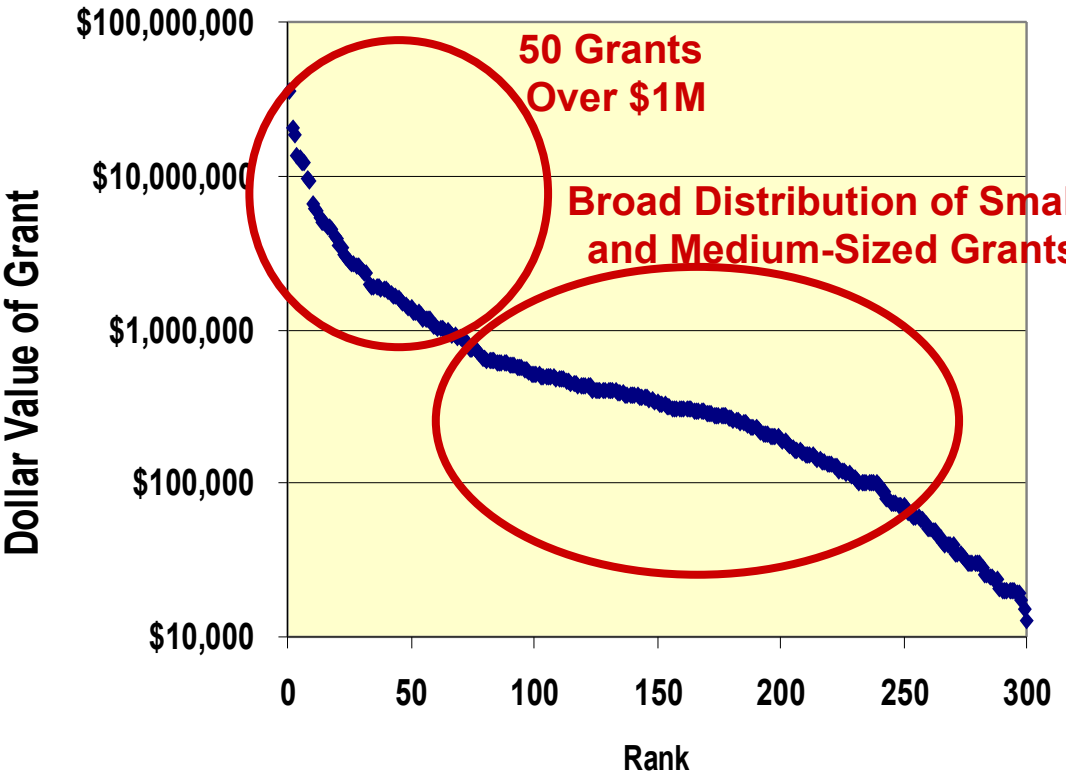
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Calit2 Works with Over 300 Faculty in Over Two Dozen Departments Per Campus

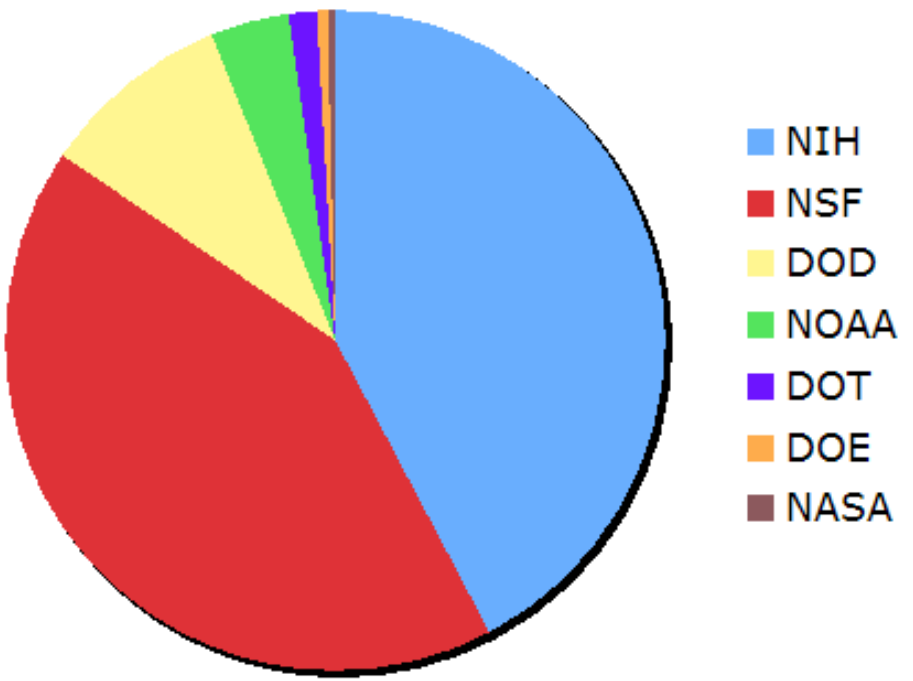


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Federal Agencies Have Funded $350 Million to Calit2 Affiliated Grants



Over 300
Calit2 Affiliated Grants



Federal Agency Source of Funds

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Applying Information Visualization to the Federal Research Grants Affiliated with Calit2@UCSD



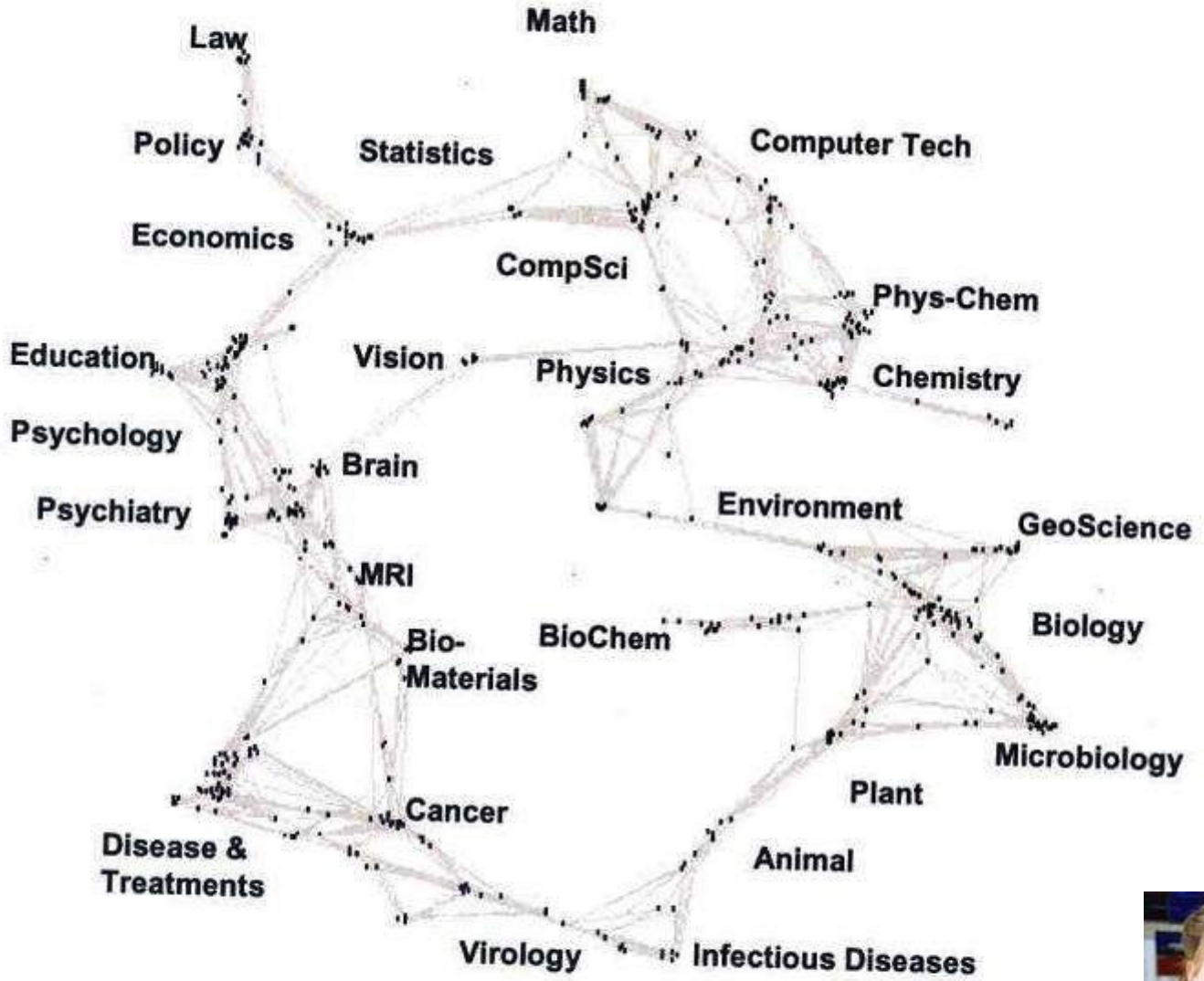
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191 Affiliated Grants
~ $270 M Since Creation

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Can We Apply Scientometrics? Mapping All of Science

Kevin Boyack, Sandia National Laboratories





1.07 M papers
24.5M references
7300 journals

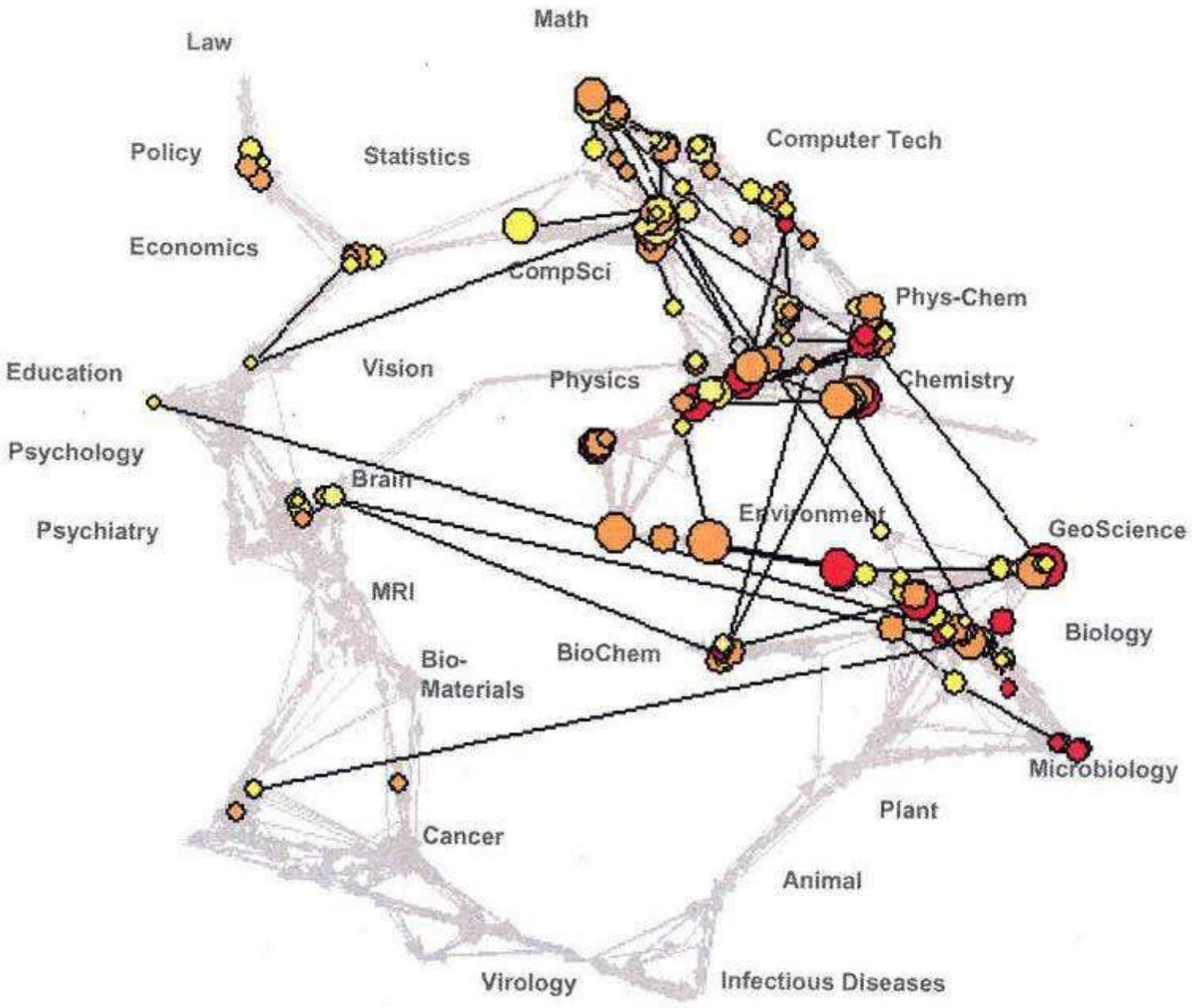
Their methods found 671 clusters (i.e. disciplines, indicated by dots)



Katy Börner, Indiana Univ.

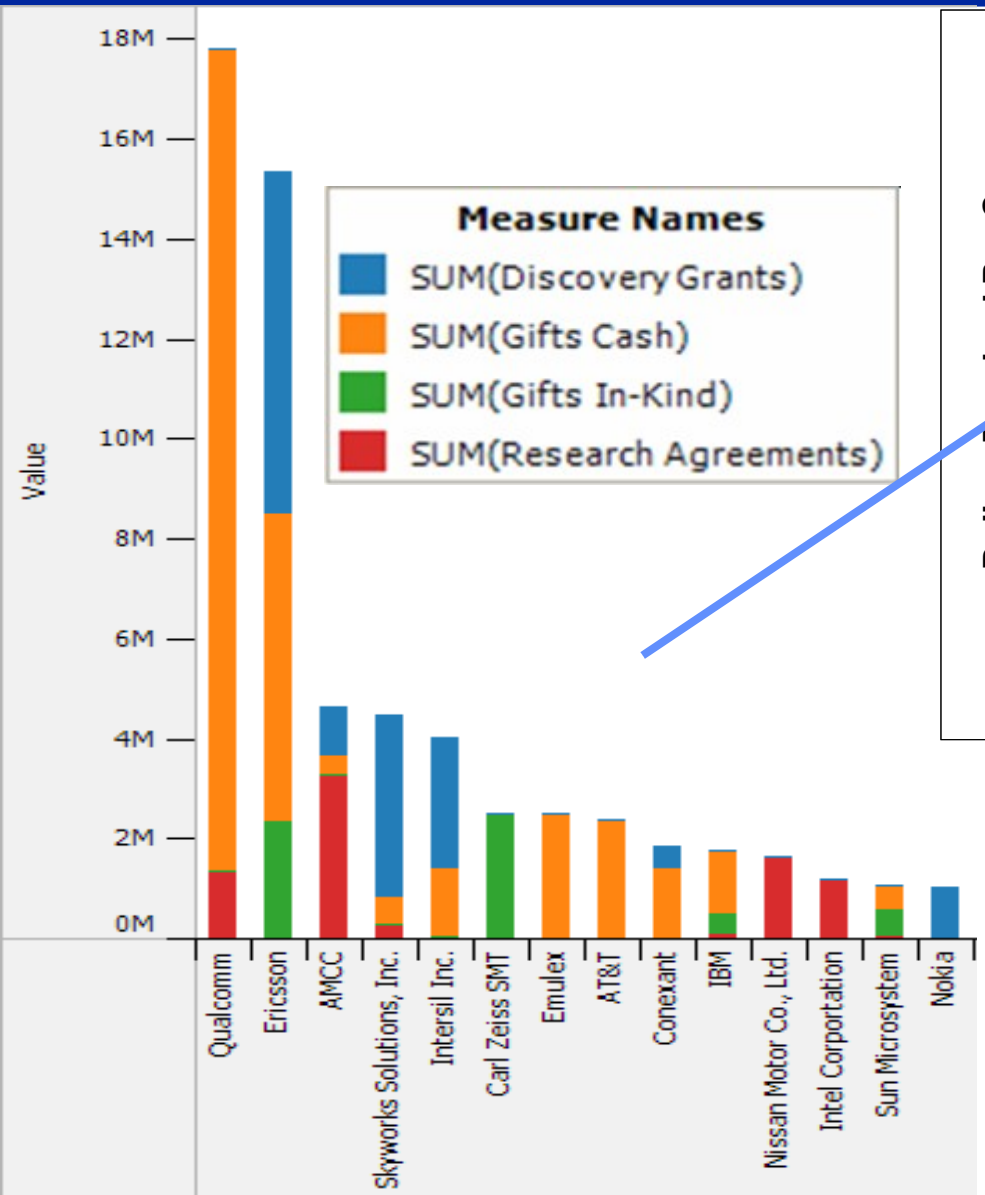
http://ella.slis.indiana.edu/~katy/events/05-iu-tech-transfer.ppt

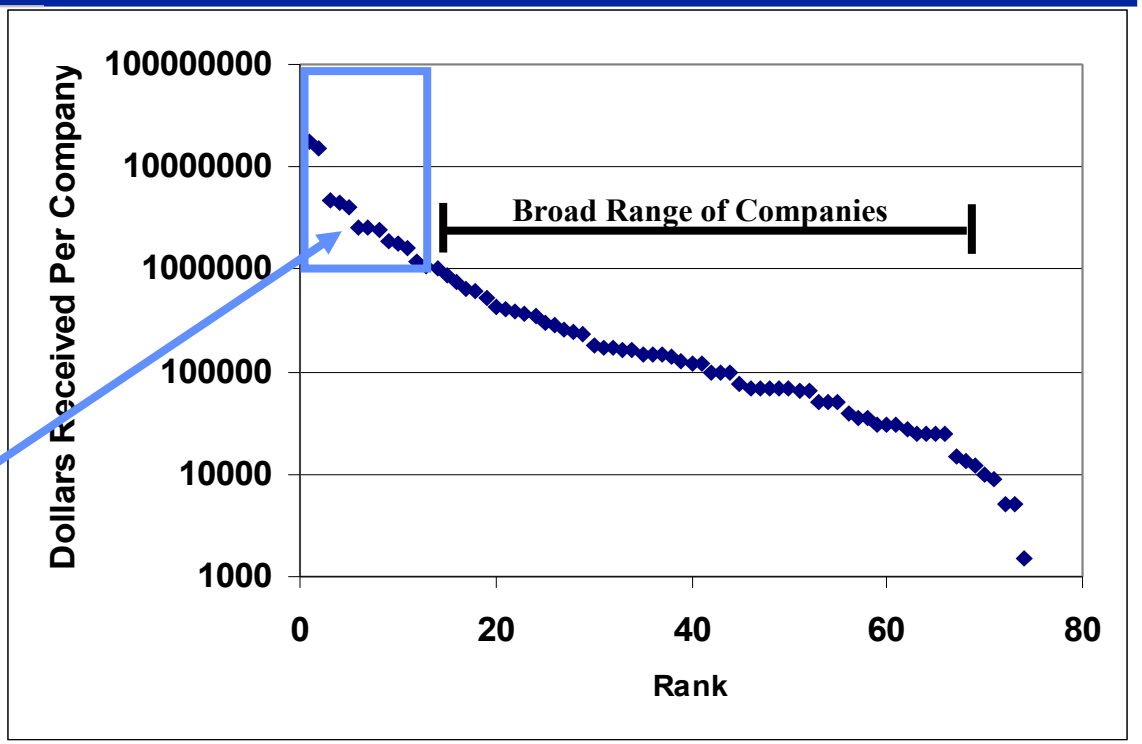
Mapping NSF Science Funding Over Publication Cluster Space



http://ella.slis.indiana.edu/~katy/events/05-iu-tech-transfer.ppt

Calit2 Has Partnered with over 100 Companies, More Than 75 Have Provided Funds or In-kind





$72 Million From Industry So Far

Industrial Partners > $1 Million

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Calit2 Web Site Has Attracted a Large Readership Which Needs to be Analyzed



- **Monthly**
  - 1 Million Hits
  - 50,000 Unique Visitors
  - 15,000 New Visitors
- **Contents**
  - 580 Stories
  - 230 News Releases
  - 450 Videos
  - 700 Press Citations

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www.calit2.net

Great Opportunity to Apply the Growing Discipline of Social Networking to University Challenges

International Network for Social Network Analysis

Has your address changed? • 2006 Freeman Award Check your membership status

This page contains information about the International Network for Social Network Analysis and related subjects.

INSNA

Here you will find Social Networks information, reference sources and links to related home pages.

What is INSNA?

What is Network Analysis?

Publications
- journals
- indexing service
- books

Network Courses

Network URLs

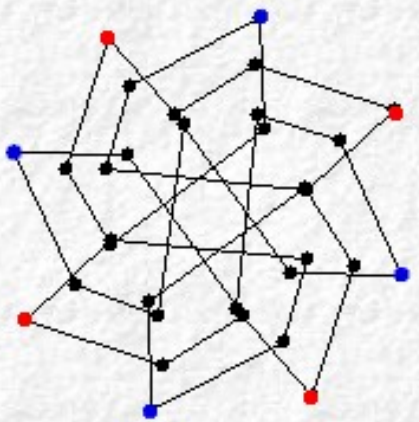
Network Research

Job Announcements

Network FAQ

People Events

Cyberinfrastructure



SOCNET
Connections
Revista REDES
Social Networks
Journal of Social Structure

Network Bibliographies

Missing Data Datasets

Software Soft News

Network Conferences



International Sunbelt Social Network Conferences

Sunbelt Keynotes

Powerpoints and pdfs

Social network graduate degree programs

Hot Network Topics

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www.insna.org

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Massive Social Networks Are Enabled by Decentralized Software Systems



- 500 Million Distinct People's Contact Information
- Over 10 Million Users
- Average Of 30,000 New Members Daily

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Distributed versus Centralized Updating

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Calit2@UCSD is Exploring Fund Raising Using Social Network Software

Home | Search | Subscribe | Make home page | Tell a friend | Client Login | Kintera.com

Kintera

the giving communities

Welcome to The Giving Communities

Join us in building strong communities for good causes.



Events

Search events >

As walkers and runners alike prepare for this fall's events, registration opens and the lineup is hotter than ever, with promise of raising tens of millions of dollars for research and programs.

- Ready for a run/walk?
- How about some bowling?
- Dress up for a gala?
- Go for a ride?

Resources

Cool Ways to Get Involved



Looking for some cool ways to get involved this summer? Pedal 4 a purpose to raise funds for Missions Ministries to build housing for the poor in Mexico.... More Ideas>

Giving News

More News>

- UNICEF helps children in Lebanon...
- UJC creates the Israel Crisis Fund and posts first hand accounts...

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www.kintera.org

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Autocatylitic
Specialized Ad Hoc Communities

Home | Friends | Messages | Communities | Search | News | Help | Logout

orkut beta

show help



- profile
- album
- settings
- lists
- scrapbook

Welcome Joseph

profile views: 362
average path: 3.8

You are connected to **746906** people through **50** friends.
Grow your network now!

You have 11 fans. **one** scrap

Next steps:
Invite more friends to join orkut.

Today's fortune:
You will be fortunate in everything.

my friends (52)


Miler (19)


Bismarck (67)


Ryan (127)


Sheba (87)


Michael (74)


Brian (37)


Steve (42)


Aaron (29)

view network « » view friends

upcoming birthdays


Michael Baym July 19


Samo Devenica July 20


Michael Stoppelman July 20

my communities (24)


SF Food Lovers (1085)


Uni High (36)


Semantic Web (980)


Vim (2573)


Napa Valley Wine Connoisseurs (101)


Casa Whitham (6)


Stanford University (2249)


Adobe Photoshop (3195)



24 (1174)

» view all

www.orkut.com (an affliation with Google)

Can We Create a Facebook for Scientific Researchers?



Facebook is the Dominant Social Network Software for College Students

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www.facebook.com

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CAMERA: Community Cyberinfrastructure for Advanced Marine Microbial Ecology Research and Analysis

National LambdaRail
Direct Connect
Computation and Storage Complex

PI Larry Smarr

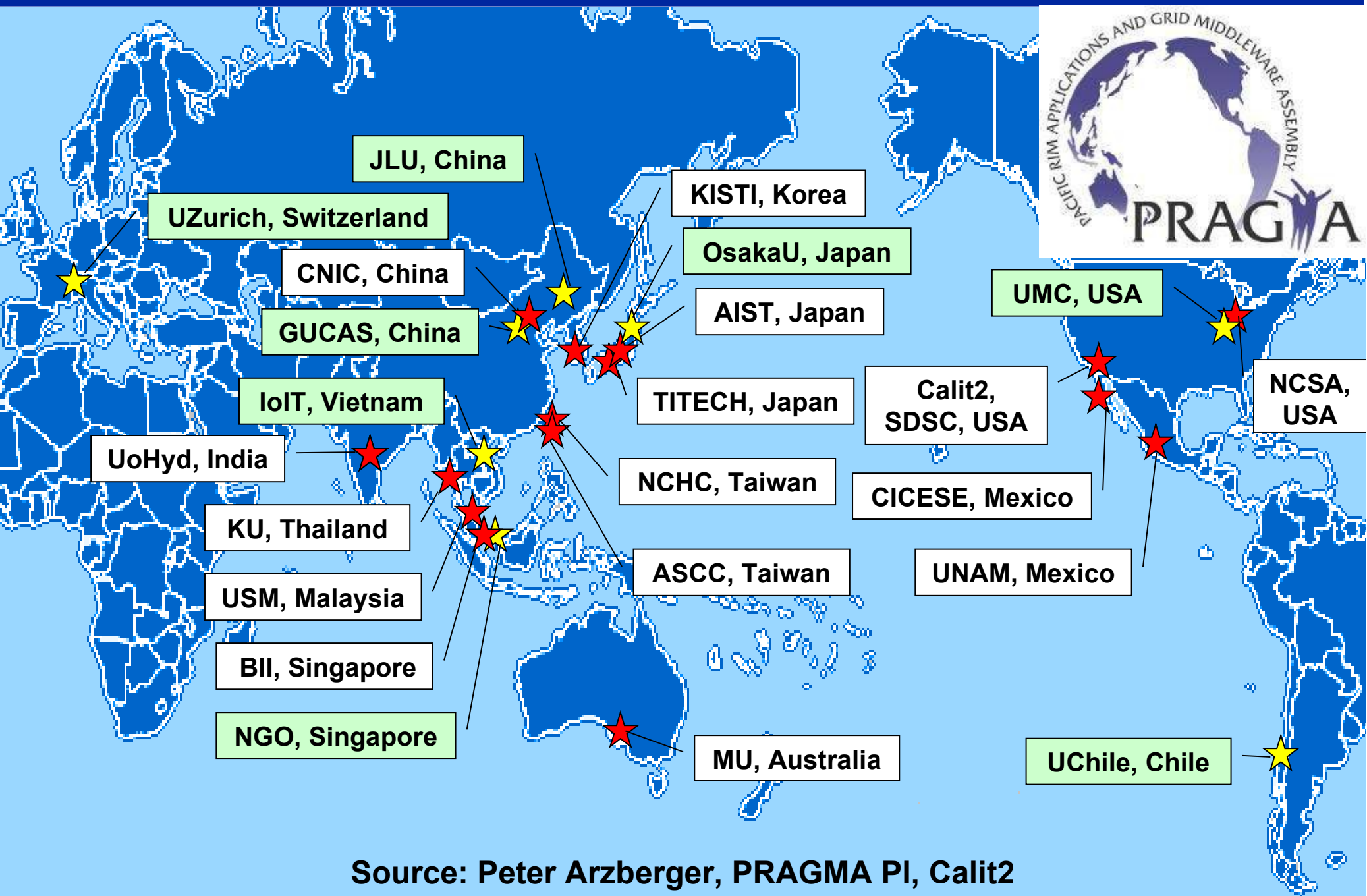
Funded by: Gordon and Betty Moore Foundation

Joint Partnership of:

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UCIrvine

Use Global Microbial Metagenomics as a Model Scientific Social Network Community?

International Grid PRAGMA Members As a Model Technology Social Network Community?



Source: Peter Arzberger, PRAGMA PI, Calit2

Eliminating Physical Distance: 40 Years Toward Telepresence







Source: Star Trek 1966-68; Barbarella 1968

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The Bellcore VideoWindow -- A Working Telepresence Experiment



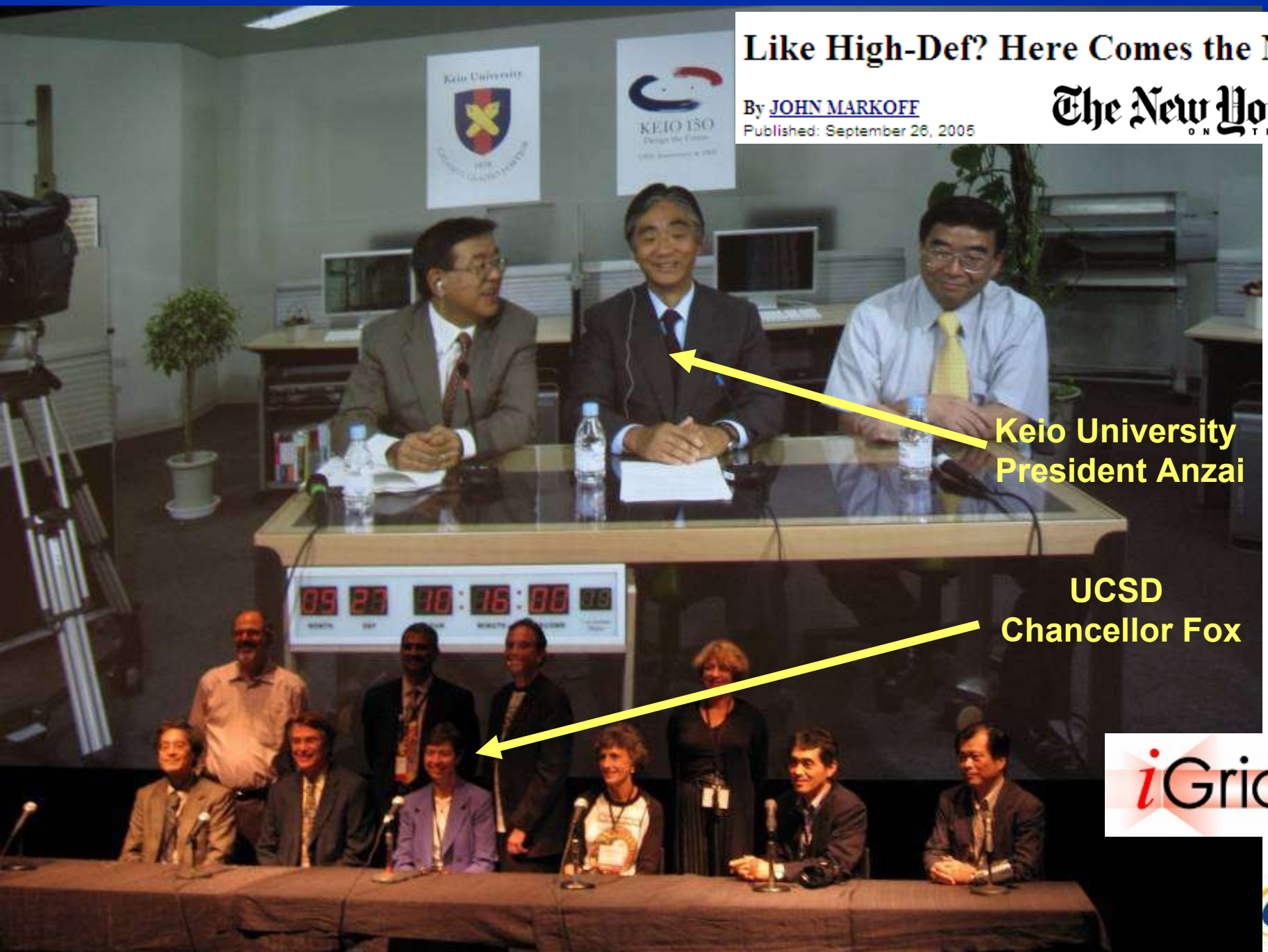
(1989)

"Imagine sitting in your work place lounge having coffee with some colleagues. Now imagine that you and your colleagues are still in the same room, but are separated by a large sheet of glass that does not interfere with your ability to carry on a clear, two-way conversation. Finally, imagine that you have split the room into two parts and moved one part 50 miles down the road, without impairing the quality of your interaction with your friends."

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Source: Fish, Kraut, and Chalfonte-CSCW 1990 Proceedings

First Trans-Pacific Super High Definition Telepresence Meeting in New Calit2 Digital Cinema Auditorium



Like High-Def? Here Comes the Next Level

By JOHN MARKOFF
Published: September 26, 2005

The New York Times ON THE WEB

Keio University President Anzai

UCSD Chancellor Fox

Used Dedicated Gigabit/s Lightpath

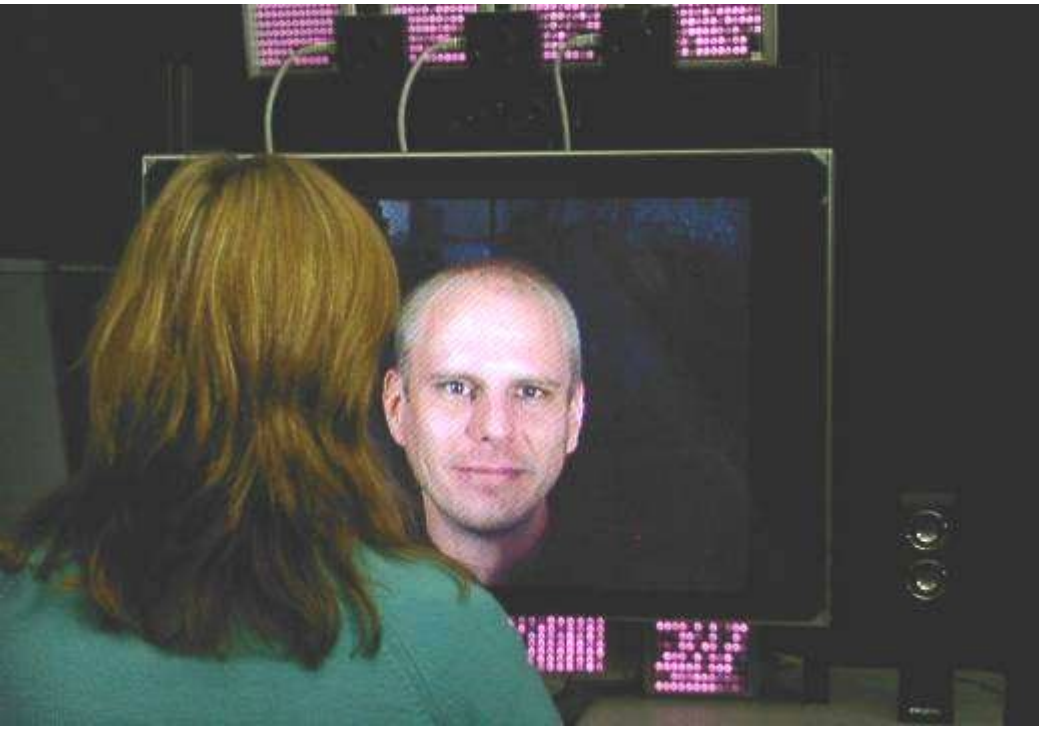
Sony
NTT
SGI

iGrid 2005

it2

3D Videophones Are Here!
The Personal Varrier Autostereo Display

- Varrier is a Head-Tracked Autostereo Virtual Reality Display
  - 30” LCD Widescreen Display with 2560x1600 Native Resolution
  - A Photographic Film Barrier Screen Affixed to a Glass Panel
    - The Barrier Screen Reduces the Horizontal Resolution To 640 Lines
- Cameras Track Face with Neural Net to Locate Eyes
- The Display Eliminates the Need to Wear Special Glasses





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Source: Daniel Sandin, Thomas DeFanti, Jinghua Ge, Javier Girado, Robert Kooima, Tom Peterka—EVL, UIC

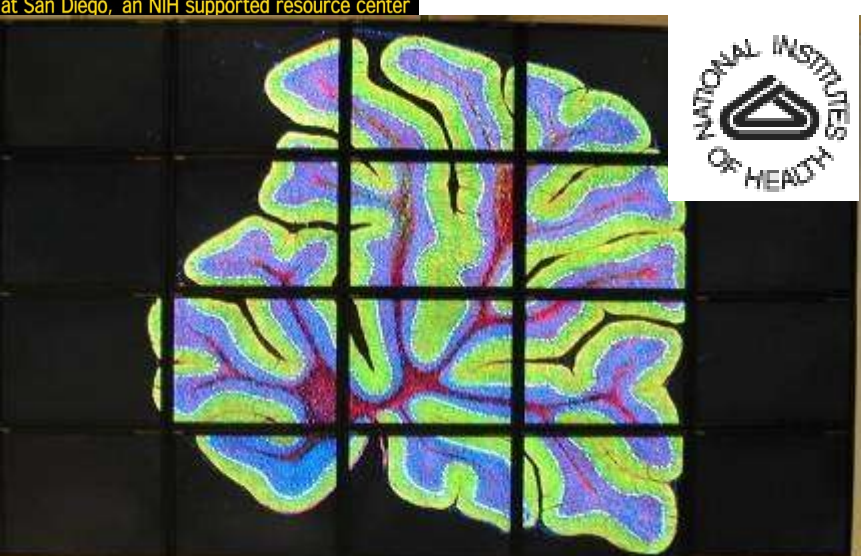
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The OptIPuter Project – Creating High Resolution Portals Over Dedicated Optical Channels to Global Science Data

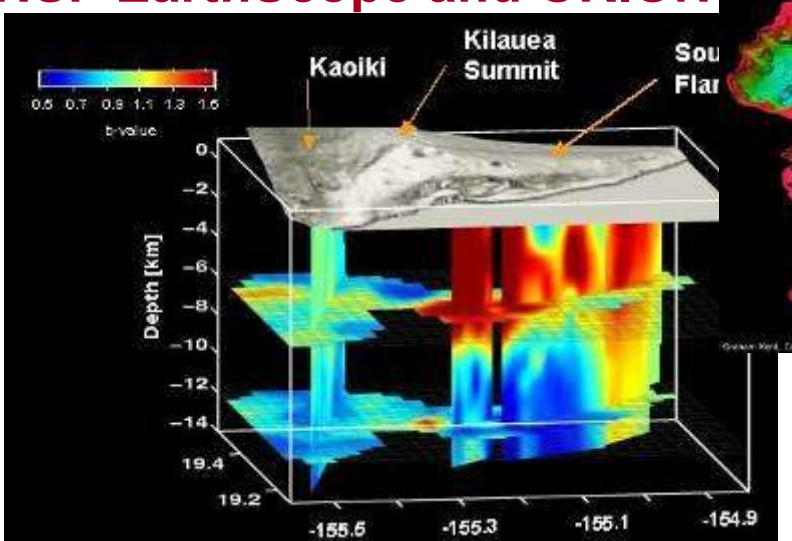
- **NSF Large Information Technology Research Proposal**
  - Calit2 (UCSD, UCI) and UIC Lead Campuses—Larry Smarr PI
  - Partnering Campuses: SDSC, USC, SDSU, NCSA, NW, TA&M, UvA, SARA, NASA Goddard, KISTI, AIST, CRC(Canada), CICESE (Mexico)
- **Industrial Partners**
  - IBM, Sun, Telcordia, Chiaro, Calient, Glimmerglass, Lucent
- **$13.5 Million Over Five Years—Now In the Fourth Year**

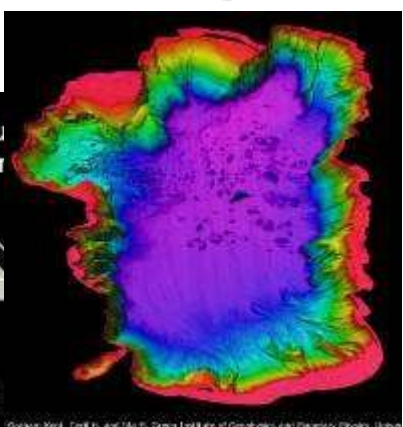
NIH Biomedical Informatics Research Network

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



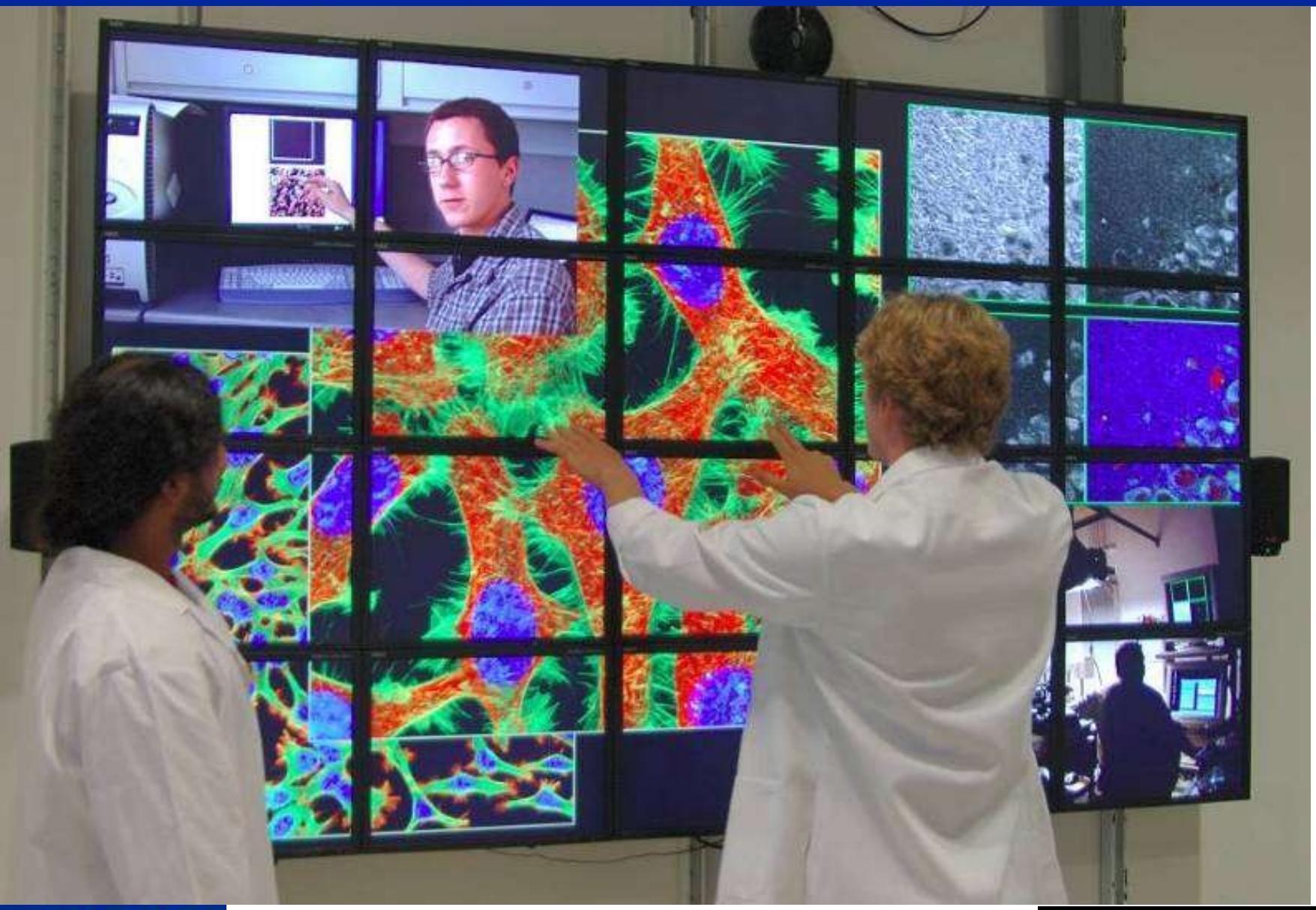
NSF EarthScope and ORION





SCRIPPS INSTITUTION OF OCEANOGRAPHY

OptIPortal–Termination Device for the Dedicated Gigabit/sec Lightpaths



Collaborative Analysis of Large Scale Images of Cancer Cells

Integration of High Definition Video Streams with Large Scale Image Display Walls

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evl electronic visualization laboratory

Photo Source: David Lee, Mark Ellisman NCMIR, UCSD

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

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The Input Rate to the Human Eye-Brain System is Roughly a GigaByte/sec

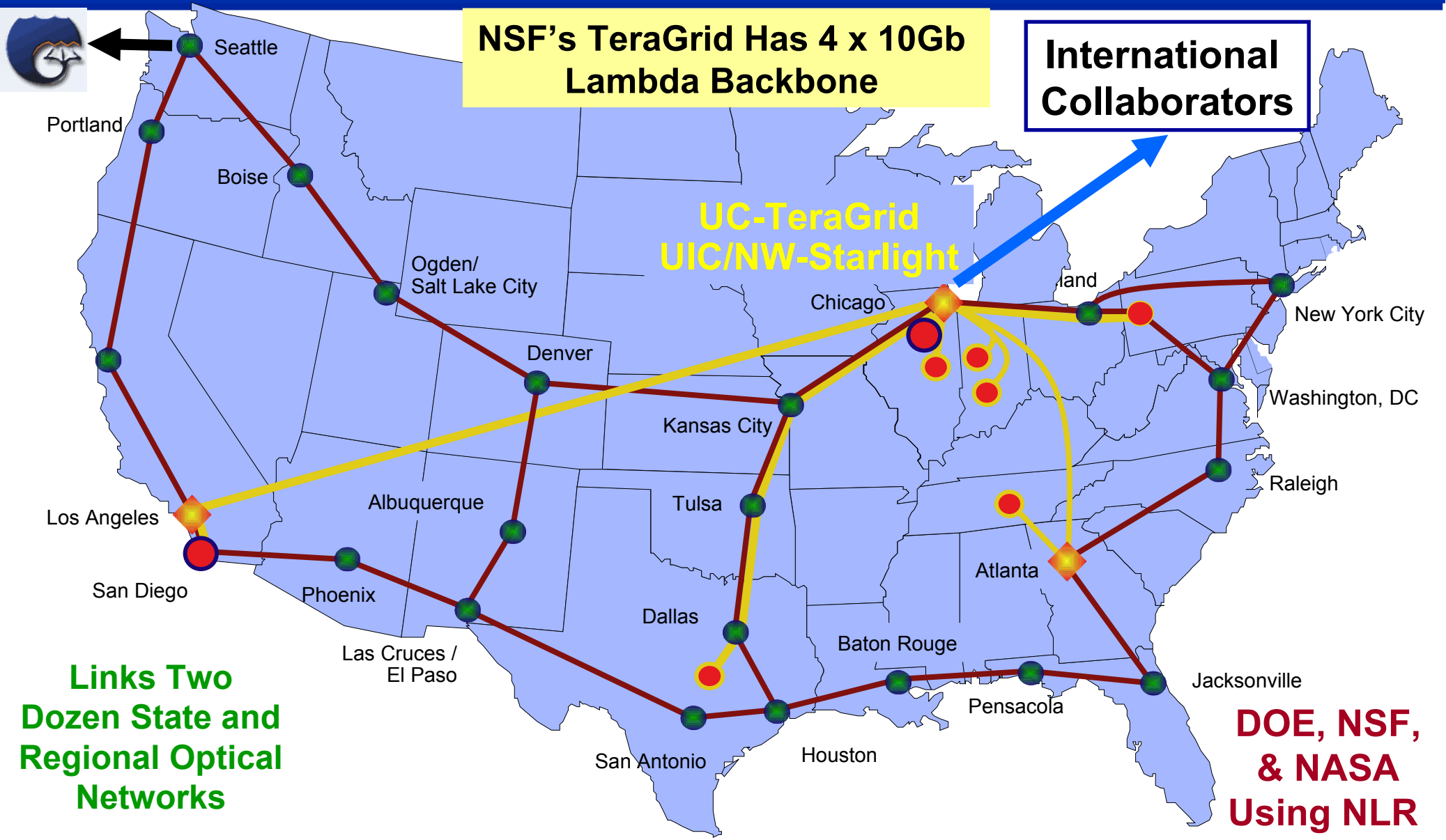
8 Megapixel/Frame x 3 Bytes/Pixel x 40 Frames/Sec

~ 1 GigaByte/Sec

We are Exponentially Crossing this Threshold Today!

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National Lambda Rail (NLR) and TeraGrid Provides Cyberinfrastructure Backbone for U.S. Researchers



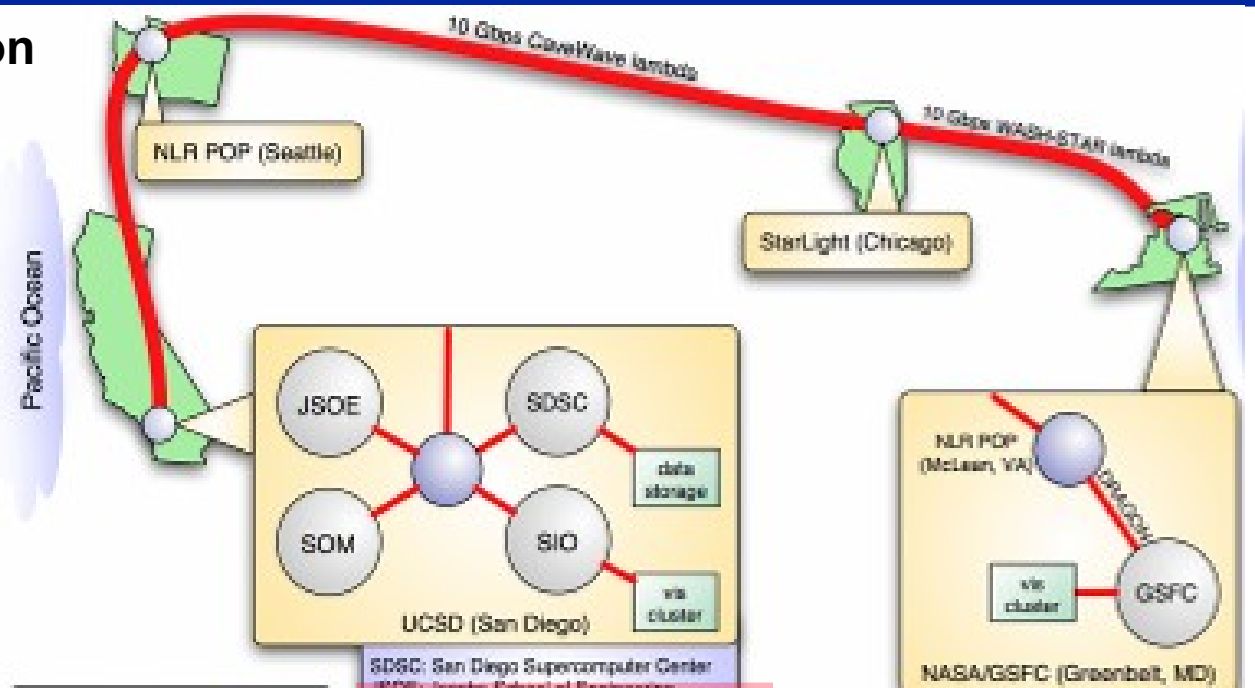
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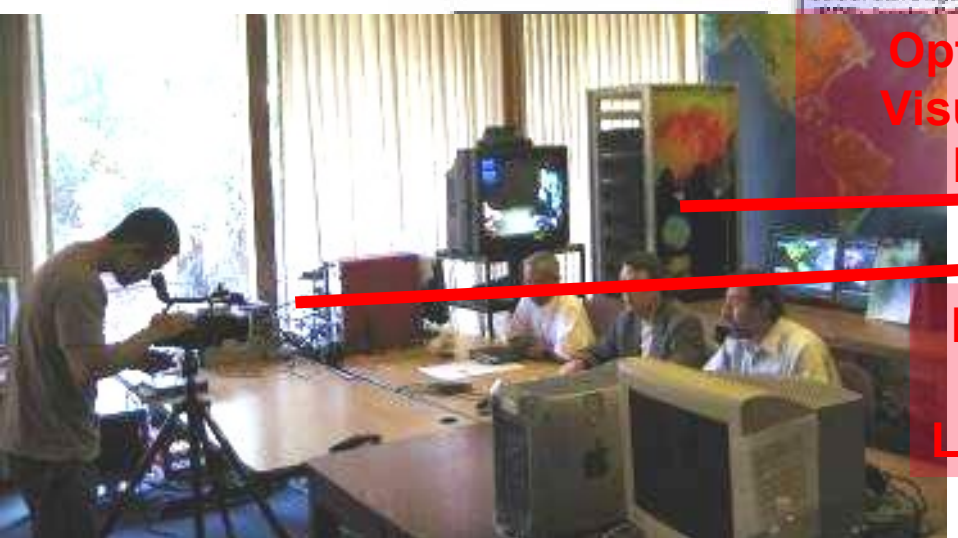
Calit2 and Goddard Spaceflight Center Are Combining Telepresence with Remote Interactive Analysis

Live Demonstration

of 21st Century National-Scale Team Science

August 2005





OptIPuter Visualized Data

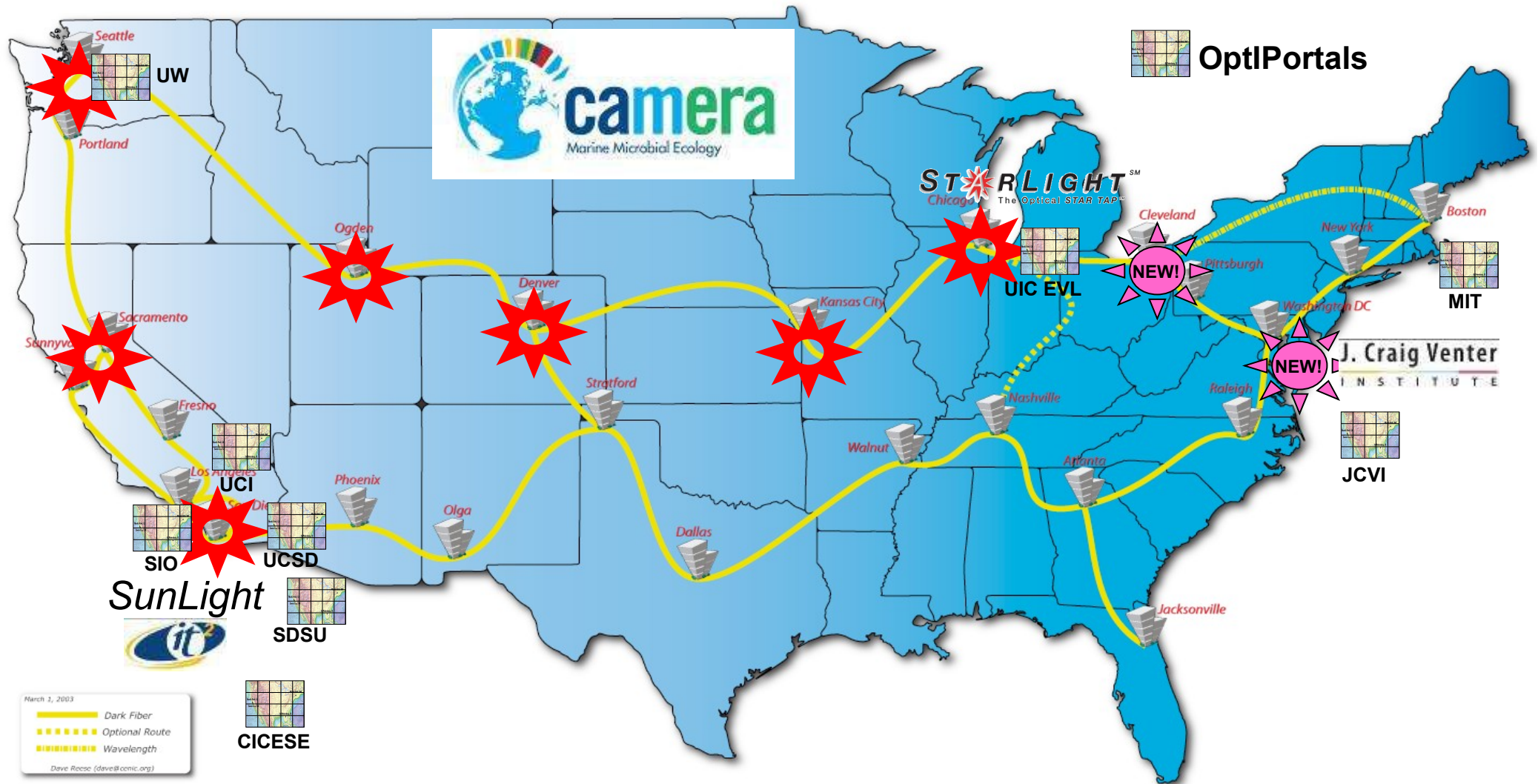
HDTV Over Lambda



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UIC/UCSD 10GE *CAVEWave* on the National LambdaRail Emerging OptIPortal Sites



CAVEWave Connects Chicago to Seattle to San Diego…and Washington D.C. as of 4/1/06

and JCVI as of 5/15/06

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STARLIGHT
The Optical STAR TAP

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Borderless Collaboration Between Global University Research Centers at 10Gbps

Maxine Brown, Tom DeFanti, Co-Chairs

iGrid 2005

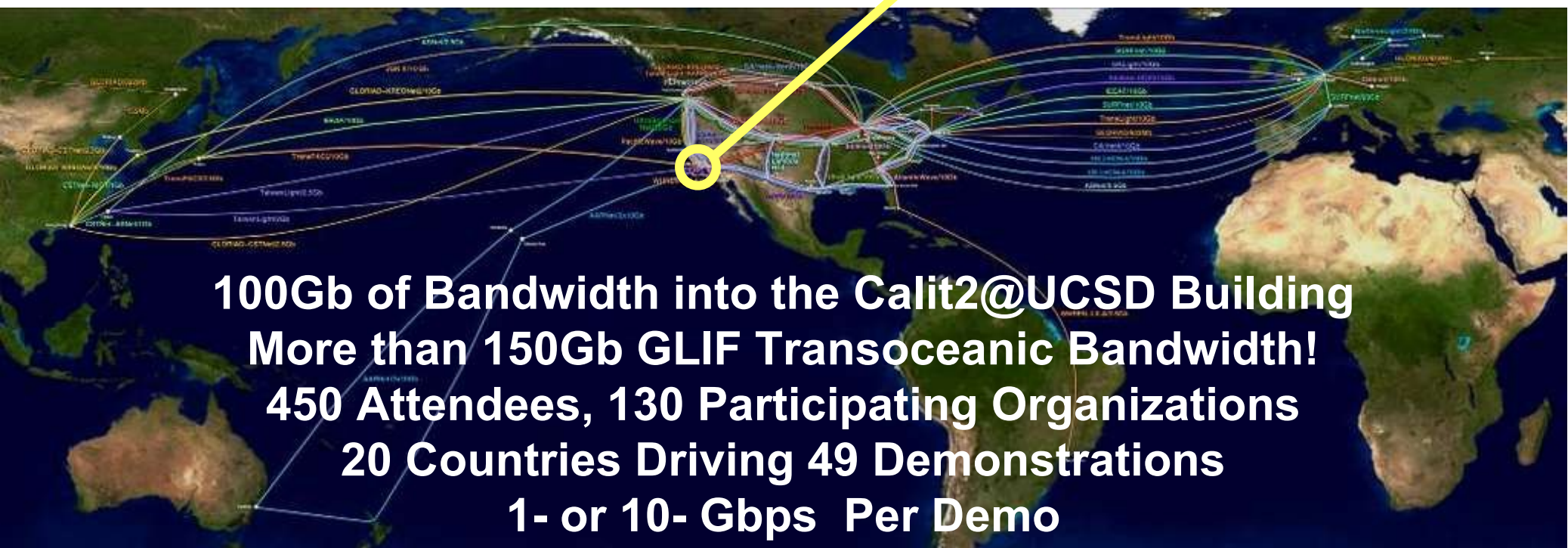
THE GLOBAL LAMBDA INTEGRATED FACILITY

www.igrid2005.org



the UC Discovery Grant

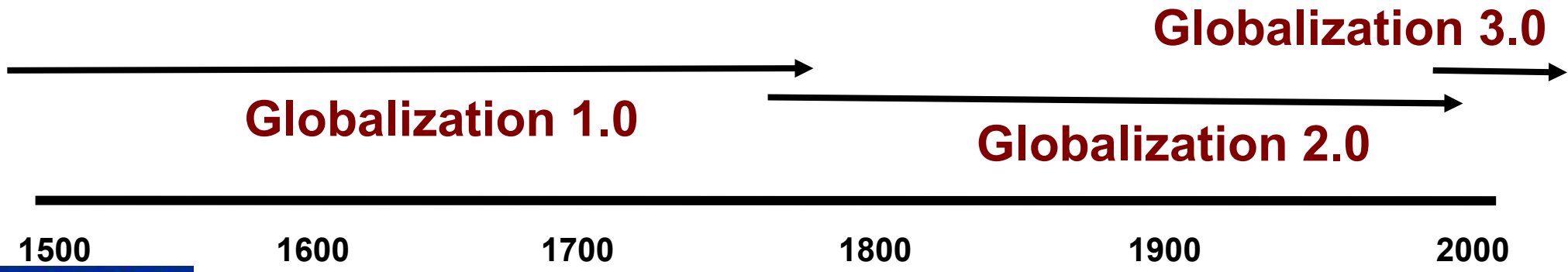
September 26-30, 2005
Calit2 @ University of California, San Diego
California Institute for Telecommunications and Information Technology



100Gb of Bandwidth into the Calit2@UCSD Building
More than 150Gb GLIF Transoceanic Bandwidth!
450 Attendees, 130 Participating Organizations
20 Countries Driving 49 Demonstrations
1- or 10- Gbps Per Demo

We Stand at the Beginning of the Globalization 3.0 Era

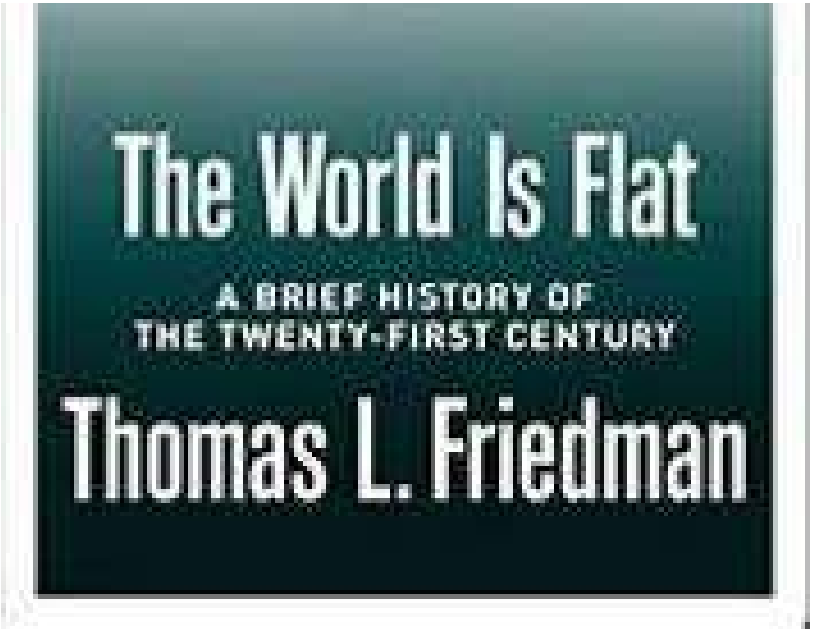
Globalization 1.0 was about countries and muscles. In Globalization 2.0 the dynamic force driving global integration was multinational companies. The dynamic force in Globalization 3.0 is the newfound power for individuals to collaborate & compete globally. And the lever that is enabling individuals and groups to go global is software in conjunction with the creation of a global fiber-optic network that has made us all next-door neighbors."



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Ten Years Old Technologies--the Shared Internet & the Web--Have Made the World "Flat"

- **But Today's Innovations**
  - Dedicated Fiber Paths
  - Streaming HD TV
  - Large Display Systems
  - Massive Computing and Storage
- **Are Reducing the World to a "Single Point"**
  - How Will Our Society Reorganize Itself?



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