“Engaging the Private Sector: UCSD Division of Calit2"

Presentation

CONNECT

Calit2 @ UC San Diego

January 23, 2013

Dr. Larry Smarr

Director, California Institute for Telecommunications and Information Technology

Harry E. Gruber Professor,

Dept. of Computer Science and Engineering

Jacobs School of Engineering, UCSD

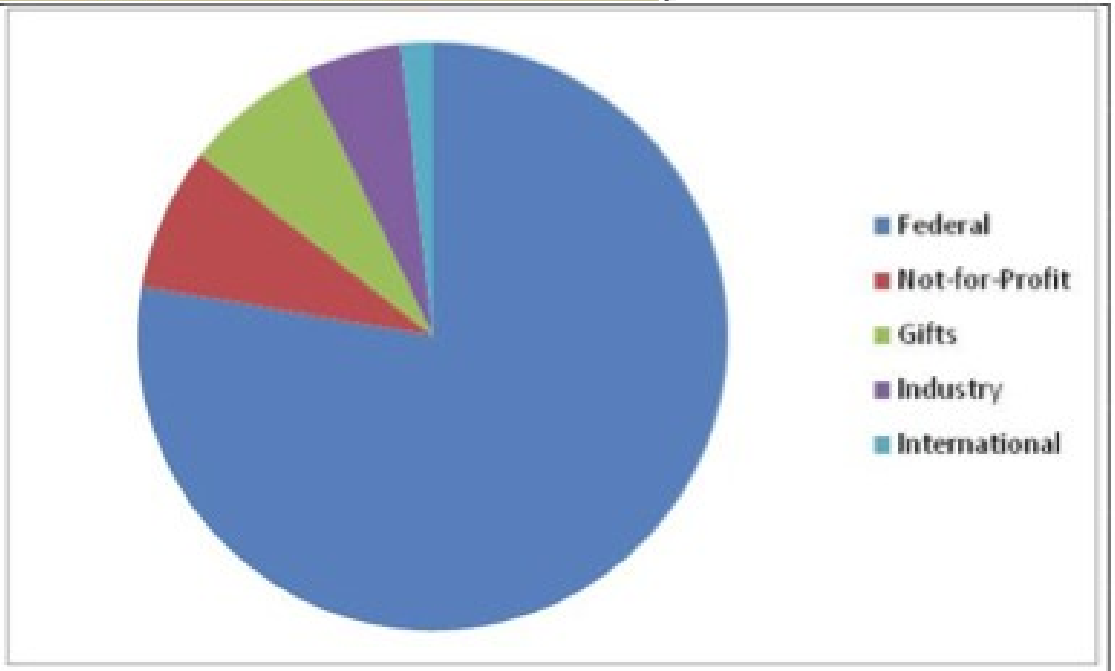
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Calit2 Attracted ~$1 Billion Since Its Inception in 2000



SPONSORED RESEARCH AND GIFTS 2000-2010	
Category	**Total Award Value**
Federal Research	$628,234,950
Not-for-Profit Research	$61,941,002
Gifts (Primarily Industry)	$63,816,157
Industry Research	$43,348,520
International Research	$14,258,536
TOTAL	**$811,599,165**

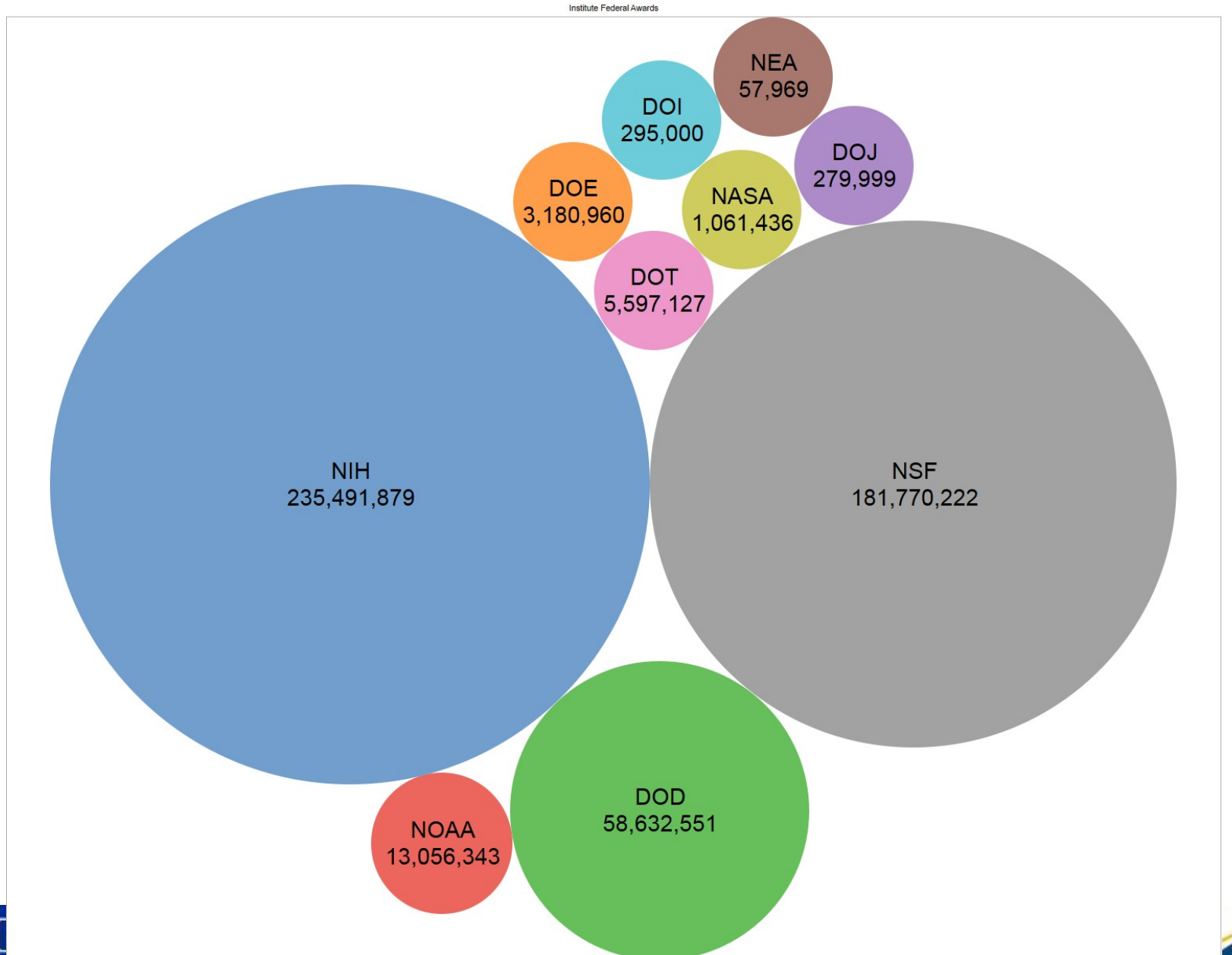


Source of Research Funding for Calit2

California's Investment in Calit2	
• State Capital for Buildings	$100,000,000
• State and Campus Operations	$59,000,000
Total	**$159,000,000**

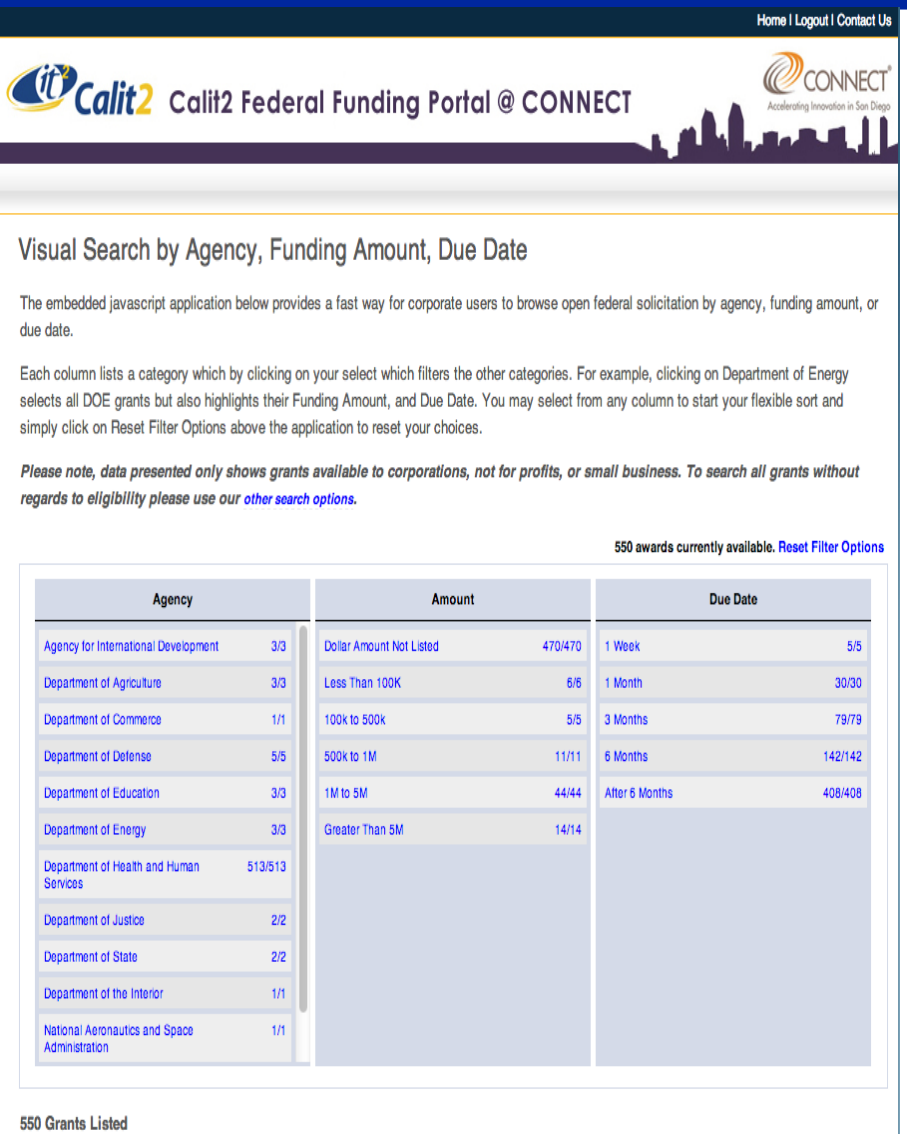
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Calit2 Federal Funding 2000-2011



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Calit2 Federal Funding Portal @ CONNECT



http://ric.ucsd.edu/connect/profile

- **Calit2 Customized Tools Developed for Faculty to Find Research Funding to Help Local Companies More Efficiently Identify Federal Funding Opportunities.**
- **The Site went live in March 2010 and is actively featured on the CONNECT web Site.**
- **Industry interest in the tool has been substantial.**
  - **~300 Companies are Registered Users**
  - **Company Size Ranges from Springboard Companies to Startups and Major Corporations**
  - **Analytics for the Site Show Use Averaging 10 Times a Day by Different Corporations.**
- **Substantial Improvement in Search Functionality Based on User Feedback Instituted in 2012.**

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Over 500 Researchers from More Than 20 Countries Attend This "Global Summit" on Information Theory







2013 Information Theory and Applications Workshop
Sunday 2/10 - Friday 2/15
Catamaran Resort, San Diego







- **Information Theory, Computer Science, Statistics**
- **Communications, Networking, Signal Processing**
- **Bioinformatics, "Big Data", Machine Learning**

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http://ita.ucsd.edu/workshop/13/participants

it²

Robots Learning Expressions of One-Year Old Child



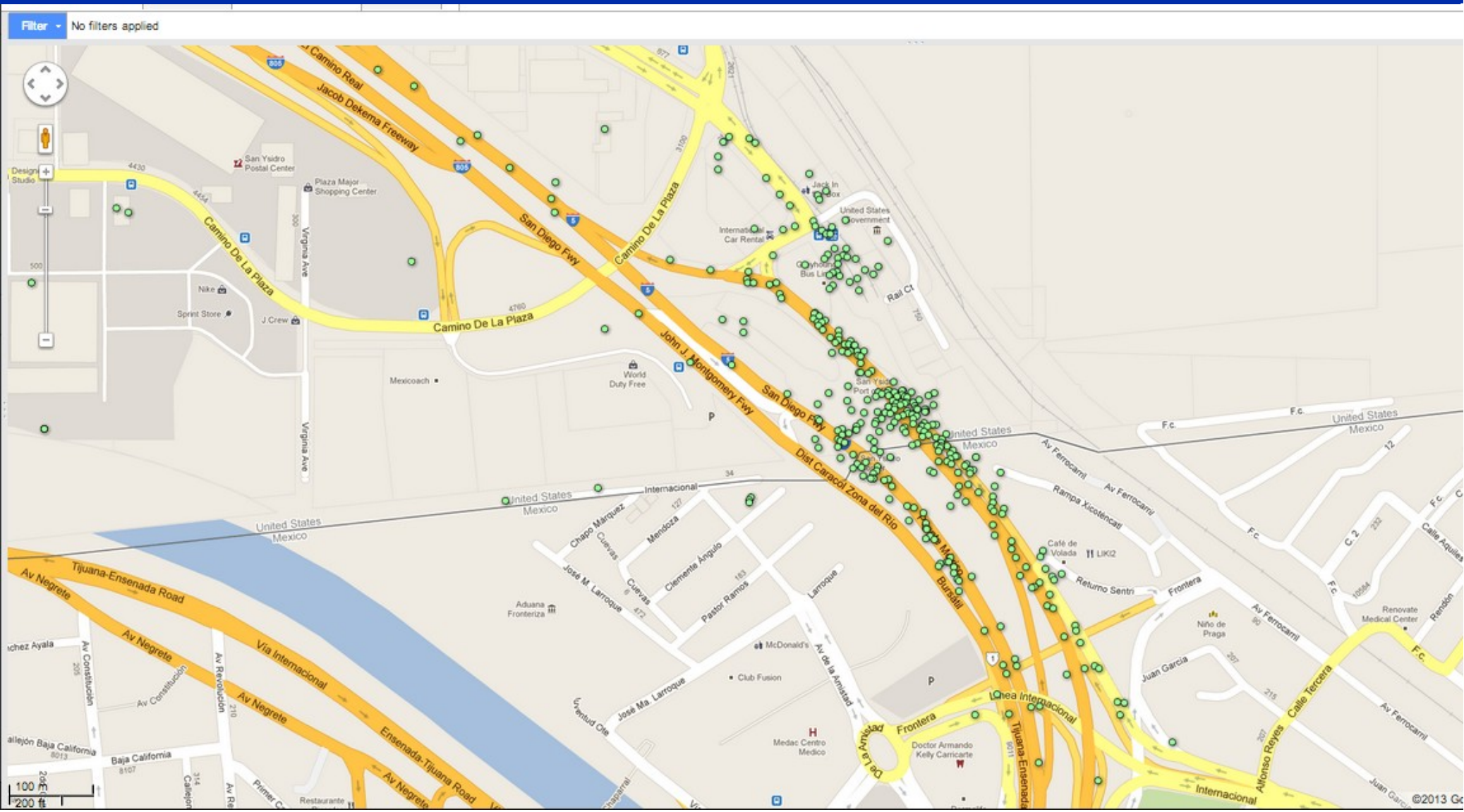
Body Built by Japanese Animatronic Company Kokoro

and its Head Created by U.S. Firm Hanson Robotics

UCSD's Machine Perception Laboratory,
Led by Professor Javier Movellan

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Commuters iReport Locations at San Ysidro



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Calit2-UCSD

http://traffic.calit2.net/border/border-crossing-wait-times-map.php

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Best Time to Cross the Border

powered by Calit2

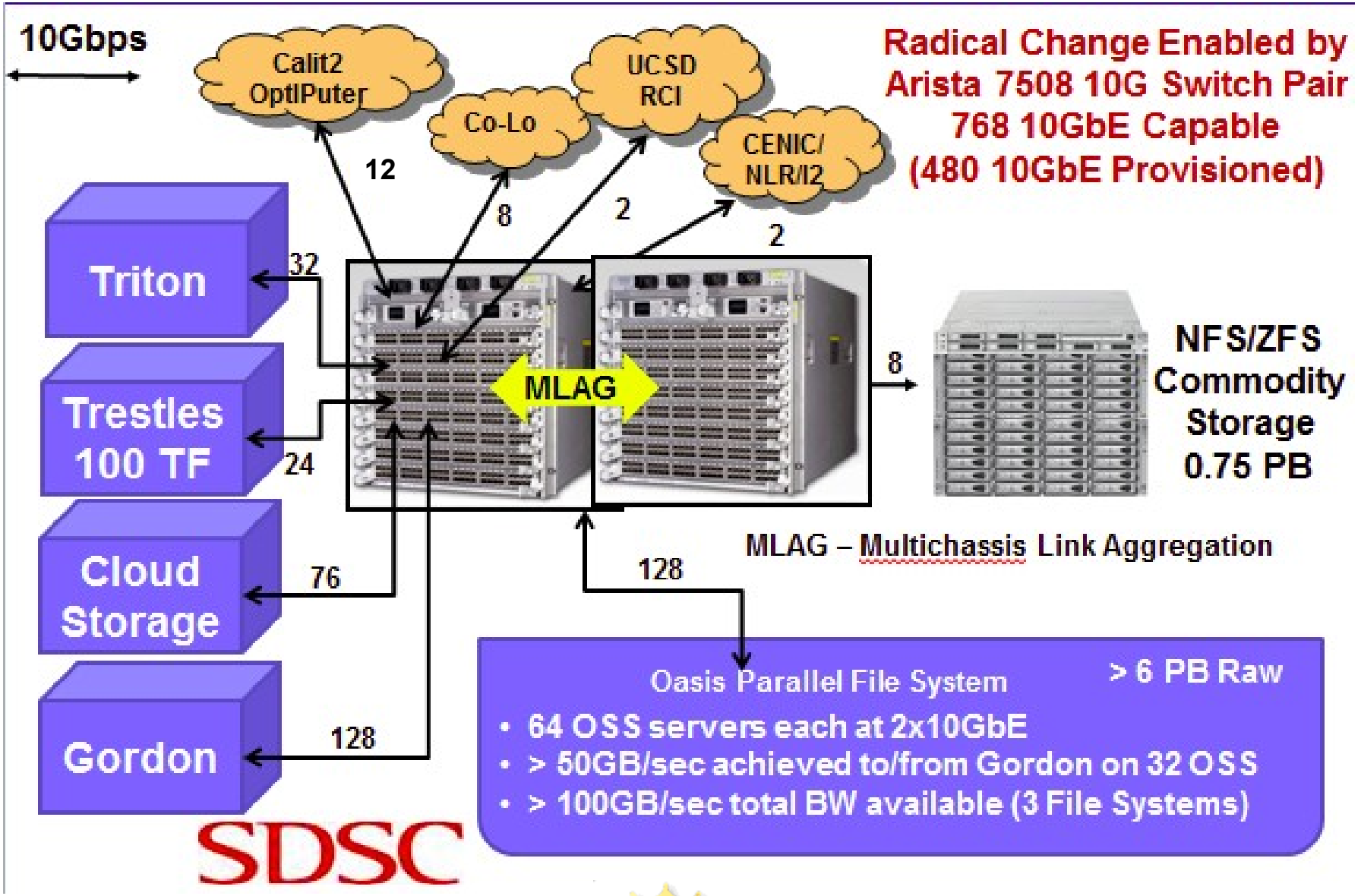


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http://traffic.calit2.net/border/border-crossing-wait-times-map.php

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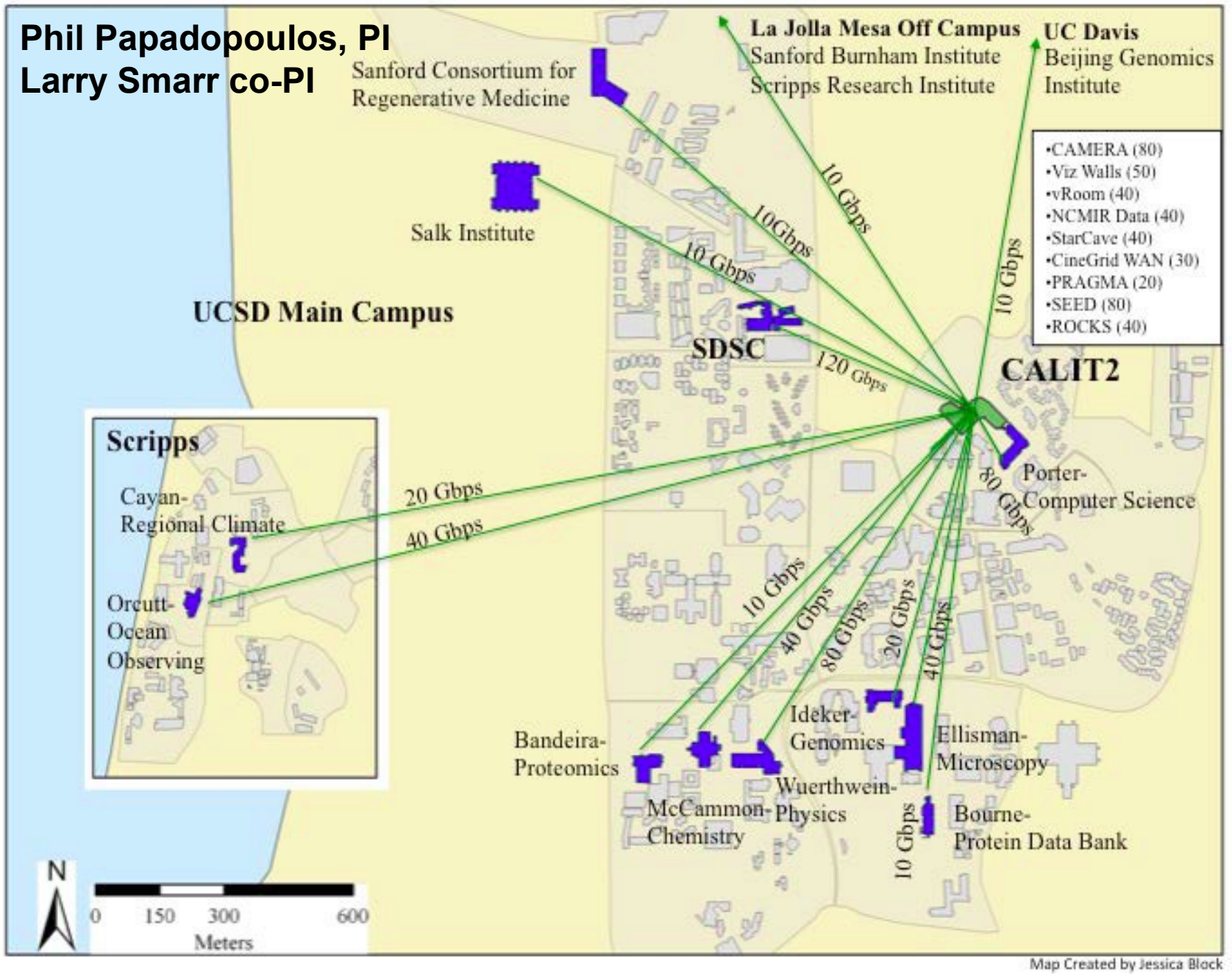
Arista Enables SDSC's Massive Parallel 10G Switched Data Analysis Resource



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NSF

Creating a "Big Data Freeway" System Connecting Instruments, Computers, & Storage

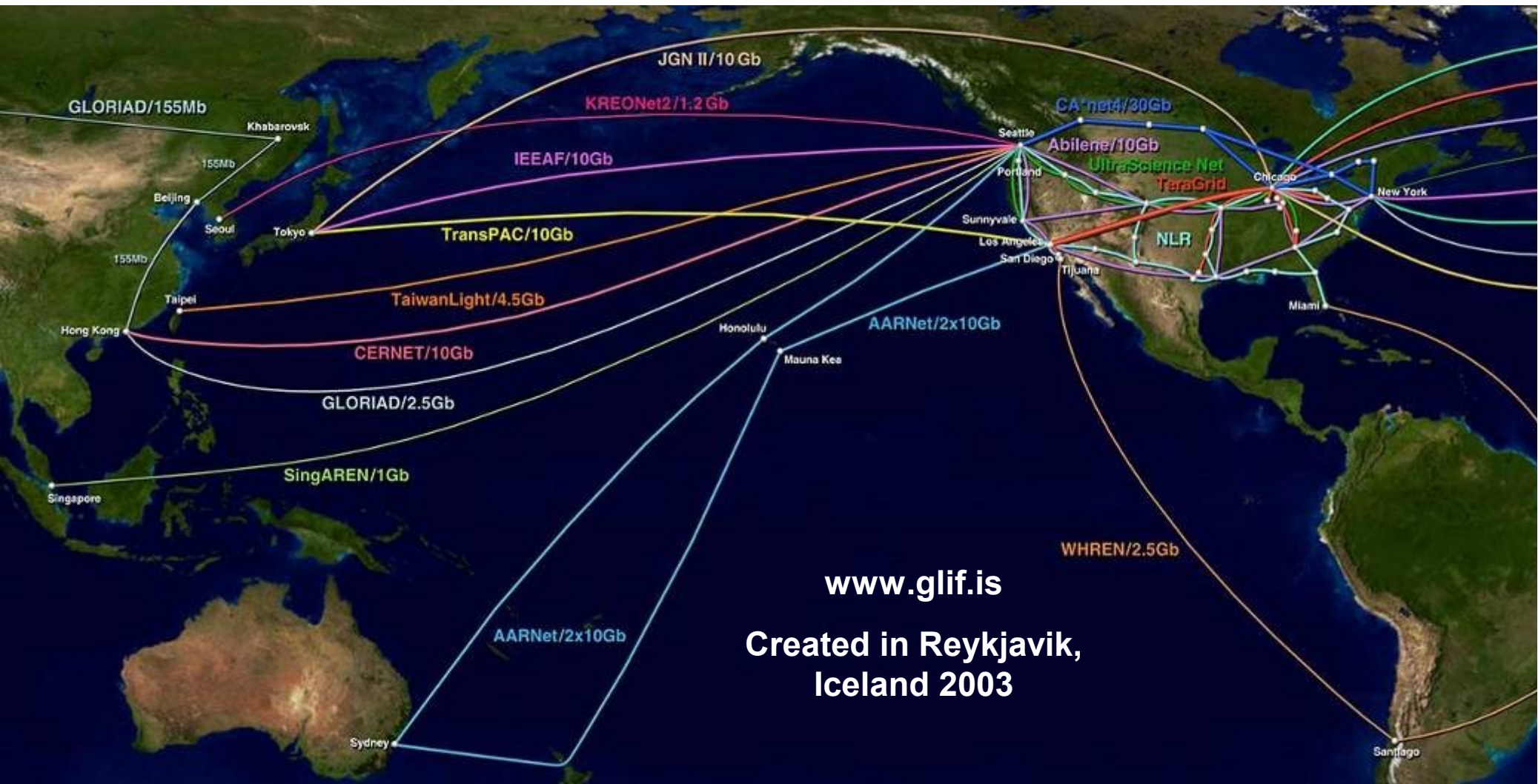


PRISM @UCSD

Start Date 1/1/13

The Global Lambda Integrated Facility--
Creating a Planetary-Scale High Bandwidth Collaboratory

Research Innovation Labs Linked at 10,000 Mbps!



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Visualization courtesy of
Bob Patterson, NCSA.

CineGrid 4K Digital Cinema Projects: "Learning by Doing"

CineGrid @ iGrid 2005



CineGrid @ AES 2006



CineGrid™





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CineGrid @ Holland Festival 2007

CineGrid @ GLIF 2007

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Tele-collaboration for cinema post-production

Disney + Skywalker Sound + Digital Domain + Laser Pacific
NTT Labs + UCSD/Calit2 + UIC/EVL + Pacific Interface

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Source: Laurin Herr, Pacific Interface

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Crossing Boundaries 2012-
Co-Taught Interdisciplinary Graduate Class

Co-Taught by Alan Burrett, Robert Castro, Lisa Porter, Victoria Petrovich and Shahrokh Yadegari





Performances in Calit2 VROOM Dec 2012

27 graduate students, (playwrights, designers, directors, actors, musicians, filmmakers, performance artists, stage mangers, engineers, and theatre scholars)

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Source: Shahrokh Yadegari, Dept. of Theatre and Dance
2004 Calit2 Professor of Arts and Humanities

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‘Citizen scientists’ help search for tomb of Genghis Khan via photos of Mongolia

By Sindya N. Bhanoo, April 04, 2011

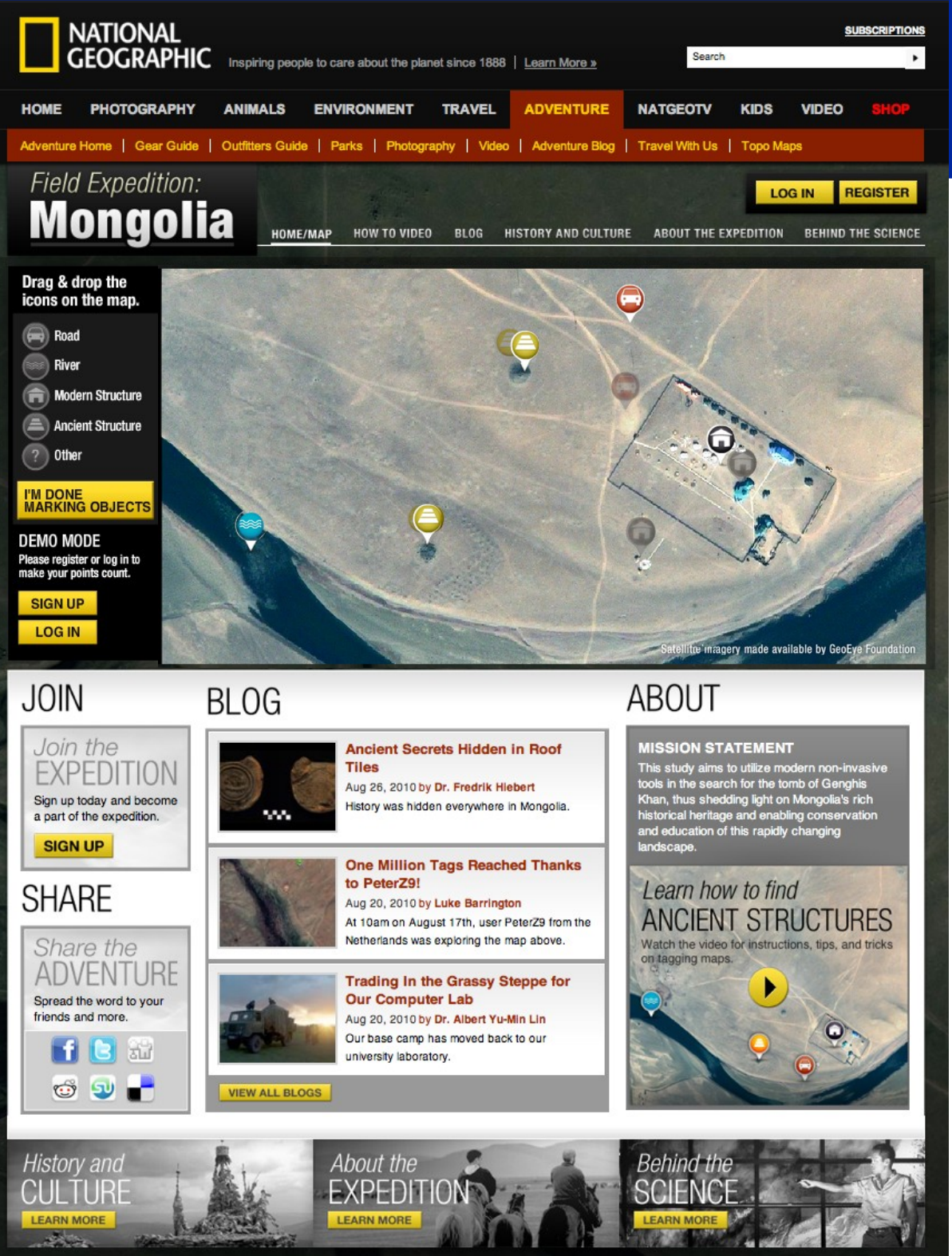
The Washington Post



Calit2’s Albert Lin
Photo credit Erik Jepsen

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Collaborating Researchers:

Albert YM Lin PI (UCSD, Calit2)

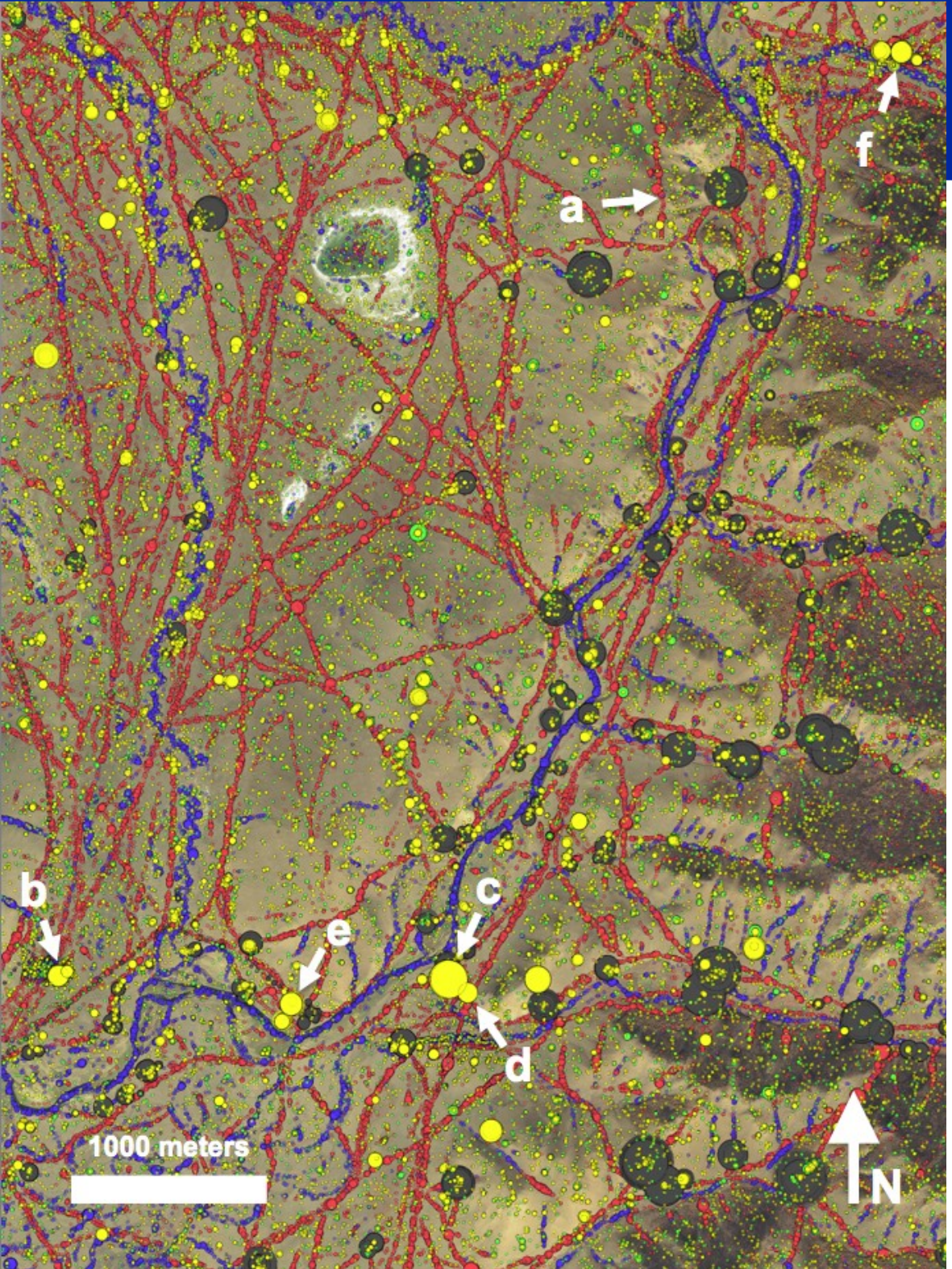
Luke Barrington (UCSD CSE)

Prof. Gert Lanckriet (UCSD CSE)
Kevin Ponto (UCSD, ECE)

Prof. Falko Kuester (UCSD, ECE)

Joshua Lewis (UCSD Cog Sci)

Derek Lomas (CMU Cog Sci)



Filtering the Noise:

From 2.3 million independent human annotations…

clusters of "agreement" emerge

National Geographic/Calit2
Expeditions to Mongolia to Seek Ground Truth

2008



2009



2010



2011



The Washington Post



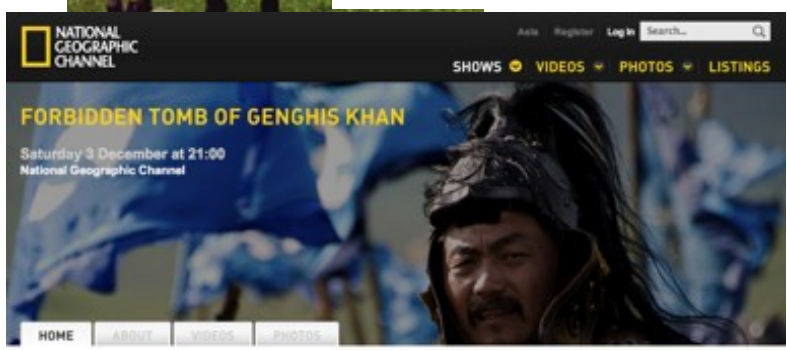


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NATIONAL GEOGRAPHIC ADVENTURE
DREAM IT. PLAN IT. DO IT.

The New York Times





ScienceDaily®
Your source for the latest research news



English.news.cn
新华网 NEWS
English.xinhuanet.com



WIRED



abcNEWS / Technology

THE WEBBY AWARDS

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Albert Yu-Min Lin, Ph.D

Chairman, aka "Magnum"

EvoNexus

A CommNexus Incubator

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Tomnod Disaster Mapper | Christchurch GEO-CAN

http://tomnod.com/geocan/

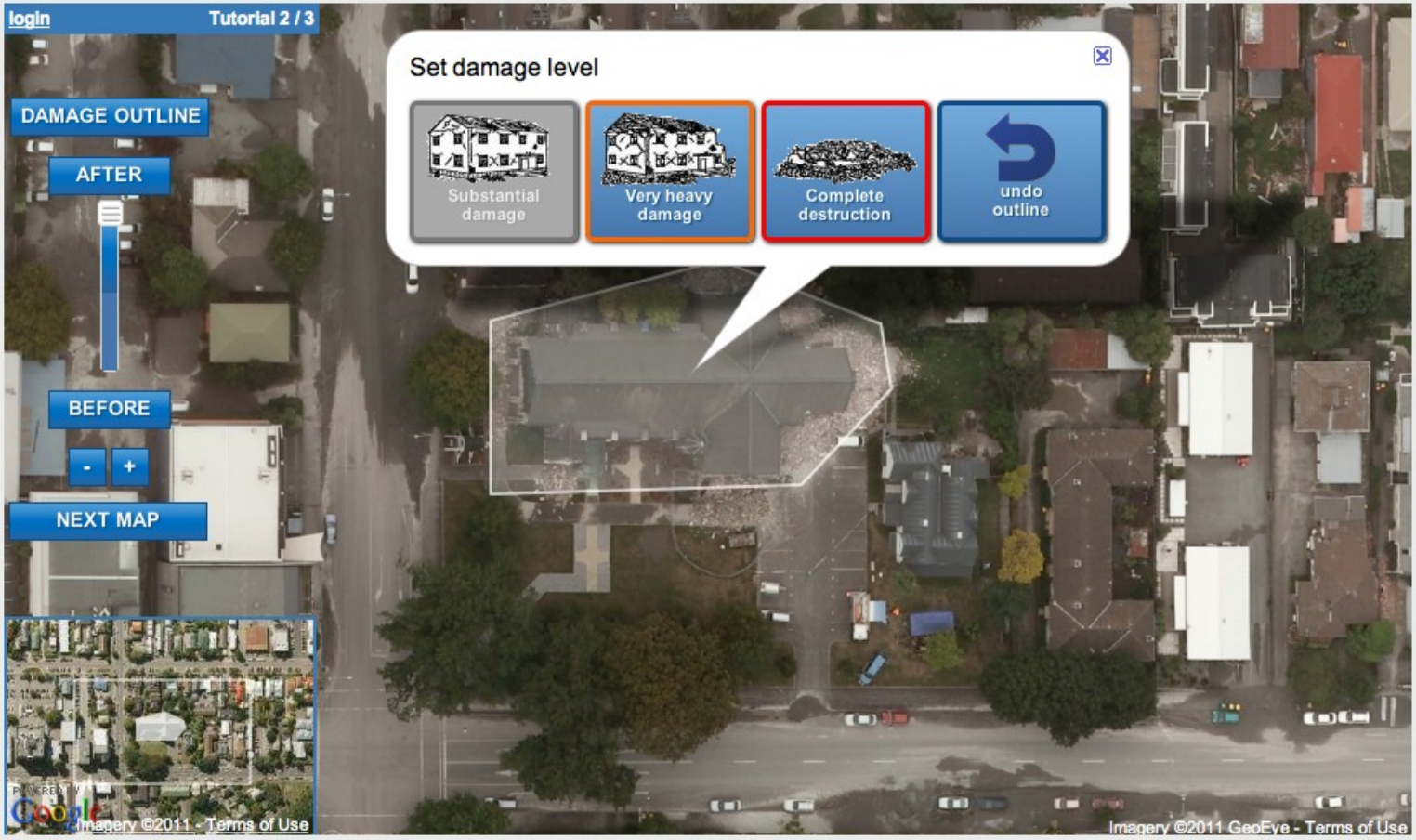
Google

Export Kmz | VOTK2010viewer | Google Analytics | Genghisgame | natgeoAdv | Gmail | PayPal | Calendar | Vimeo | Netflix | Facebook | supertopo

tomnod Disaster Mapper | Christchurch GEOCAN



DISASTER MAPPER | INSTRUCTIONS | GEOCAN | CROWDSOURCING | CONTACT



Tomnod Disaster Mapper | Christchurch GEOCAN

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California is Birthing an Interplanetary Industrial Sector

Mystery company backed by James Cameron and Google executives may be an asteroid mining project

By Adi Robertson on April 18, 2012 01:37 pm Email @thedextriarchy

PLANETARY RESOURCES



EARTHSKY // BLOGS // SPACE

Deborah Byrd | JAN 22, 2013

Deep Space Industries joins the asteroid gold rush

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ARTHUR C. CLARKE CENTER FOR HUMAN IMAGINATION

University of California San Diego

Principal Investigator
Sheldon Brown
Professor of Visual Arts

Co-Principal Investigator
David Kirsh
Professor of Cognitive Science

THE ARTHUR C. CLARKE FOUNDATION

Starship Century: The Coming Interplanetary Economy

Symposium Spring 2013

Materials and Devices Laboratory - Organization

- 6 Member Faculty Committee
- Facility Operations:
  - Faculty Director (Prof. Yuhwa Lo)
  - Staff Manager (Bernd Fruhberger, Ph.D.)
  - 8 Technical Staff Members, including 4 Ph.D.
  - 4 Part-time Student Assistants
  - 1/2 Administrative Support



Materials and Devices Laboratory – Current User Base

>130 UC Research Groups; in 6 yrs operation >1500 trained users

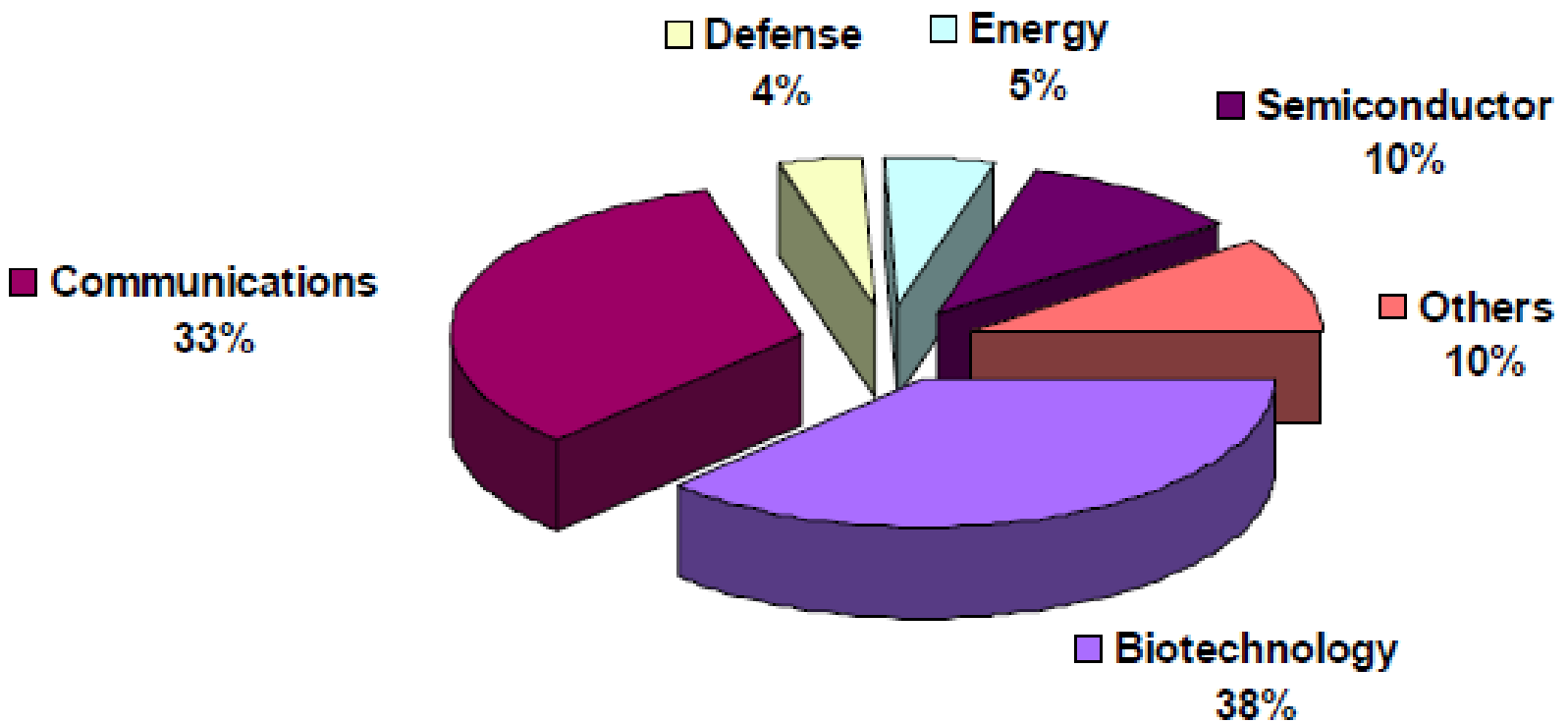
12 Departments:

Bioengineering; Biology; Calit2; Chemistry and Biochemistry; Electrical and Computer Engineering; Mechanical and Aerospace Engineering; Nanoengineering; Medicine; Physics, Scripps Institute of Oceanography; Structural Engineering; Visual Arts

80+ Companies

Nano3 Industry Usage Since Inception (84 companies total)

http://nano3.calit2.net/



34 companies with active usage during current fiscal year.

Source: Lo (UCSD), Fruhberger (Calit2) 11/19/12

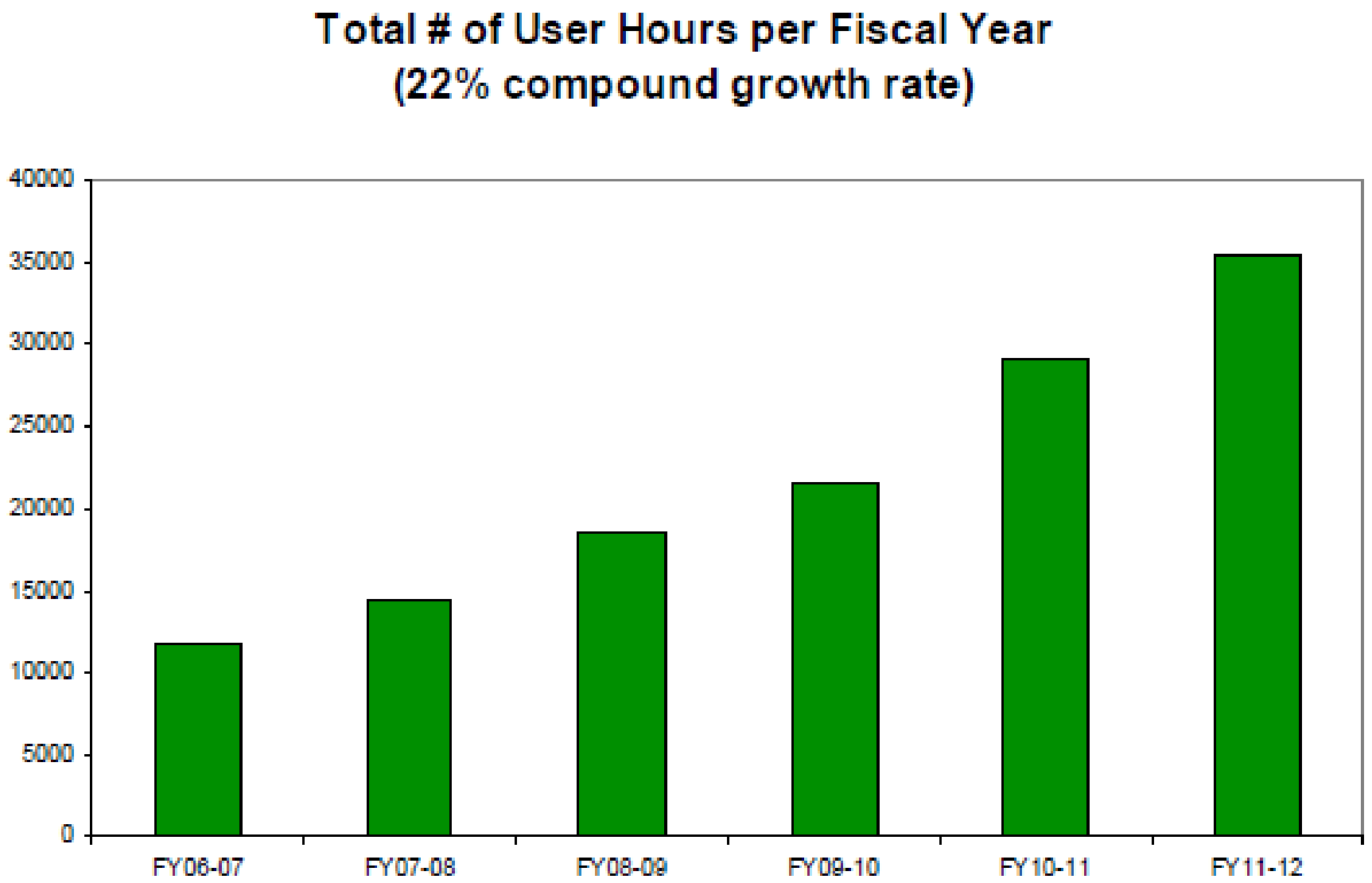
Some of the Regional Companies Using Calit2's Nano3

Company	Industry Sector
Illumina	Biotechnology
Sun/Oracle	Communications
Qualcomm	Communications
Pacific Integrated Energy	Energy
XCOM	Communications
Ostendo	Semiconductor
General Atomics	Defense
Life Techn. (Invitrogen)	Biotechnology
TSRI	Biotechnology
Cymer	Semiconductor
RFNano	Semiconductor
Lumedyne	Semiconductor
Arrayomics	Biotechnology

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Calit2's Nano3 Usage Continually Increases



http://nano3.calit2.net/

Source: Lo (UCSD), Fruhberger (Calit2) 11/19/12

From Measuring Macro-Variables to Measuring Your Internal Variables



www.technologyreview.com/biomedicine/39636

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