Bringing Mexico Into Global Borderless Innovation

ADIAT
Tijuana, Mexico
April 20, 2006

Dr. Larry Smarr
Director, California Institute for Telecommunications and Information Technology (Calit2)
Harry E. Gruber Professor,
Dept. of Computer Science and Engineering
Jacobs School of Engineering, UCSD

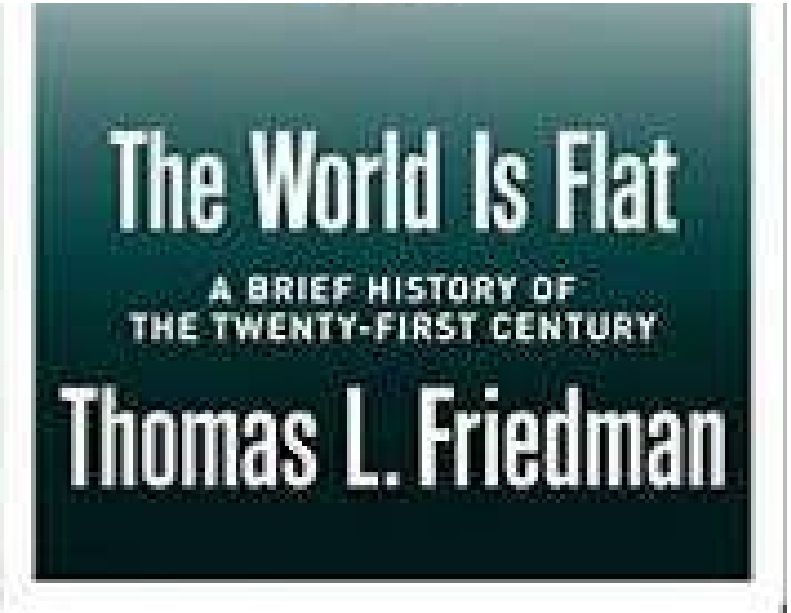
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We Are Living In A Fundamental Global Change—How Can We Glimpse the Future?

[The Internet] has created a [global] platform where intellectual work, intellectual capital, could be delivered from anywhere.
It could be disaggregated, delivered, distributed, produced, and put back together again…

The playing field is being leveled."

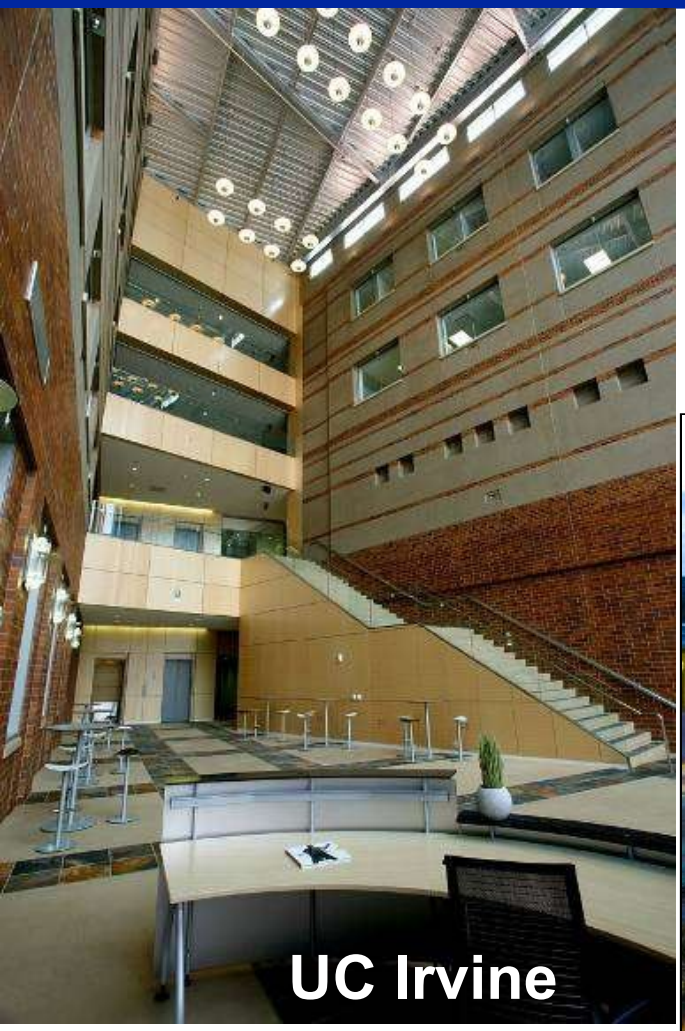
--Nandan Nilekani,
CEO Infosys
(Bangalore, India)



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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 an World in Which Distance Has Been Eliminated…

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Calit2 is Developing High Definition Streaming Internationally



Photo: Courtesy of Harry Ammons

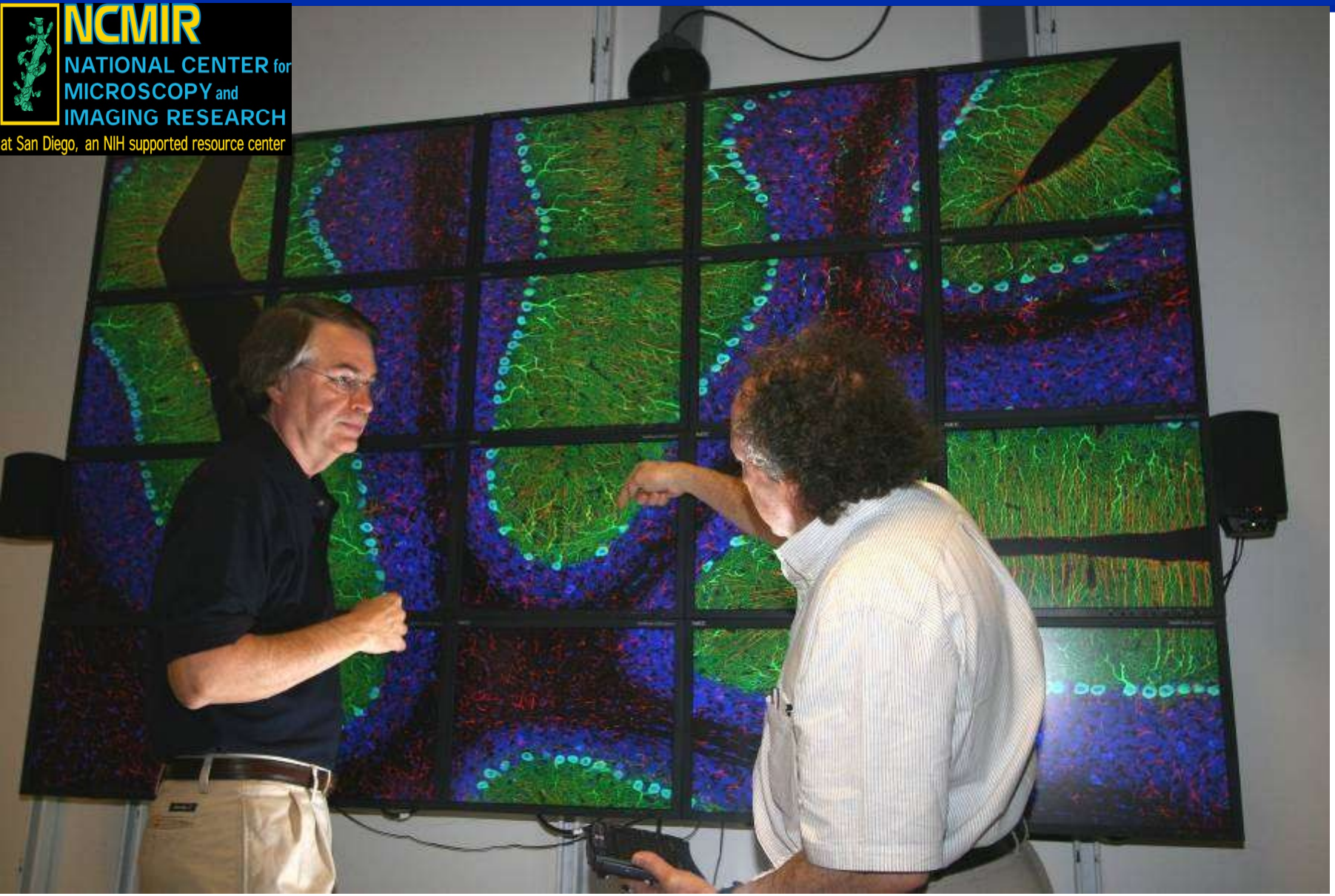
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Studio on 4th Floor of Calit2@UCSD Building
Two Talks to Australia in March 2006

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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



NSF

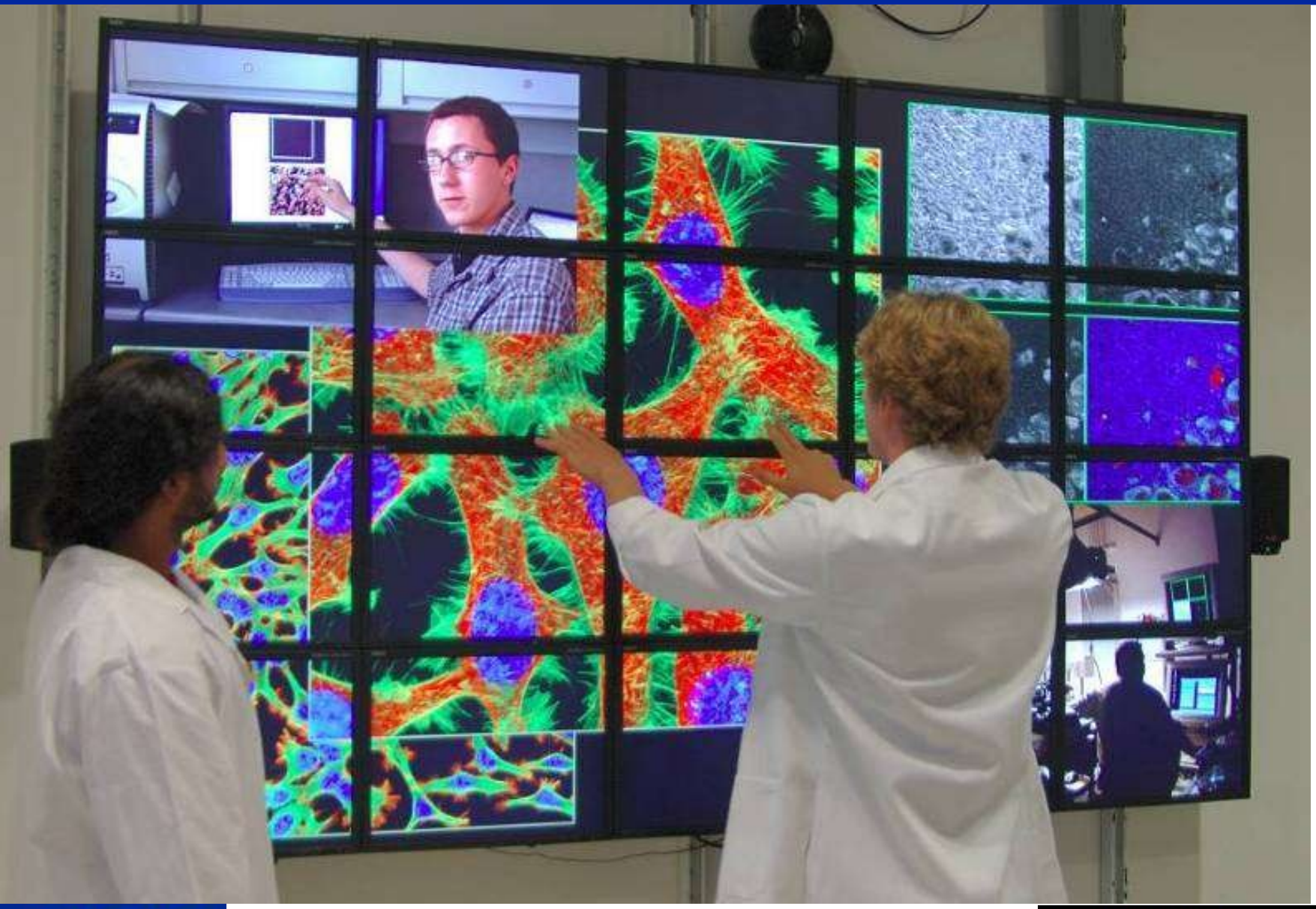
Source: Mark Ellisman, David Lee, Jason Leigh

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Calit2 (UCSD, UCI) and UIC Lead Campuses—Larry Smarr PI
Partners: SDSC, USC, SDSU, NW, TA&M, UvA, SARA, KISTI, AIST

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Combining High Definition Video Streams with Large Scale Image Display Walls



Large Scale Images of Cancer Cells

UCSD UCIrvine

evl electronic visualization laboratory

Source: David Lee, NCMIR, UCSD

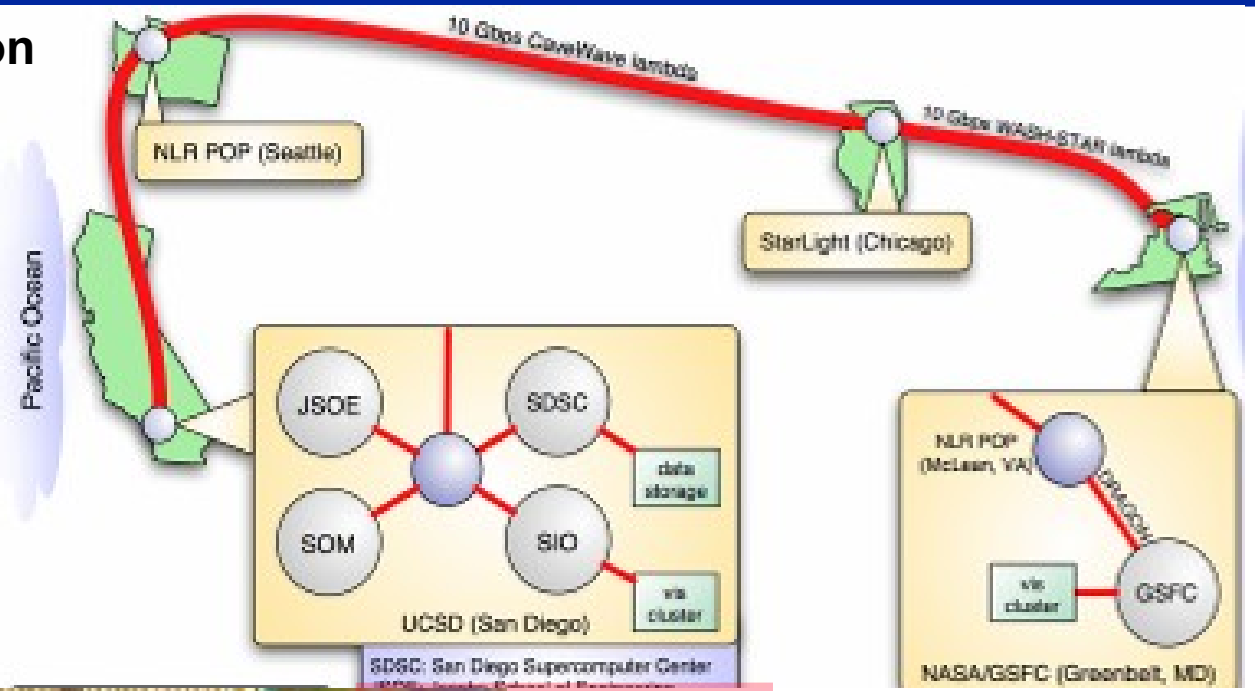
NCMIR NATIONAL CENTER for MICROSCOPY and IMAGING RESEARCH at San Diego, an NIH supported resource center

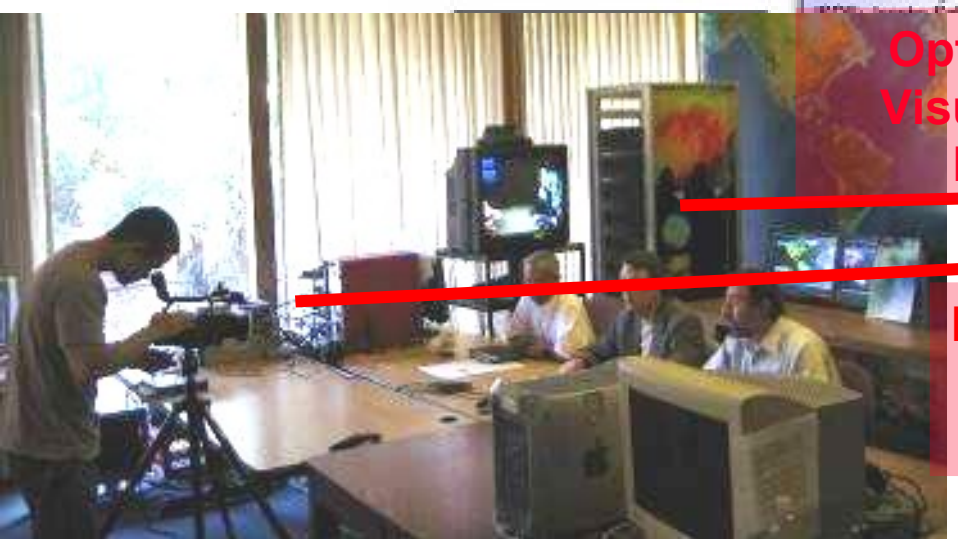
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Calit2 Has Demonstrated National-Scale Telepresence with Remote Interactive Analysis

Live Demonstration

of 21st Century National-Scale Team Science





OptIPuter Visualized Data

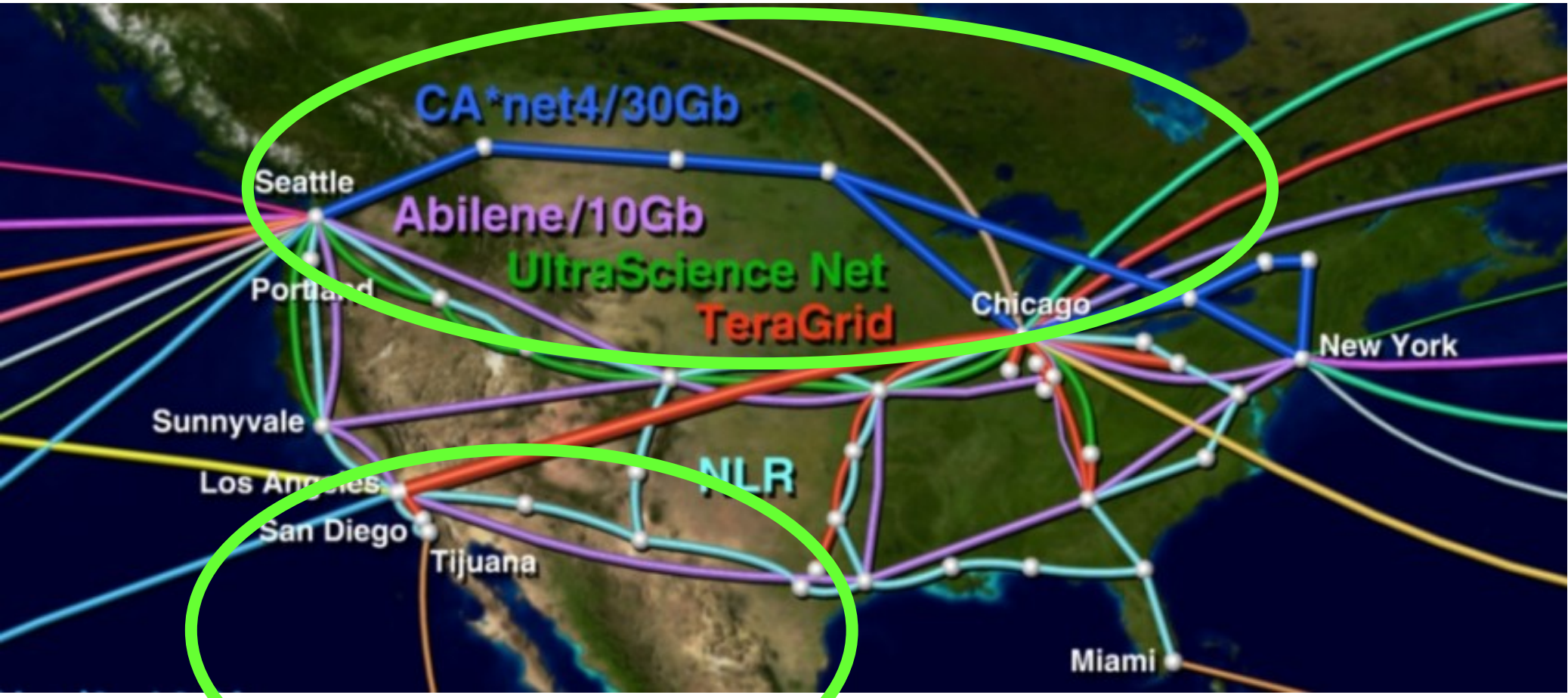
HDTV Over Fiber



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Creating a North American Superhighway for High Performance Collaboration



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Next Step: Adding Mexico to Canada's CANARIE and the U.S. National Lambda Rail

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CUDI-CENIC Fiber Dedication at Border Governor's Conference, July 14, 2005



US  **Mexico**

Torreon Conference---Fiber Dedication Linking Mexico and US, crossing at San Diego-Tijuana



- **Shared Security**
- **Energy**
- **Trans-National Crime**
- **Education and Research**
- **Business Development**

cudi

Culmination of Three Years of Work Between Calit2, CICESE, CENIC, and CUDI

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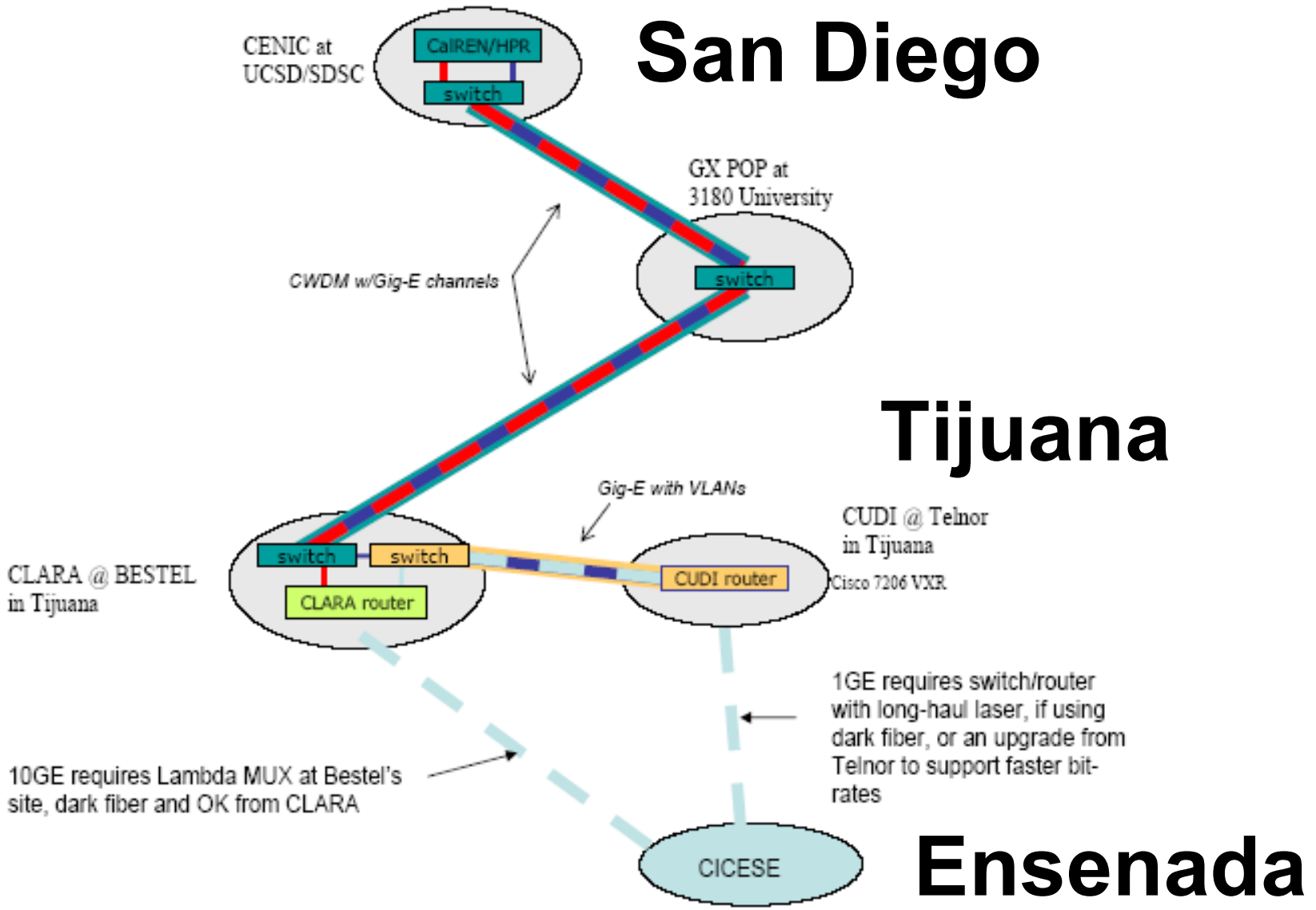


cenic
Corporation for Education Network Initiatives in California

LEADING THE WAY TO TOMORROW'S INTERNET

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We are Very Close to Setting Up a Gigabit/sec Link Between Calit2 and CICESE



Source: Raúl Hazas, CICESE

Collaboration Between CICESE and UCSD in Ocean Microbe Genomics

CICESE

Departament of
BIOLOGICAL OCEANOGRAPHY

Dedicated to Biologican and Fisheries Oceanography

EN Spanish | Graduate Studies | Library | CICESE

Biological Oceanography
- Home
- Mission & vision

Directory
- Scientific staff
- Research assistants
- PhD students
- MSc students

Productivity

WELCOME



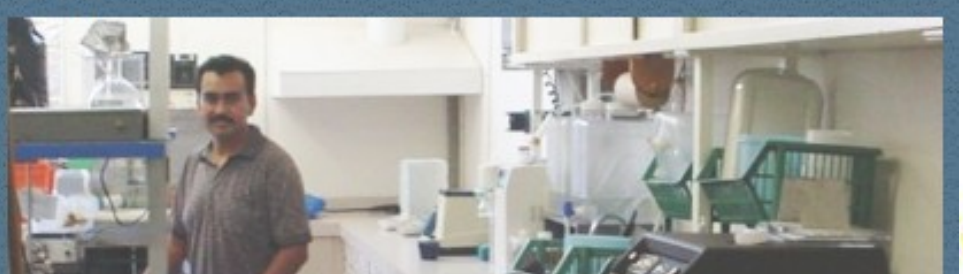
Related sites
- Oceanology Division
- Marine Sciences
- Societies
- IMECOCAL
- FLUCAR
- Agenda 21 Local
- CICESE magazine
- Books & journals

UCSD and CICESE Have 30-Year History of Collaboration

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Ecology of Marine Plankton

Phytoplankton and bacteria culture; photosynthesis, respiration, in vivo fluorescence and absorption of phytoplankton; inorganic carbon and oxygen in seawater. [ext. 242-86]



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Dedicated Optical Fiber Collaboratory: Remote Researchers Jointly Exploring Complex Data



Deploy Throughout Mexico After CICESE Test

OptIPuter

Proposal:
Use OptIPuter to Connect a Tiled Display at CICESE to the 100M-Pixel Display at Calit2@UCSD With Shared Storage



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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

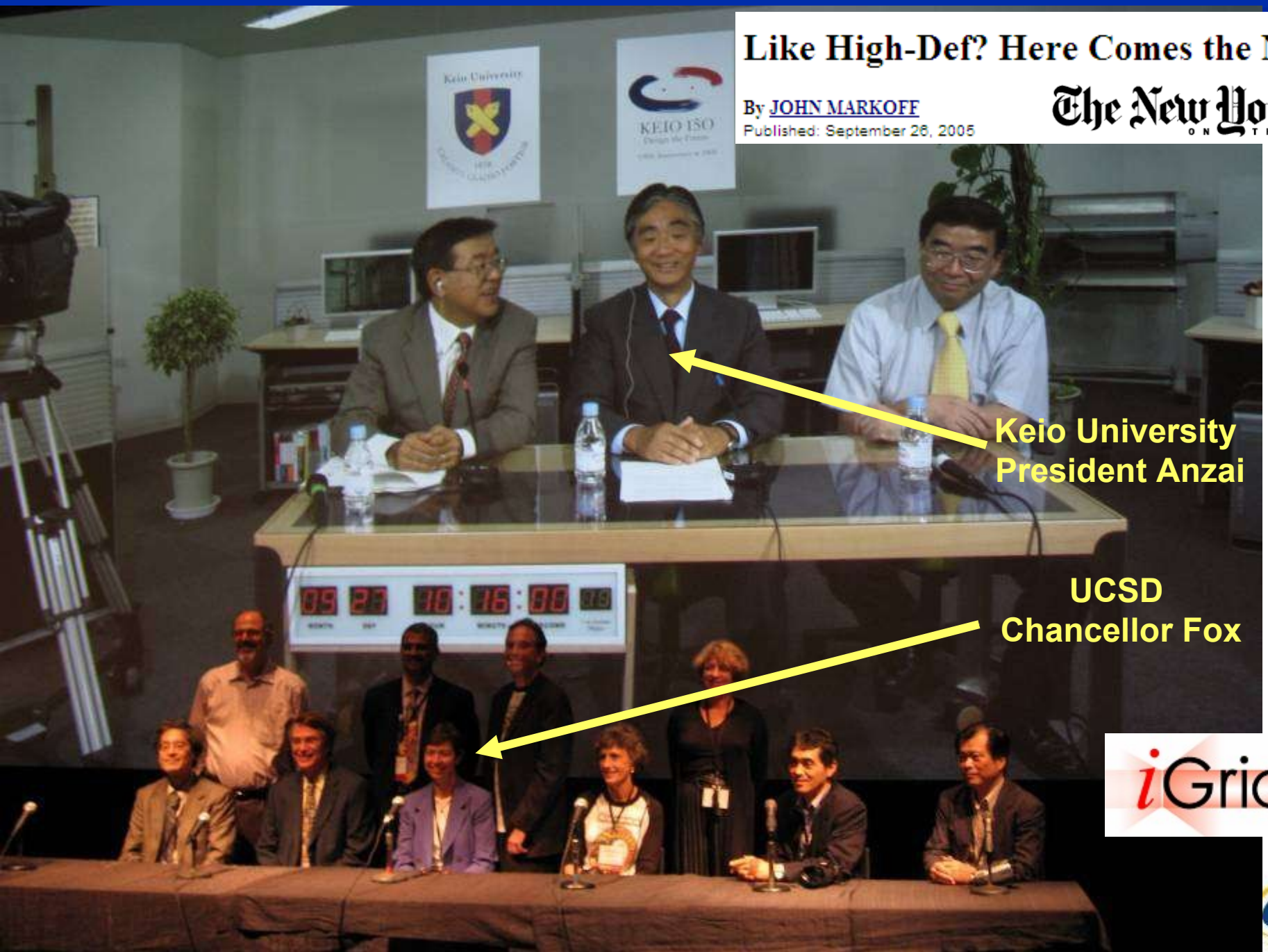


21 Countries Driving 50 Demonstrations

1 or 10Gbps to Calit2@UCSD Building

Sept 2005

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

Lays Technical Basis for Global Digital Cinema

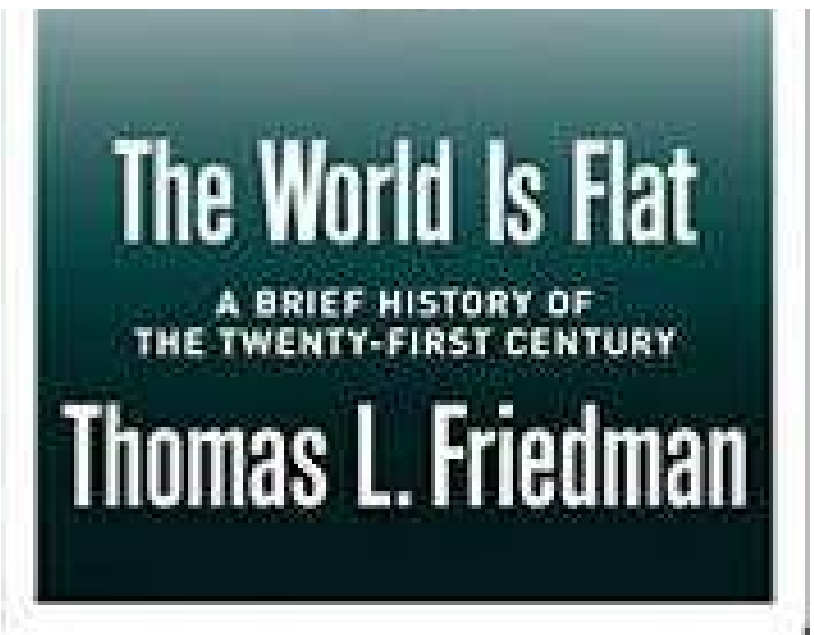
Sony
NTT
SGI

iGrid 2005

it2

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"**



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