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January 13, 2011

VIA ELECTRONIC FILING

Marlene H. Dortch
Secretary
Federal Communications Commission
445 12th Street, SW, Portals
Washington, DC 20554

Re: Ex Parte - In the Matter of Rural Health Care Support Mechanism
(WC Docket No. 02-60)

Dear Ms. Dortch:

On January 13, 2011, James Dolgonas, President/Chief Executive Officer of The Corporation for Education Network Initiatives in California (CENIC), and the undersigned met with Trent Harkrader, Divya Shenoy, Jamie Susskind, Cindy Spiers, Romanda Williams and Chin Yoo of the Commission to discuss the matter fully set forth in the attached documents entitled "CENIC Urges the Commission to Clarify that Any Broadband Services Provided to Eligible Health Care Providers by Any Broadband Service Provider Using Any Medium, Including Lit Fiber, is Eligible for USF Support" and "Examples of Broadband Technologies."

Respectfully submitted,

Randall B. Lowe
Attorney for CENIC

cc: Trent Harkrader
Divya Shenoy
Jamie Susskind
Cindy Spiers
Romanda Williams
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CENIC URGES THE COMMISSION TO CLARIFY THAT ANY BROADBAND SERVICES PROVIDED TO ELIGIBLE HEALTH CARE PROVIDERS BY ANY BROADBAND SERVICE PROVIDER USING ANY MEDIUM, INCLUDING LIT FIBER, IS ELIGIBLE FOR USF SUPPORT

The Corporation for Education Network Initiatives in California ("CENIC") is a non-profit organization. CENIC is not a telecommunications carrier nor does it provide telecommunications services, as those terms are defined by the Communications Act. Instead, CENIC designs, implements and operates CalREN, the California Research and Education Network, which is a private, broadband, fiber backbone owned and operated by the research and education community. The purpose of the network is to meet the broadband telecommunications needs of California's K-20 educational institutions, as well as other community anchors, such as libraries, public safety agencies and health care providers. CENIC is also a subrecipient of a BTOP grant to provide networking services in the central valley of California to libraries and public safety agencies, as well as to expand its existing services to K-12 schools and community colleges.

CENIC welcomed the recent Sixth Report and Order in the schools and libraries proceeding whereby the Commission amended its rules to include as priority one legible services the "general category" of telecommunications "provided in whole or in part via fiber by any entity." (47 CFR §54.502(a)(2).) For the same reason, CENIC welcomes the Notice of Proposed Rulemaking in the health care support proceeding released on July 15, 2010 ("NPRM"), whereby the Commission proposes to permit universal service support of advanced services provided by non-telecommunications carriers. However, unlike the "any entity" and "telecommunications" language used by the Commission for schools and libraries in the Sixth Report and Order, the Commission uses the terms "qualified broadband access service providers" (proposed 47 CFR §54.635) and "broadband access services," which is defined as "any advanced telecommunications or information service that enables rural health care providers to post their own data, interact with stored data, or communicate over private dedicated networks or the public Internet for the provision of IT" (proposed 47 CFR §54.631(b)).

CENIC urges the Commission to adopt the same approach in the NPRM that it adopted in the Sixth Report and Order by either allowing support for broadband services "provided in whole or in part via fiber by any entity" or clarifying that "qualified broadband access service providers" means any provider of broadband services and defining "broadband access services" as any type of broadband service using any medium, including fiber. *Cf.* 47 U.S.C. §1302(d)(1). The approach is consistent with sections 254(c)(3) and (h)(2)(A) of the Communications Act and will bring the same benefits to health care providers that the Commission found it will bring to schools and libraries, namely, it will increase the flexibility of health care providers to select the most cost-effective broadband solutions to meet their needs and it will allow them to develop and deliver a wide variety of health care services. (See the Sixth Report and Order, paras. 13-15.)

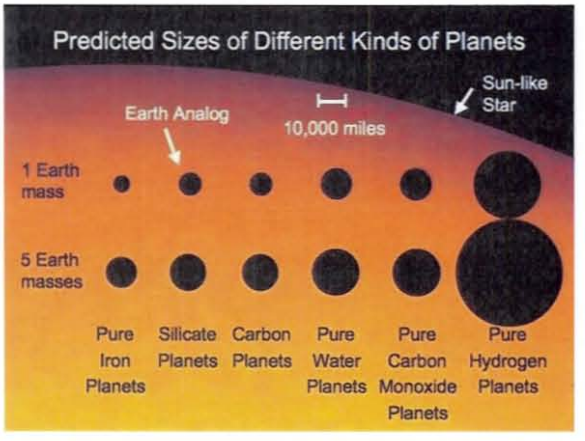
CENIC believes that the opportunities for organizations such as CENIC to provide cost effective broadband services to the health care community will be enhanced greatly by the Commission's adoption of this recommendation.

Examples of Broadband Technologies

The following are examples of technologies that would not be possible without broadband networks such as CENIC and NLR:

Planet Hunting at UC Santa Cruz and UC Berkeley

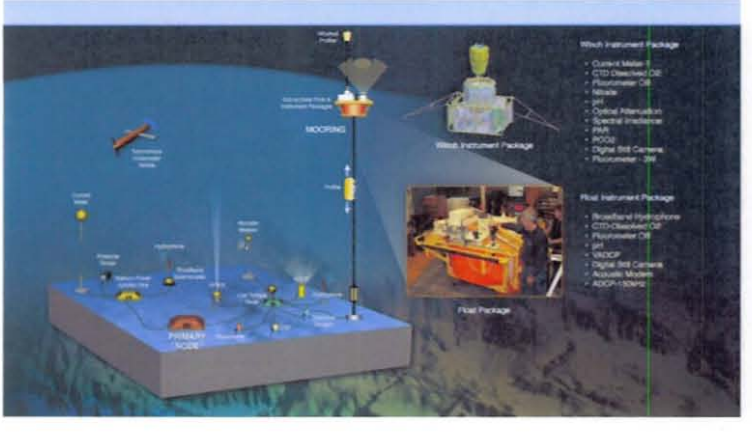
Astronomy is among the most challenging sciences partly because its most coveted telescopes are few in number and located in extremely remote environments (mountaintops and deserts).



One of the most valuable resources is the W. M. Keck Observatory located on top of Mauna Kea in Hawaii.Using advanced research networks, widely dispersed researchers can utilize observatory resources and share the enormous amounts of data that such facilities generate. Via connection to CalREN, astronomers at UC Santa Cruz and UC Berkeley have used data collected at Keck and collaborated to discover large numbers of planets orbiting stars far beyond our own solar system, some of them quite Earthlike.

Ocean Observatories Initiative – ooi.oceanleadership.org and
Project Greenlight – greenlight.calit2.net

The ocean is the planet's largest ecosystem. It drives an incredible range of natural phenomena, including our climate, and thus directly impacts human society. The Ocean Observatories Initiative (OOI) provides scientists, for the first time, an infrastructure to conduct interactive experiments in some of the ocean's most extreme environments. Researchers can collaborate across advanced research networks to create experiments that respond in real-time to underwater events.



The OOI cyberinfrastructure project is being managed by UC San Diego. Researchers there intend to make this cyberinfrastructure as "green" as possible in terms of energy consumption, by leveraging another UC San Diego initiative, Project GreenLight, which allows researchers and engineers to test their designs for energy-efficient IT systems before building them. GreenLight instrumentation can also be used to study the energy cost of existing cyberinfrastructure and will enable researchers to measure and then minimize energy consumption, to make use of novel energy/cooling sources, and to employ middleware that automates optimal choices for compute/power strategies.

San Diego State University's Immersive Visualization Center

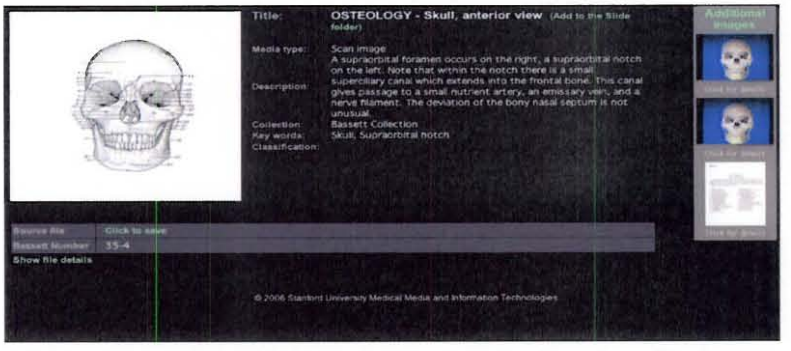
San Diego State University (SDSU) is the primary resource for processing image data for the US Navy. Through connection to CalREN, the university's Immersive Visualization Center (IVC) analyzes image data

from all parts of the globe and makes the data available to first-responders during emergency situations. Satellite and aerial images collected by Navy planes are layered together at the IVC to create multi-level maps that help military and relief organizations.

The IVC has most recently aided the relief efforts after the devastating earthquake in Haiti but has also aided in response during several California wildfire seasons, as well as with post-hurricane cleanup efforts after Hurricane Katrina.

iAnatomy – ianatomy.stanford.edu

The iAnatomy project utilizes state-of-the-art 3D visualization facilities, a collection of high-quality images, and CalREN, an advanced research network, to enable medical students and faculty in other locations to see, study and manipulate hyper-realistic anatomical images located in California.



The Stanford University School of Medicine houses one of the highest-quality repositories of medical images in the world at the David L. Bassett Collection. This collection of 3D stereoscopic images of human anatomy, coupled with specialized stereo-viewing hardware and software, provides the crucial interactive tools needed for virtual anatomy instruction, delivering content that is superior to the artists' illustrations and photographs contained in standard medical textbooks.

This project seeks to consolidate all anatomical and surgical knowledge ever created into one open, multimedia, interactive service to improve the way surgeons around the world are trained. It has already proven highly beneficial to the students and faculty at the Northern Ontario School of Medicine in Ontario, Canada as an alternative to use of cadavers, the latter being contrary to NOSM's medical teaching program policy. In addition, the site could also allow patients and their families to look up certain conditions and learn more about a recommended surgery.

CineGrid – www.cinegrid.org

Digital media production, such as making high-definition movies, is challenging to its creators partly due to the extremely large amounts of data involved. (A mere 15 minutes of HD video – without sound! – comprises 1000 GigaBytes of data!) Traditional film production experiences delays due to the simple need to use couriers to share these files between the various production groups.

CineGrid promotes research, development and deployment of the applications needed to create ultra-high quality digital media (sound and picture) in a distributed manner over advanced research networks, by leveraging existing cyberinfrastructure, such as Grid computing technologies, for networked collaboration. CineGrid offers members an integrative approach by providing this framework for groundbreaking digital media experiments. CineGrid members explore different approaches to creating rich-media intensive forms of art, entertainment, distance learning, scientific visualization, remote collaboration and international cultural exchange. To support members' research, CineGrid organizes network test beds designed for very high bandwidth requirements, with appropriate security safeguards between a limited numbers of "trusted" users, to allow these users to develop the tools to create high-quality digital media.

One application already demonstrated by CineGrid is distributed film production, where the footage is shot in one location and the skilled workers in color correction and sound mixing are in other locations. Although the film production team is distributed in multiple geographic locations, there is no delay in filming since the film can be "shipped" over the network faster than using standard courier services. This cyberinfrastructure is robust enough to support live events as well, allowing high-quality audio from one location to be mixed with high definition video in another and delivered are in real-time to waiting audiences in multiple locations.

CineGrid members in California include the Naval Postgraduate School, San Francisco State University, UC San Diego, and USC, all of which participate in CineGrid via their connection to CalREN.

Project 8k: High-Quality Undersea Streaming Video

The sea, crucial to our sustainability, remains a frontier for scientific inquiry and fascination. Researchers at the Naval Postgraduate School (NPS) via participation in CineGrid are exploring the transmission of 8k video images from undersea environments.

NPS uses two 4k video cameras to create 8K moving images (a 4k video has 4 times the resolution of HDTV). These video images from the Pacific Ocean off the California coast can be streamed live from undersea cameras to other CineGrid participants over CalREN and other advanced networks. Although streaming 4K images and sound has been possible for several years, this is the first project to stream 8k video since the technology has only recently been established to enable this type of transmission. This project demonstrates how cutting edge technologies and cyberinfrastructure can be used for maximum impact in remote sensing, telepresence, and image analysis.