



Innovations in Networking Awards are presented each year by CENIC to highlight the exemplary innovations that leverage ultra-high bandwidth networking, particularly where those innovations have the potential to transform the ways in which instruction and research are conducted or where they further the deployment of broadband in underserved areas.

### Innovations in Networking Award for Broadband Applications

**Awarded to Christina DiCaro and Michael Dillon** in recognition of their work on behalf of California's libraries, which was critical to securing the necessary funding for public libraries to be connected to CalREN. For over thirty years, Michael and Christina have shown unparalleled dedication to California libraries. From protecting the privacy rights and circulation records of library patrons to drafting and securing passage of library construction bond legislation, they have tirelessly advocated for libraries and the communities they serve. Their efforts to preserve library funding have improved the lives of generations of California libraries, librarians, and most importantly, library patrons.

"The impact of connecting public libraries to CalREN has been tremendous. Over 80% of jurisdictions are connected or in the process of connecting, serving the needs of thousands of Californians who did not have high-speed broadband access. Bridging the digital divide continues to be important for libraries and I am grateful to Mike and Christina for their work on behalf of the California Library Association to improve access statewide," said Helen McAlary, President of the California Library Association.

### Innovations in Networking Award for Broadband Applications

**Awarded to the Network Startup Resource Center (NSRC) and Steven Huter, Director of NSRC** in recognition of NSRC's work to improve network infrastructure, facilitate collaboration, and build professional capacity in countries around the world. The NSRC is comprised of a distributed team of network engineers and trainers living in Asia, the Pacific Islands, Africa, Europe and Latin America, with the core group of staff and student employees based at the University of Oregon. Hervey Allen serves as Assistant Director. NSRC was founded 25 years ago in 1992, and was launched with a grant from the National Science Foundation. NSF has supported the organization continuously since its founding. At its inception, under the direction of Dr. Steven Goldstein, NSRC was affiliated with a United Nations University project to help establish new computer networks in unconnected areas and link them to U.S. institutions.

William (Bill) Chang, who served for many years in the Office of International Science and Engineering at the National Science Foundation, notes that "successful network connections with a less developed country require expertise both in hardware/software technology and in human connections. Steve's unique multi-cultural upbringing has made him superbly skilled in human connections with people in developing countries, and his immense passion has enabled him and his team to seek materials and technology specifically tailored to each country. He and his NSRC team have done outstanding work in reaching out to developing countries for the National Science Foundation. Through them, U.S. researchers are richer and blessed to be connected to thousands of scientists from those countries who are able to join us for science discovery and to share global culture and values."



## Innovations in Networking Award for Experimental Applications

**Awarded to Women in IT Networking at SC (WINS) and Wendy Huntoon, Marla Meehl, Katherine Mace, Lauren Rotman, and Jason Zurawski** in recognition of their work to expand the diversity of the SCinet volunteer staff and to provide professional development opportunities to highly qualified women in the field of networking. This powerful collaboration fosters gender diversity in the field of technology, a critical need. By funding women IT professionals to participate in SCinet and to attend the Supercomputing Conference, the program allows the next generation of technology leaders to gain critical skills.

“Until you roll your sleeves up and dig into building and operating SCinet, which is an amazingly robust, high-bandwidth network that exists for just two weeks, it’s hard to imagine just how tough it is — and how rewarding it is,” said Inder Monga, Director of ESnet, the Department of Energy’s Energy Sciences Network. “Many of our ESnet engineers have been members of the SCinet team over the years, bringing back valuable skills in network operations, project management, teamwork, and on-the-spot problem-solving. Our support of WINS is one way of contributing back to the conference and the community’s growth and success.”

## Innovations in Networking Award for Educational Applications

**Awarded to California Community Colleges Technology Center and Tim Calhoon, Lou Delzompo, Patricia Donohue, Roberto Fuentes, and Jeff Holden** in recognition of their work to develop a system-wide federated identity for students across the 113 California Community Colleges. The 2.1 million students who annually attend California’s Community Colleges enjoy enhanced convenience, security, and privacy thanks to the work of the Technology Center, which provides a unique student data identifier through a federated identity system. This innovation has not just benefitted students but has also made possible significant institutional innovations. These include the re-envisioning and release of a new common application for admission; system-wide student success initiatives such as a common assessment for placement and education planning; and a common course management system.

“With single sign-on access to all system-wide technology offerings, students statewide can easily access available tools and resources provided by the CCC to help them succeed in reaching their educational goals,” said Debra Connick, Vice Chancellor for Technology, Research, and Information Systems at the CCC Chancellor’s Office. “With system-wide student identity to tie student data together, it is now within reach to achieve significant improvements in administrative decision making and student success rates.”



## Innovations in Networking Award for Outstanding Individual Contributions

**Awarded to Tom DeFanti** in recognition of his work to develop next generation networks, advance the mission of Calit2, and shape collaborations across organizations. From his work with GreenLight Instruments, enabling scientists from diverse disciplines to measure and then minimize energy consumption, to his work with National Lambda Rail, a 12,000-mile high-speed national network infrastructure owned and operated by the U.S. research and education community, Tom's contributions to the development of next-generation networks and applications to advance science have been profound. With his work in visualization and virtual reality technologies recognized around the world, Tom was instrumental in developing the new Media Arts Wing at Calit2. One of the most advanced facilities of its kind in the world, the high-end visualization and virtual reality experiments conducted in this facility engage students, researchers, and faculty members and provide a real sense of what the future can hold.

In partnership with Joe Mambretti, who had created the Metropolitan Research and Education Network in Chicago, Tom spearheaded the NSF STAR TAP international connection point, which has evolved into today's StarLight. "Over the past 25 years, Tom continues to push the limits of big networks, as big resolution instruments, sensors and simulations generate big visualization and virtual-reality data that scientists want to access, display and share on big displays," said Mambretti, Director of the International Center for Advanced Internet Research at Northwestern University.

## Innovations in Networking Award for Research

**Awarded to the Wide-Area Visualization Environment (WAVE) system at UC Merced and Greg Dawe, Rachel Hadley, Nicola Lercari, and Jeffrey Weekley** in recognition of the WAVE system's power to enable members of the UC Merced community to conduct research, experience the world, and deepen their learning through an immersive environment. The WAVE grows out of a multi-school collaboration and aspires to draw wide participation across disciplines not historically served by this kind of infrastructure, especially humanities disciplines. This virtual reality system also provides opportunities for community engagement and is currently being used by teachers and students in the Mariposa County Unified School District.

"The WAVE at UC Merced is the highest resolution walk-in virtual environment on earth, using twenty 4K 3D screens. It is better than 20/20 visual acuity and matches the display to human eyesight, making it often look better than being there. It complements the original WAVE at UC San Diego, and the four library CAVEkiosks at UC Berkeley, UC Los Angeles, UC Merced, and UC San Diego, all tied together for daily telepresence over CENIC and the Pacific Research Platform," said Tom DeFanti, Research Scientist at Calit2, University of California San Diego.



## Innovations in Networking Award for Corporate Partnership

**Awarded to Sunesys** in recognition of Sunesys's work to provide high speed, cost-effective network connections for CENIC and its members, and efforts in collaboration with CENIC and UCSC, to develop a successful application for California Advanced Services Funding to construct new fiber in the Salinas Valley. Thanks to the commitment of the Sunesys team and their understanding of the importance of high-speed broadband for the research and education communities in California, Sunesys and CENIC have been able to move forward on numerous initiatives in support of these communities. Their responsiveness to K-12 Requests for Proposals has enable CENIC to serve some of the hardest to reach schools in California. The successful application for California Advanced Services Funding and the construction of new fiber in the Salinas Valley, scheduled for completion at the end of March, will provide enhanced connectivity for two CENIC member institutions: UC Santa Cruz and the Hartnell College.

"The connectivity provided by Sunesys will also enable local ISPs with the capacity to provide Internet services to underserved areas in the Salinas Valley, which in turn, helps communities that have not had adequate (or any) Internet services, as well as CENIC constituents, particularly K-12 students in their schools and in their homes," said Louis Fox, President & CEO of CENIC. "Our collaboration with Sunesys has been a model of how the CENIC community can work with other, similar companies who build infrastructure for California's communities."

## Founders Award

**Awarded to Stuart Lynn** in recognition of his leadership in creating CENIC and building CENIC into one of the world's most successful developers of advanced-services networks for research and education. CENIC was formed by the University of California, the California Institute of Technology, the California State University, Stanford University, and the University of Southern California. In 1998 CENIC designed and deployed the California Research and Education Network (CalREN), a stable high-performance broadband network to meet unprecedented demands for increased network capacity, reliability, and capability as students and faculty turned to the network as a basic tool for education and research. In addition to being the catalyst for the formation of CENIC, Stuart served as Principal Investigator for a multi-million dollar grant from the National Science Foundation (NSF), to provide start-up funding.

"Stuart recognized that higher education institutions in California needed a place to work on new technologies and to advance technology in the future," said David Wasley, then with the University of California, Berkeley. "With his characteristic diplomacy, Stuart met with the CIOs of Caltech, Stanford, USC, and all the UC campuses. Out of those meetings came the important decision that we should submit a proposal for one of the NSF's high-speed networking matching grants, using the grant to help build a California network. This grant became the catalyst for the remarkable collaboration CENIC represents."



## Founders Circle Award

On the occasion of its 20th anniversary, CENIC has created the Founders Circle award. This award was established to honor the vision, creativity, and dedication of people who worked to found and build the organization. Eighteen leaders central to the development of CENIC during its first years are receiving this award: **Bill Clebsch (Stanford), Mark Crase (CSU), Jim Davis (UCLA), Jim Dolgonas (UCOP), David Ernst (CSU), Rich Fagan (Caltech), Susan Estrada (Aldea Communications), Doug Hartline (UCD), Ron Johnson (UW), Raman Khanna (Stanford), Claudia de Luna (JPL), Jim Madden (UCSD), Don McLaughlin (UCSD), Jim Pepin (USC), Walt Prue (USC), Michael Scott (USC), John Silvester (USC), Tom West (CSU).** These individuals were early CENIC Board Members, designers of the original CalREN Network, and Advisory Committee Chairs. There are numerous members of the community who helped get CENIC to where it is today, and this award will be given in subsequent years to honor other leaders who have contributed to CENIC's success.

"A remarkable group of technology leaders from across higher education institutions in California came together to help create CENIC. Just as CENIC members today work collaboratively to shape and govern the organization, these leaders worked collaboratively to lay the groundwork necessary to launch the world-class research and education network used by millions of Californians today," said Louis Fox, President and CEO of CENIC.