



CENIC connects California to the world – advancing education and research statewide by providing a world-class network essential for innovation, collaboration, and economic growth.

6+M

Students & Educators

100%

of County Offices of Education

10K

Public Schools

The California K–12 System and CENIC

California schools connect to CENIC's California Research and Education Network in all 58 counties.

CENIC is a nonprofit organization created in 1997 by California's research and education community to provide themselves with the most advanced networking and support designed to meet their unique needs. We connect California's research and education institutions to one another and to resources and colleagues around the globe, with an estimated 20 million Californians using our services.

CENIC is governed by our Charter Associates, which include the California K–12 system, the University of California system, the California State University system, California's Community Colleges, California Public Libraries, and independent universities Caltech, Stanford University, the University of Southern California, and the Naval Postgraduate School. Other members include scientific and cultural institutions, hospitals and specialized medical institutions, space and environmental research organizations, and Tribal nations.

California's K–12 System in Action with CENIC

California's complex K–12 system encompasses millions of students, from pre-schoolers to young adults, all with varying needs, interests, and talents. Nearly a fifth of students are English language learners, and almost two-thirds are eligible for free or reduced-price meals—and the K–12 system's dedicated educators and administrators work daily to help them all become future leaders, scholars, and entrepreneurs.

To meet these needs and more, CENIC is contracted by the K12 High Speed Network (K12HSN) to provide future-facing networking and services via the California Research and Education Network (CalREN), specially designed by and for the state's research and education community. Thanks to this close two-decade relationship, 100% of county offices of education, 89% of school districts, 81% of schools, and over 5.8 million students statewide enjoy the benefits of world-class connectivity, network services, and support.

These benefits include substantial cost savings since 80% of data traffic on CalREN does not transit the commercial Internet but travels directly between member institutions and other network destinations. This traffic uses settlement-free peering connections that incur no usage fees. This makes possible learning opportunities such as participation in live events from other CENIC members, including museums and other cultural and research institutions, and enables students to produce and share bandwidth-intensive materials of their own, like videos focusing on their studies or their location's unique history, with none of the cost or performance issues associated with inadequate connectivity. Many districts use their connection to bring the latest technology to students and teachers in classrooms, replacing computer labs with innovation rooms, maker spaces, and technology fairs equipped with advanced digital tools.

Direct access to the California Assessment of Student Performance and Progress (CAASPP) testing servers is another

Did you know?

CENIC Helps Connect You to the Funding You Need

CENIC facilitates federal E-Rate discounts, ranging from 20% to 90%, on both one-time and recurring costs for Internet access and upgrades for K–12 schools. CENIC also applies for the California Teleconnect Fund discount for monthly recurring costs, which is 50% after applicable E-Rate discounts.

benefit provided by CENIC, particularly as CENIC helped design and implement a technical solution that provided this access, ensuring that California students can take on-line tests without experiencing the technical challenges common to students in most other states. Thanks to this, California's K–12 system has gone from being able to test only 20 students at a time in some areas—or not being able to perform online testing at all—to testing over half a million students at once.

To forestall impacts from network-based volumetric cyberattacks, CENIC Associates can subscribe to Radware's on-demand, cloud-based DDoS Mitigation Service (DMS). Thanks to our partnership with Internet2, CENIC obtained extremely attractive "bulk" pricing for its members for this service that would not otherwise be available, along with high-capacity direct connections through Internet2 to Radware.

Thus, the Imperial County Office of Education, on behalf of K12HSN, contracts with CENIC to provide schools connected to K12HSN with DDoS attack detection and mitigation services that are far more responsive and cost-effective than any currently available from commercial providers.

California K-12 System Member Endpoints Connected to CalREN



CENIC partners with national and international research and educational, governmental, and commercial networks to expand access, working to support broad public access to the educational, research, and cultural assets that position California for a prosperous future.

Digital Teaching and Learning: Positioning California for the Future

With thousands of schools in both rural and urban areas throughout California—a state with more people in its rural counties, which include large swaths of remote and geographically challenging areas, than the total populations of more than two dozen other states—the interests of California's K–12 system are intimately tied to broadband access and the ubiquity of broadband service. This is especially true given that schools rely heavily on reliable broadband to educate students, conduct testing, and connect with peers in all segments.

In 2019, the Broadband Infrastructure Grant (BIG) program was funded to provide fiber broadband connectivity to California's most poorly connected schools to promote digital learning opportunities. BIG builds on the success of an earlier effort: the Broadband Infrastructure Improvement Grant (BIIG) project, funded in 2014, which has delivered broadband services to more than 430 sites

Did you know?

CENIC Peers Directly with Major Cloud Providers

CENIC maintains over 8 Tbps of upstream peering connectivity and on-net caching to content providers such as Google, Amazon, Oracle, Netflix, and many others as part of the CalREN-DC network tier. Additionally, CENIC offers both direct and hosted cloud connectivity solutions to the major providers, such as AWS Direct Connect or Oracle Fast Connect, in Los Angeles and San Jose.

statewide to address the need for sufficient broadband capacity for online testing.

Through the BIG program, CENIC has connected 48 schools, providing 1 Gbps fiber-based connectivity to thousands of students, teachers, and staff in 17 counties. As it progresses, the BIG program aims to expand across California and continue to support teaching and learning throughout the state.

Updates about the BIG program and each school's connectivity can be found at cenic.org/initiatives/big.

Did you know?

Around-the-Clock Network Support Tailored for You

California's K–12 system also enjoys support from CENIC's 24/7 Network Operations Center, staffed by highly trained network engineers with over 25 years of experience working with our segments to create bespoke solutions that address and scale to their unique needs, including schools, districts, and county offices of education.

CENIC

Visit or contact us or our partners to learn more:
www.cenic.org | engagement@cenic.org | www.k12hsn.org/about-us
A full list of CENIC benefits can be found at cenic.org