CISOA 2025

CCC Technology Center and CENIC: Connectivity, Security, and AI

CENIC | CCCTC

California Community Colleges

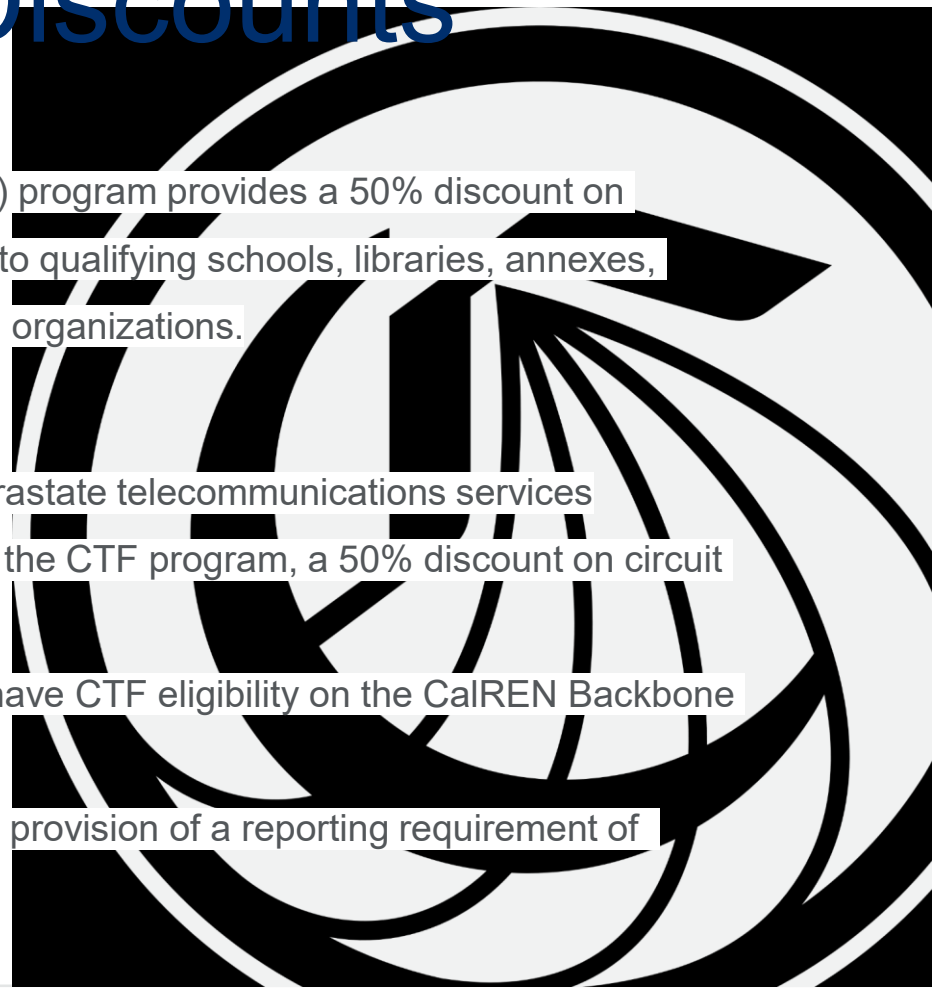
The California Research and Education Network (CalREN) 27 years of connecting California

- **8,000+** miles of optical fiber
- **Members in all 58 counties** connect via fiber-optic cable or leased circuits from telecom carriers
- **Over 12,000 sites** connect to CENIC
- Operated by a **501(c)(3) organization** chartered and governed by its members
- Collaborates with over **800 private sector partners and contributes > $100,000,000** to the CA economy

CENIC | CCC CPUC CTF Discounts

The California Public Utilities Commission's (CPUC) California Teleconnect Fund (CTF) program provides a 50% discount on advanced communication services (including Internet access and broadband services) to qualifying schools, libraries, annexes, community colleges, government-owned hospitals/health clinics, and community-based organizations.

- CTF was established by CPUC Decision 96-10-066 on October 25, 1996
- CTF is program is funded through a surcharge on all customers that purchase intrastate telecommunications services
- Decision 08-06-020 on June 16, 2008 included California Community Colleges in the CTF program, a 50% discount on circuit costs with a $7.2M annual cap
- CENIC Broadband Initiatives, LLC was established in 2009 allowing the CCC to have CTF eligibility on the CalREN Backbone costs, saving an additional $2M+ annually
- On July 23, 2015 Decision 15-07-007 removed the CTF Cap on the CCC with the provision of a reporting requirement of "central expenditures" for the upcoming budget year, plus one, annually by April 1



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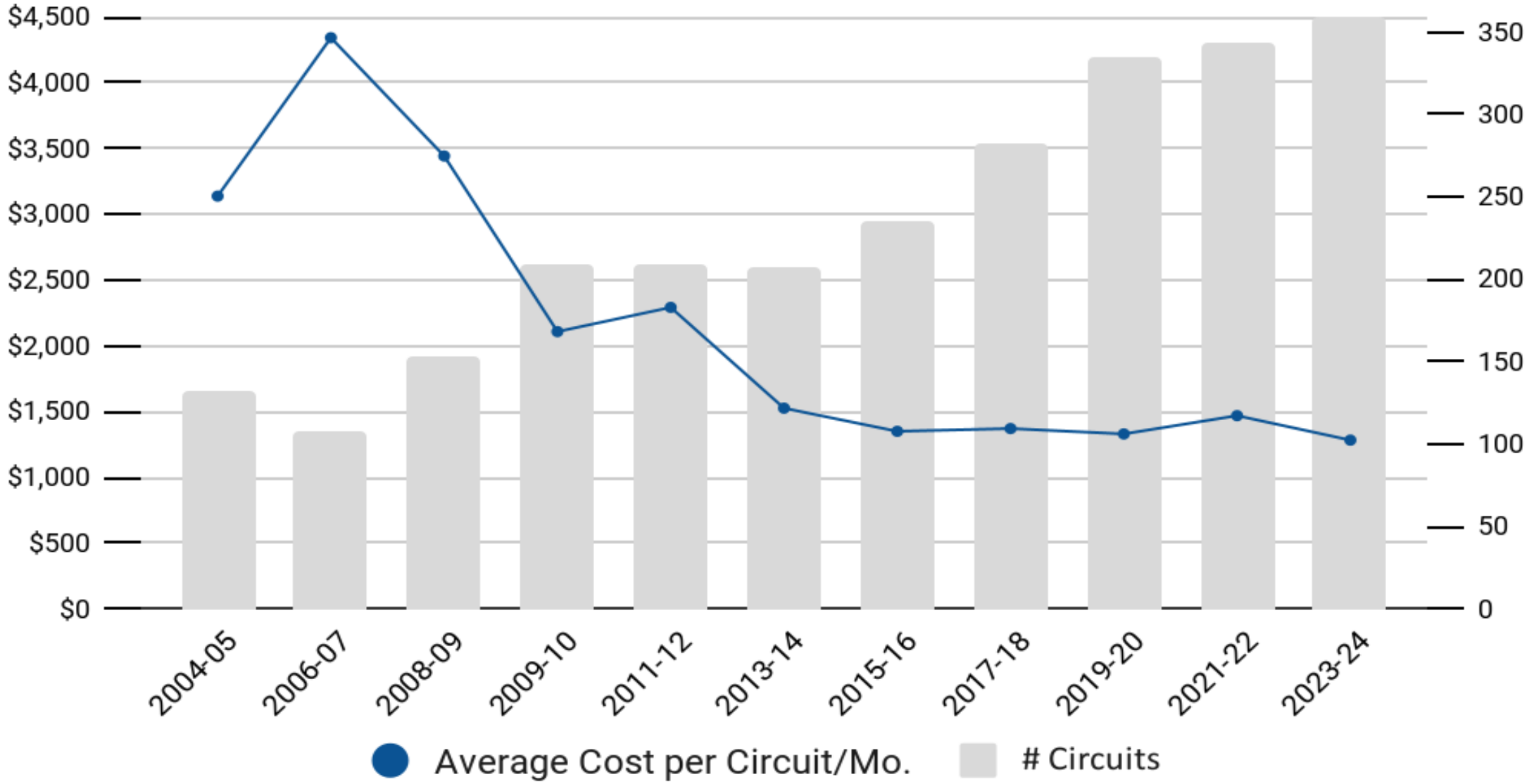
CENIC | CCC Benefits of Costs



CENIC | CCC Broadband Infrastructure Upgrade Project

Fiscal Year	Planned Circuits	Not Evaluated/ Ordered	In Implementation	In Production
2024-25	66	9	57	0
2023-24	53	8	39	6
2022-23	69	0	1	58
2021-22	52	7	Complete	45

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CENIC | CCC Broadband Diversity

Started FY 2024-25:

- Lack of True Circuit Diversity continues to contribute to outages
  - Circuits with diverse hub sites may travel along shared fiber paths
  - Circuits with diverse telecom carriers may share fiber lines

Next Steps:

- CENIC and CCCTC are reviewing circuits upgraded between 2017 and 2021
- Circuits without true or adequate diversity are being identified and placed on list
- CENIC will check diversity options with telecom carriers and review fiber maps
- Circuits will be moved or replaced to obtain the best diversity feasible

CENIC | CCC EOL Router Replacements

Started FY 2024-25:

- 48 of 151 EOL Routers being scheduled for replacement between January-June 2025
  - Replacing two model years old Cisco ASR1001-X at 32 sites in 17 districts and the CCCCO
    - Must be replaced by June 2025
  - Also replacing one model year old Cisco ASR9001 at 15 sites in 9 of the 17 districts
  - 15 being replaced as part of ongoing upgrades
  - 3 sites already decommissioned EOL Routers; need return label to complete replacement

Next Steps:

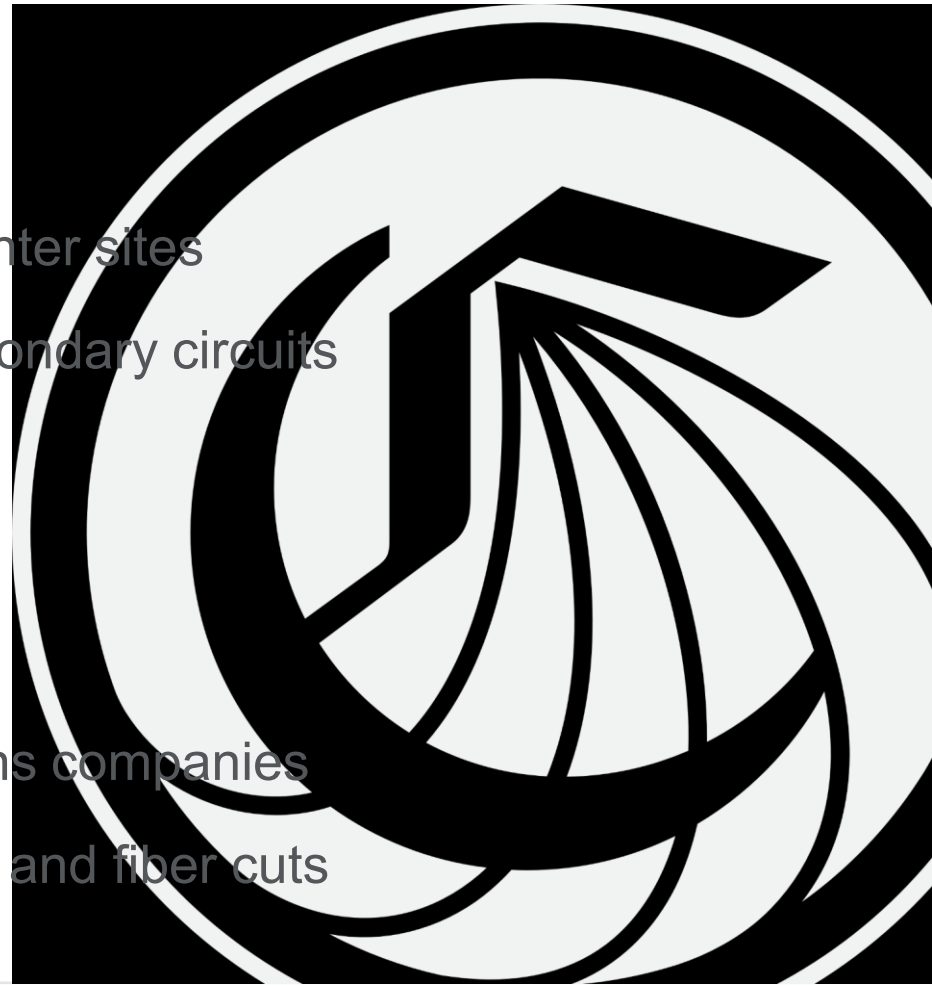
- Replace remaining 74 EOL ASR9001 Routers in 2025-26
  - 44 sites at 27 districts
  - 18 being replaced as part of ongoing upgrades

California Community Colleges

CENIC | CCC Connectivity Offerings

Districts are Eligible for:

- **Connection to CalREN** or between district, college, or center sites
- **Redundancy and Diversity** provided by Primary and Secondary circuits
- **Routers and Equipment** needed for circuit installations
- **Annual Maintenance** on routers
- **Equipment Replacement** at EOL or malfunction
- **CENIC Negotiated Contract** with local telecommunications companies
- **Emergency Response and Support** for natural disasters and fiber cuts



CENIC | CCC Connectivity Offerings

Circuit Speed Capacity: 100GB / **10GB** / 1GB

- **Colleges**: 2x 10GB circuits and Juniper routers
- **Centers/District Offices**: 2x 1GB circuits and Juniper routers
- **Other Sites:** reviewed and approved/denied on case-by-case basis as available funding allows

California Community Colleges

CENIC | CCC Member Services

CCC Network Service Offerings

- DC Service
  - Basic offering for all members
- HPR Service
  - High Performance Research network
- VPN Services
  - Layer 2 Virtual Private Network Service - E-LINE
  - Layer 2 Virtual Private Network Service - E-LAN
  - Layer 3 Virtual Private Network Service - IP VPN
- Layer 1 Services
  - Optical Services

CENIC | Districts with Site to Site E-LINEs

- Allan Hancock College
- Barstow College
- Cabrillo College
- College of Marin
- College of the Desert
- College of the Siskiyous
- Columbia College
- Gavilan College
- Hartnell College
- Kern CCD
- Los Angeles CCD
- Los Rios CC
- Napa Valley College
- Palo Verde CCD
- South Orange County CCD
- Santa Rosa Junior College
- Victor Valley CCD
- West Valley College

CENIC | DDos Mitigation Service

California Community Colleges

CENIC | CENIC Cloud Services

CENIC supports access to Cloud Service Providers directly on a Shared or Dedicated Basis

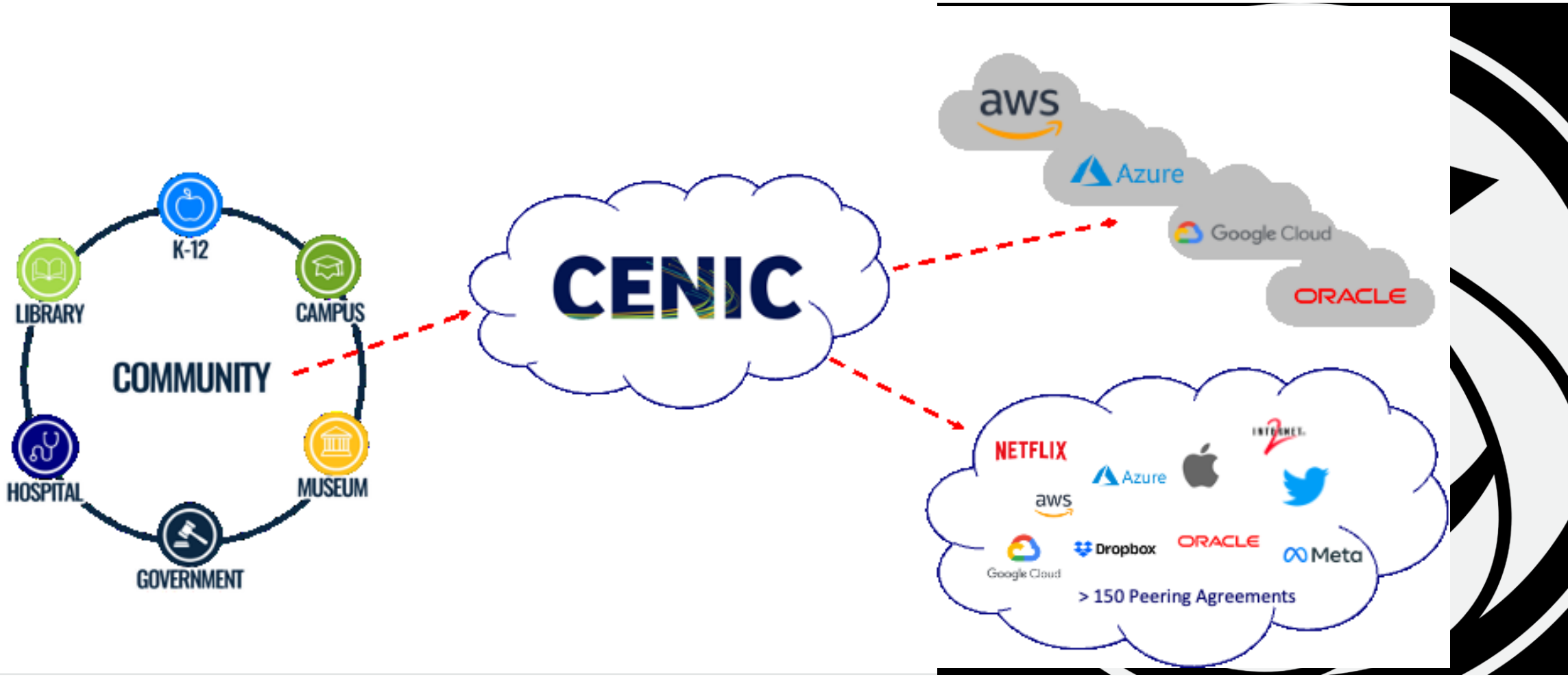
CENIC Hosted Cloud Services

- No monthly recurring charges for up to 10 Gbps shared connections to AWS or Oracle in San Jose or Los Angeles
- E-LINE service from existing CENIC managed router at campus to our connection to the Cloud providers
- In discussion with MS Azure and Google GCP to establish similar hosted connections at no additional monthly cost to CENIC members

CENIC Rapid Private Interconnect

- Dedicated 10 Gbps or 100 Gbps port based connections to AWS, MS Azure, Oracle, or Google GCP in San Jose or Los Angeles
- E-LINE service from existing CENIC managed router at campus to our connection to the Cloud providers at no additional cost but there is a monthly x-conn cost and one time port costs

CENIC | CENIC Cloud Connections



CENIC | Internet2 Cloud Services

CENIC supports access to Cloud Service Providers through Internet2 Partnership

Internet2 Cloud Connect

- No monthly recurring charges for up to 5Gbps of hosted connections to AWS, MS Azure or Google GCP in San Jose and Oracle in Dallas
- Uses existing CENIC connections to Internet2 in Sunnyvale and Los Angeles

Internet2 Rapid Private Interconnect

- Dedicated 10 Gbps port based connection to AWS, MS Azure or Google GCP in San Jose and Oracle in Dallas
- Annual cost for the port usage and cross-connect fees

CENIC | Internet2 Cloud Connections

CENIC | Districts with Cloud Services

Active Connections

- Los Rios CCD - Internet2 Cloud Connect 5G to AWS and MS Azure
- San Diego CCD - CENIC 10G RPI to Oracle in Los Angeles

Connections in Progress

- North Orange County CCD - Internet2 Cloud Connect 5G to AWS and MS Azure
- South Orange County CCD - CENIC Hosted 5G to AWS in Los Angeles and San Jose

Hosted Compute Resources by Site

The following institutions host listed compute resources for the use of all CENIC AIR participants.

	GPU	CPU		GPU	CPU
Cal Poly Humboldt	88	8	Sacramento State	28	8
Sunnyvale (CENIC)	191	0	UC Merced	84	14
Sunnyvale (Internet 2)	72	1	UC Riverside	216	20
UC Santa Cruz	433	27	CSU San Bernardino	196	16
Stanford U	28	0	LAX (CENIC)	48	0
CSU Monterey Bay	28	0	CSU Fullerton	572	70
UC Santa Barbara	60	17	U Southern California	12	0
UC Los Angeles	72	0	San Diego CCD	24	8
Caltech	72	0	San Diego State U	1944	172
UC Irvine	96	14	UC San Diego	7656	547
CSU Chico	28	15			

CENIC | Community Technology Affinity Group

C2TAG

CENIC COMMUNITY TECHNOLOGY AFFINITY GROUP

https://cenic.org/initiatives/c2tag

The C2TAG is a forum for representatives from all CENIC member segments to share information and expertise about network technologies, creating a community of like-minded professionals who serve their colleagues as trusted advisors. It also allows members to engage CENIC staff and explore recently deployed network services and their applications among CENIC segments.

By joining the C2TAG, technology professionals are connected to a network of their peers in an informal setting. Through our mailing list, Slack, and various meetings, we share best practices, discuss problems and solutions, and gain valuable insights into industry trends.

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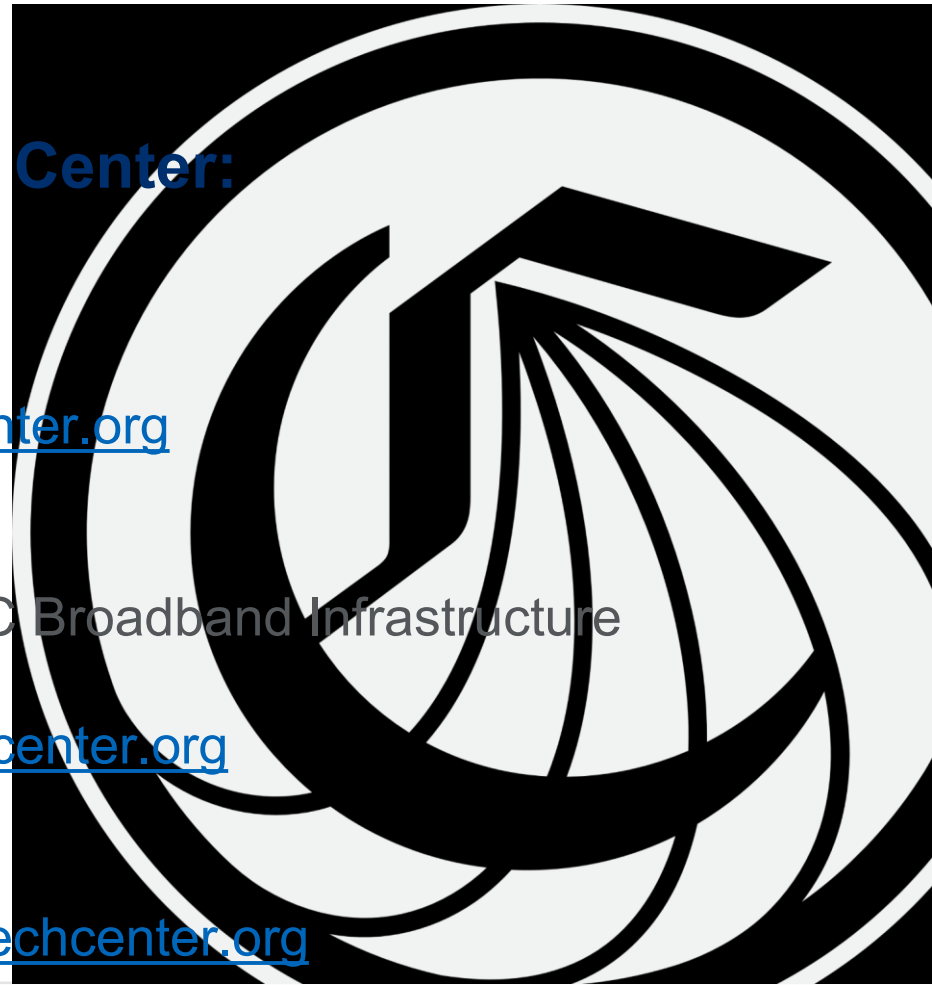
CENIC | CCCTC Q&A or Feedback



CENIC:

Timothy Chia
Manager, PMO
tchia@cenic.org

Ken Roberts
Project Manager, CCC Segment
kroberts@cenic.org

CCC Technology Center:

Dr. Jennifer Coleman
Executive Director
jcoleman@ccctechcenter.org

Cindy McCartney
Project Manager, CCC Broadband Infrastructure Upgrade Project
cmccartney@ccctechcenter.org

CENIC Support
CENICSupport@ccctechcenter.org

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Enabling Services & Support Resources

- Release alerts and peer support for products - Visit www.ccctechnology.info
- Production issues - Create a staff support ticket by emailing us at staffsupportcccctc@openccc.zendesk.com.
- To adopt or upgrade a product or schedule a training session: cems@ccctechcenter.org

https://ccctechcenter.org/res[illegible]

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