



Connecticut's Trusted Internet Partner

NETWORK | SECURITY | CLOUD | COMMUNITY

ITS All Staff



April 3, 2024

# AGENDA

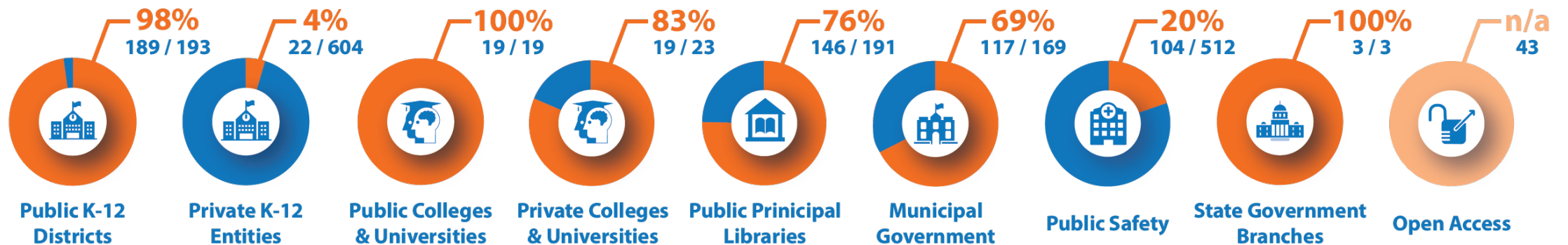
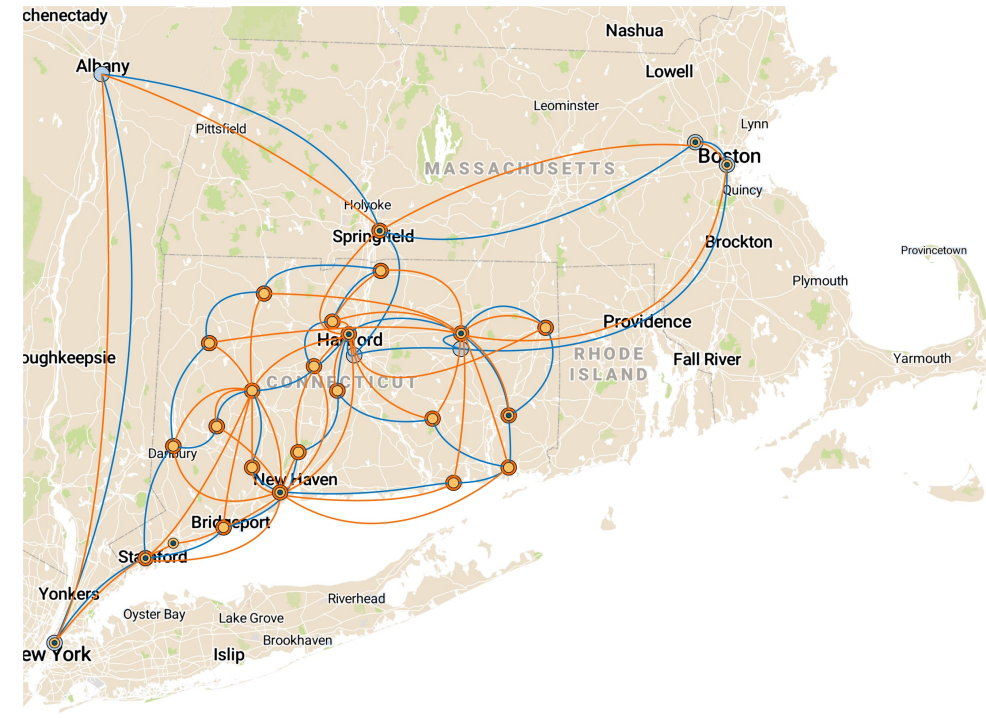


- About CEN
- ARPA-CPF
- CEN Connect
- Q&A

# ABOUT CEN

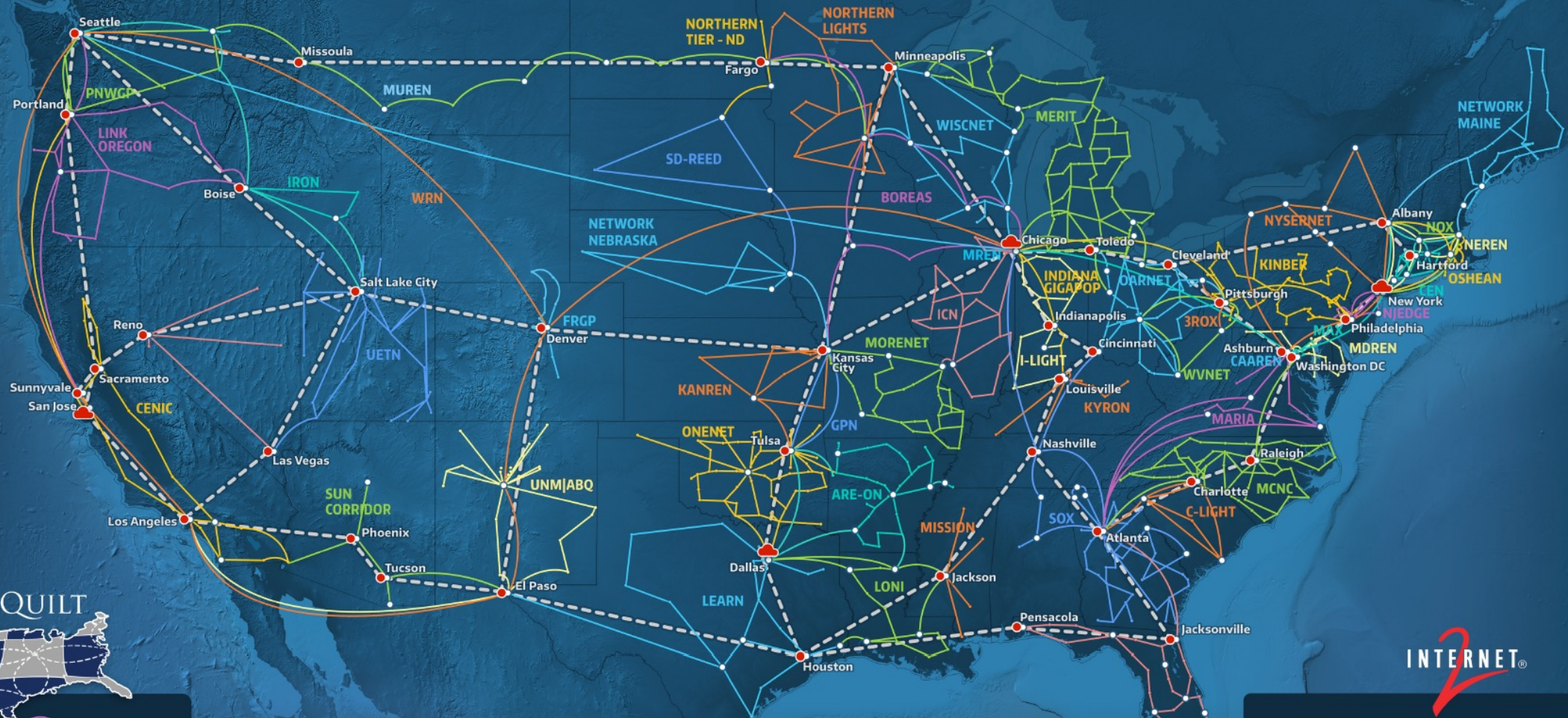


- Established in 2000
- Governed by the CET (<https://ct.gov/ctedtech>)
- State owned cyber infrastructure, managed by UConn
- Main office in Hartford, CT
- Open-Access Middle Mile Network
- Nation's first all optical network to connect every K-12 district (2005)
- One of ~ 40 'Research & Education Networks' nationally (<https://www.thequilt.net/>)
- Focus is on CAIs and their needs





# INTERNET2 & REGIONAL RESEARCH AND EDUCATION NETWORKS (REN) IN THE UNITED STATES



THE QUILT



- Intra-REN
- Inter-REN
- REN Inter-Connect Point

**CEN**

Connecticut's Trusted Internet Partner

One Connection | Many Possibilities

Fiber Infrastructure

I2PX/RPI/Cloud Connect Peering Site

AL1S/AL2S/AL3S Add-Drop Site





# SERVICE OVERVIEW



## Network

Internet / Internet2, Dedicated Internet Access, Advanced L2/3 services, DNS Hosting, Video Conferencing



## Security

CIPA Filtering (free), DDoS Mitigation (free), Managed & vFirewall, DNS Firewall (free), Student Safety



## Cloud

AWS-DC, Google-CP, Microsoft-ER, Oracle-OCI, Peering / IXP, Rapid Private Interconnect



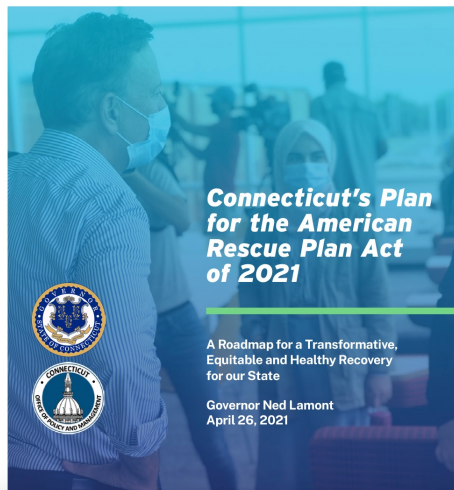
## Community

Advisory Councils, Member Conference, Workshops, briefings, Research Support, 24x7NOC





**STATE OF CONNECTICUT**  
A REPORT PURSUANT TO SECTION 1 OF SPECIAL ACT NO. 21-1



## CEN / CT Background for Proposal Submission

- US Treasury – American Rescue Plan Act - Capital Projects Fund
- Aligned with Governor Lamont’s ‘Connecticut’s Plan for the American Rescue Plan Act of 2021’ – April 26, 2021
- ‘...directly enable work, education, and health monitoring in response to the COVID-19 public health emergency.’
- June 22 Legislative Session -> July 1, 2022, CT CGA PA 22-118 as Authorizes 4 projects, \$73.9M, amended by PA 22-146
- 1A Broadband Infrastructure Project
  - 50% of state’s CPF Allocation
  - Submitted 9/21/2022; Approved 9/12/2023
- **CEN is one of two R&E networks to be awarded!**

[https://home.treasury.gov/system/files/136/CT\\_264\\_CPF\\_Award\\_Fact\\_Sheet.pdf](https://home.treasury.gov/system/files/136/CT_264_CPF_Award_Fact_Sheet.pdf)

# PROGRAM OVERVIEW



## Next Generation Infrastructure (NGI)

### *Upgrade of CEN Infrastructure*

- 400G Network by Dec 2026
- 670+ Member Organizations Benefit; 1.9M CT Citizens
- 4-40x capacity increase
- Platform for aggregation, collaboration, expansion, community WiFi
- Bandwidth stability for 10 years

## Municipalities, Libraries, Charter Schools

### *Expansion to more CAIs*

- Free fiber builds
- 160 Eligible Organizations
- Primary or Resilient (Backup) Internet; Improved security
- Dedicated Internet with better value proposition
- Ensures internet equity in CT

## \$10M Community WiFi Grant Program

### *Expansion of public WiFi*

- For communities in need
- Encouraging partnerships between municipalities, schools, libraries, etc.
- Promoting sustainability
- Expanding 'eduroam'
- Grant guidance coming soon

CT CGA PA 22-118 as Amended by PA 22-146 Authorized \$73.9M

Program Submitted to US Treasury September 2022; approved September 2023

[ctedunet.net/cen-connect](https://ctedunet.net/cen-connect)

## Overview / Info / Benefits



- Comprehensive Equipment Upgrade
- Platform for Aggregation and Collaboration
- Ensures Broadband Equity
- Improves Longevity & Sustainability
- Increases Capacity (4X – 10X) **400G Everywhere**
- Cloud Friendly
- Scaled Automation & Telemetry
- 3 Year Rollout; 670+ Member Organizations



# 670+ Member Organizations

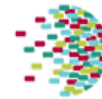
Upgrading the network platform for collaboration and aggregation helping connect people and strategies.



Equipment,  
Software, &  
Advanced Services



Professional Services,  
Logistics, Implementation  
& Configuration



**GlobalNOC**  
Global Research Network Operations Center

Project Management,  
Communication, &  
Database Updates



Connecticut's Trusted Internet Partner

# NGI DEVICE QUANTITIES



| Network Layer         | Device Count | Comment(s)  |
|-----------------------|--------------|---|
| <b>Core</b>           | 4            | Hartford, New Haven, Storrs (2)   |
| <b>Hub Sites</b>      | 19           | Typically, State Universities and DESPP sites                             |
| <b>In-Ring-Access</b> | 482          | 115 member rings. Typically, Universities, K-12 Districts, Municipalities |
| <b>Point-to-Point</b> | 98           | Typically, Libraries, Municipalities, Open Access                         |
| <b>Extranets</b>      | 7            | ISP, IXP peering points in and outside CT                                 |
| <b>Lab</b>            | 12           | At least two of each device type  |
| <b>Optical</b>        | 24           | Full directionless colorless optical platform                             |



# NGI TIMELINE (HIGH LEVEL)



US Treasury Approvals

Project Management & Communications

Equipment Orders

PS and Staff Ramp Up

Equipment Kitting & Shipping

Site Surveys

SOATI\*

Optical

Core

Aggregation

Member Edge Sites

Commissioning

2023

2024

2025

2026

SOATI = Software Orchestration, Automation, and Telemetry Infrastructure

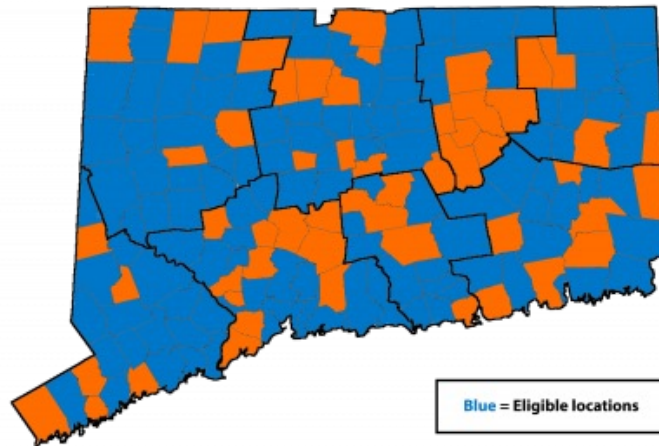
[ctedunet.net/cen-connect](https://ctedunet.net/cen-connect)

# CONNECTING CT'S COMMUNITIES (C3) INITIATIVE



## Overview

- 91 Municipalities
- 6 COGS
- 63 Libraries
- 13 Charter School Districts



## Info / Benefits

- Funds directly to CEN to get everyone connected
- Streamlined & easy process, no grant forms, just an agreement
- Free/subsidized fiber build + managed router for each CAI
- Removes barriers to entry; ensures broadband equity
- Enterprise 'Dedicated Internet Access'
- 24x7 Proactive NOC, better security
- Cloud friendly consortia agreements



Contact Us



Sign an Agreement



Get Connected



Experience the  
CEN Community!

[ctedunet.net/cen-connect](http://ctedunet.net/cen-connect)



## Overview

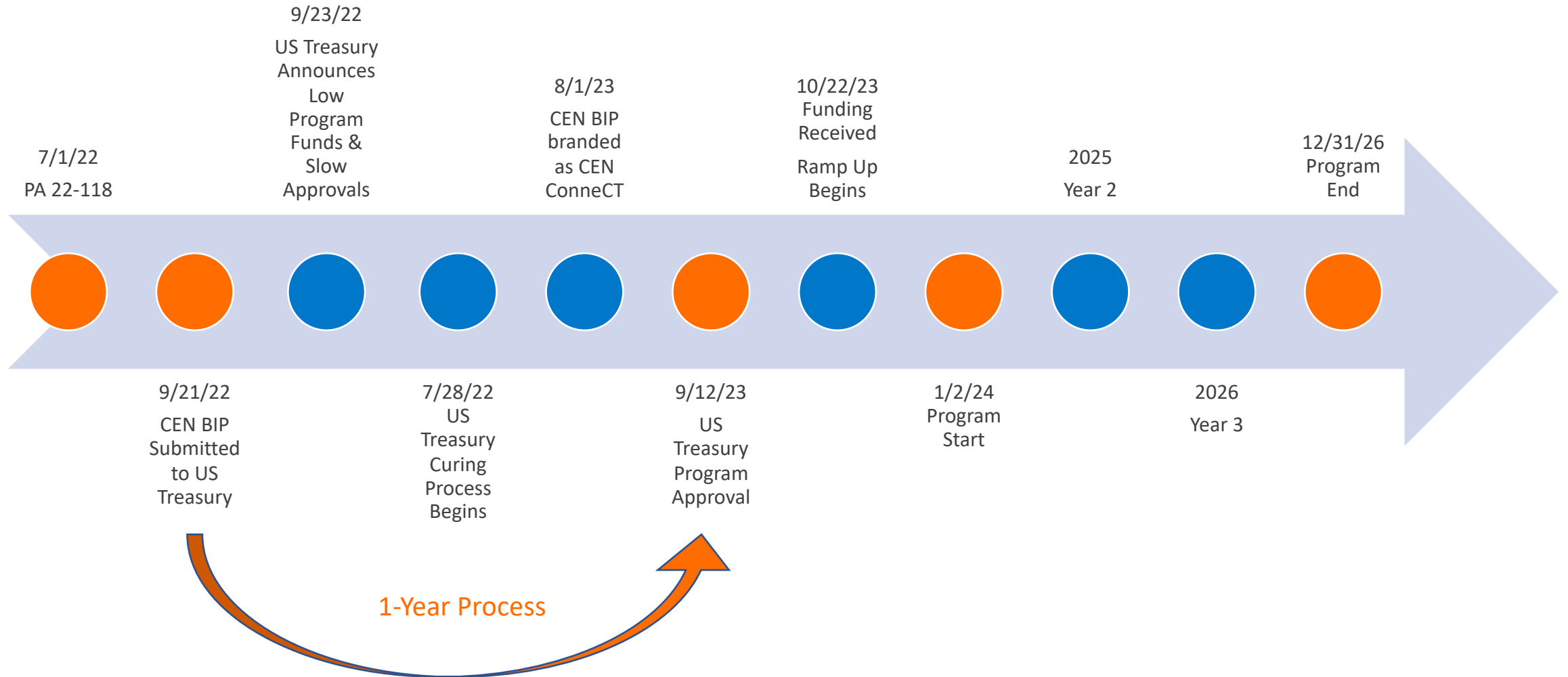
- \$10M Grant Funds
- Program application intake in development



## Info / Benefits

- **Administration:** by CET, supported by CEN, grant sub-awardee oversight required
- **Target:** underserved, typically economically disadvantaged groups; Increases reach of public WiFi across the state
- **Scope:** Primarily addresses wireless buildouts, which may also require establishing connectivity to CEN. Applicants can use funds to connect to CEN for Internet services.
- **Partnerships:** encourage and favor proposals with multiple entities working together, such as municipalities, schools, libraries, community centers, cultural arts institutions, etc.
- **Sustainability:** Require assurances that applicants will support the wireless service after the funding period ends.
- Awardees encouraged to broadcast the **eduroam** service set identifier (SSID).

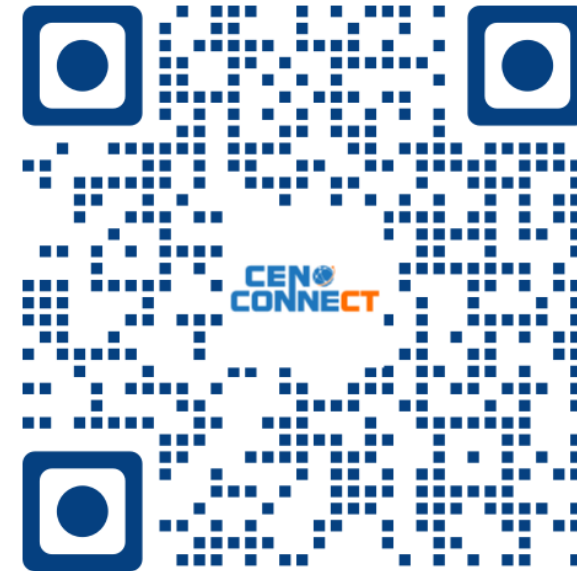
# PROGRAM TIMELINE



# Q & A



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**CEN ConneCT**  
[ctedunet.net/cen-connect](https://ctedunet.net/cen-connect)

CEN ANNUAL CONFERENCE



**CEN**   
**CONNECT**  
**2024 Member Conference**  
**May 8-9 | Save the Date!**

Discount Code:  
**UCONNITS24**

Payment:  
**Check/PO**

(Must have supervisor approval)

**THANK YOU, MICHAEL!**

[ctedunet.net/cen-connect](https://ctedunet.net/cen-connect)