CT Commission for
Educational Technology (CET)
Quarterly Update

December 2, 2024
1:00PM – 3:00PM
LOB, Room 1B

Categories have been arranged to align with CEN's Strategic Plan.

1. Provide Value

- DDoS Mitigation Summary Review
  - 2023-2024 Academic Year (August 1, 2024 – December 1, 2024)

Number of TMS Mitigations	Volume of Traffic Passed by TMS	Volume of Traffic Dropped by TMS	Volume of Largest TMS Mitigation	Rate of Largest TMS Mitigation	Duration of Longest TMS Mitigation
31	1.13 TB	6.70 TB	4.79 TB	142.93 Gbps	0d 0h 42m
↓79.47%	↓84.68%	↓26.51%	↑115.04%	↑287.07%	↓79.28%

  - Bottom row indicates increase or decrease from prior period (April 02 2024 6:58 - August 02 2024 4:00).
  - 2024 Calendar Year (January 1, 2024 – December 1, 2024)

Number of TMS Mitigations	Volume of Traffic Passed by TMS	Volume of Traffic Dropped by TMS	Volume of Largest TMS Mitigation	Rate of Largest TMS Mitigation	Duration of Longest TMS Mitigation
232	12.08 TB	27.72 TB	5.65 TB	154.65 Gbps	0d 3h 24m
↓35.73%	↑25.27%	↑57.15%	↑129.27%	↑12.84%	↓74.19%

  - Bottom row indicates increase or decrease from prior period (January 31 2023 8:58 - January 02 2024 5:00).
- CT Library Fiber Consortium – Internal Connections (FTTL-IC) https://ctedunet.net/fttl-ic/
  - The goal is to help libraries with internal network infrastructure to serve library operations better. Phase one (assessments and reports) is fully complete.
  - Phase 1 - Assessments. 41 Libraries received assessments and recommendations.
  - Phase 2 - Remediations and Completion: State library has authorized funding for recommendations made in assessment reports, award contracts have been signed, and funds have been released for individual libraries for equipment and labor to remediate issues. CEN/Novus Insight is working with them to review equipment lists, update as needed, initiate purchases, and schedule work dates. - This process is ongoing in batches.
    - 36 libraries are moving forward with this phase.
      - 21 are complete
      - 8 libraries are in progress (work has been or is in the process of being scheduled).
      - 2 Libraries are in the process of updating components and quotes.
  - All projects must be completed by April 30, 2025; any funds not fully expended by then must be returned to the State Library; extensions can be requested.
  - Note: The 5 libraries that did not proceed to Phase 2 use the assessments to fund remediations on their own. Most were completed with locally administered ARPA-SLFRF funds at that time.
- New Member-Customers since the last Commission meeting (in order of turn up)
  - Avon Volunteer Fire Department
  - Ashford Volunteer Fire Department
  - Department of Correction (DoC)
    - Osborn Correctional Institution
    - Robinson Correctional Institution
    - York Correctional Institution
- New *connections* to existing CEN members since the last Commission meeting
  - City of Bridgeport EOC
  - Department of Motor Vehicles (DMV)
    - Willimantic

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- - ■ Winstead
    - ■ New Britain
    - ■ Old Saybrook
  - ○ Department of Transportation (DOT) - *CEN is providing transport connectivity to DOT Headquarters and 62 Maintenance facilities and garages over a period of two years. Sites will be listed as they are completed. 55 sites were completed as of the last report.*
    - ■ Waterford Maintenance Garage
    - ■ Westport Maintenance Garage
    - ■ Windsor Maintenance Garage
    - ■ Norwich Maintenance Garage
    - ■ Wallingford Maintenance Garage
    - ■ Vernon Maintenance Garage
    - ■ Waterbury Maintenance Garage
- ● Exiting Member-Customers since the last Commission meeting disconnecting (in order of turn down)
  - ○ None

  Current Member Organization Count = 688
  *Effective 12-1-21 member count processes are adjusted to reflect multi-site organizations as one member throughout the community.

2. Ignite Innovation

- ● PerfSONAR Servers
  - ○ perfSONAR is the **perf**ormance **S**ervice-**O**riented **N**etwork monitoring **Ar**chitecture, a network measurement toolkit designed to provide federated coverage of paths, and help to establish end-to-end usage expectations, ensuring friction free use of networks for scientific applications. This open-source infrastructure helps to identify and isolate problems as they happen, making the role of supporting network users easier for engineering teams, and increasing productivity when utilizing network resources.
  - ○ Scope is to install 100Gbps PerfSONAR servers at the hub and extranet sites to provide independent tooling for measurement of capacity and throughput helping ensure the highest quality of network experience for the membership and will make these available to the community to run diagnostics from any member site.
  - ○ 12/2/24 Update - no change. Project on temporary hold due to resources required for NextGen.
- ● eduroam https://www.eduroam.us/
  - ○ Goal is to address digital divide issues impacting Internet access and provide a more seamless and secure network access experience for students, faculty and staff at learning institutions and affiliate locations.
  - ○ CEN's application for the Internet2 eduroam Support Organization program was accepted and will be one of 5 across the country. https://internet2.edu/internet2-announces-new-eduroam-support-organizations/
  - ○ eduroam Support Organization (eSO) contract agreement between CEN and Internet2 is complete. New CEN member organizations can be onboarded at will without signing an I2 agreement. CEN has a member subscriber agreement for new eduroam subscribers and will work with the early adopters to convert their I2 based agreements to CEN based agreements.
  - ○ Current subscribers and users: New Haven Public Schools, Darien Public Schools, Suffield Academy, Waterbury Public Schools, Middletown Schools, Choate Rosemary Hall, and ACES. Sterling PS in process.

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- Grant Activity
  - CT State and Local Cybersecurity Grant Program (SLCGP) administered by Department of Emergency Management and Homeland Security (DEMHS)
    - Applied for round 1 funding in July. Grant application included improving cybersecurity awareness across the community via subsidies to CyberNutmeg and leading cooperative purchasing activities though a dedicated product manager who will coordinate activities.
    - *Notice of Selection received in November*, awaiting award package details.
  - Broadband Equity, Access, and Deployment (BEAD) program administered by CT Department of Energy & Environmental Protection (DEEP)
    - CEN applied for pre-qualification to be a subgrantee in the BEAD program with the intent to connect community anchor institutions that qualify under that program. Pre-Qualification is required to participate and there is only one opportunity. The original deadline was November 20, 2024, by 5PM. On Thursday November 21 at 3:44 it was announced to be extended to November 22 at 5PM.
    - Funding for CAI connectivity will be made available *AFTER* unserved and underserved populations are addressed and if there is any funding remaining.
    - CEN's application was submitted and confirmed on November 20, 2024, at 3:31PM.
    - The application is currently in the review or 'curing' process, and we expect to hear back soon.

3. Foster Collaboration

- EDAC - Engagement and Development Advisory Council
  - Co-Chairs: Karen Skudlarek, UCONN; Cathie Drury, Coventry Public Schools
  - Annual Member Conference, *CEN Connect 2025* May 7-8, 2025, at CT Convention Center
    - Celebrating 25 years of service!
    - Day 1: 8 Long-form pre-conference workshops, vendor exhibition, after hour social event at CT Science Center for all attendees on day 1 and 2.
    - Day 2: Traditional format, AM welcome and keynote, all-day vendor exhibition, after hours social
    - Registration: https://web.cvent.com/event/8d6e96e5-ee19-4987-a0ba-21fa52800a34/summary
    - Agenda:https://web.cvent.com/event/8d6e96e5-ee19-4987-a0ba-21fa52800a34/websitePage:645d57e4-75eb-4769-b2c0-f201a0bfc6ce
    - Call For Session Proposals: https://www.cvent.com/c/abstracts/4b3e0b46-33f5-47ac-9f1f-7fa7a11a91e4
  - Member Trainings
    - Transitioning to IPv6 as a Preferred Network Protocol
      - **Date**: October 22, 2024, 10AM-11:30AM
      - **Presenters**: Jason Healy, Suffield Academy
      - **Abstract**: IPv6 continues to gain acceptance worldwide, but access to IPv4 resources will remain necessary for the foreseeable future. Organizations need a way to support both protocols without incurring significant configuration and troubleshooting. Participants will leave the presentation with strategies for networks to incorporate IPv6 and eventually shift away from IPv4. The framework for making this transition will be shared, with concrete steps at each phase that attendees can use on their own networks. Suffield Academy will also share "lessons learned" from their own

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production environment to help avoid common pitfalls. The techniques apply both to dual-stack networks and to networks looking to move more aggressively to IPv6-preferred or only operation.
- **Registrations:** 134
- **Attendees:** 96
- **Survey Results:** very positive results

■ Upcoming - Artificial Intelligence (AI) Seminar Series 'From Knowledge to Application'
- Jan 2025 - Dec 2025
  ○ Jan 14, 2025 @ 11AM
  ○ Feb 11, 2025 @ 11AM
- Multipart series on AI in partnership with Isidore 'Izzy' Sobkowski. Mr. Sobkowski is a recognized global leader with over 45 years of hands-on experience with advanced AI solutions and holds a US Patent for Ethical Artificial Intelligence. His experience spans R&D, sales, marketing, intellectual property, and technology delivery with a demonstrated history of successful ideation and deployment of high-tech projects and businesses including Chief Digital Officer of Stamford, CT; Artificial Intelligence Specialist at the US Patent and Trademark Office; CIO of NYC Health and Human Services; Global Technology Strategist at Microsoft; Artificial Intelligence Lead for Surveillance and Compliance at New York Stock Exchange; and AI Division Vice President at Computer Associates. Mr. Sobkowski won the Microsoft Award for Best Product of the Year for AI and has achieved the coveted upper right-hand position in Gartner's Magic Quadrant for a company he founded, Professional Help Desk and for his underlying AI technology called Experience-Based Reasoning (EBR).
- Program Structure:
  ○ Quarterly Training Sessions: These 90-minute sessions will cover essential AI topics such as ethical considerations, governance, financial planning, and public safety applications.
  ○ Monthly Hands-On Sessions: These sessions will provide practical insights and address specific challenges faced by members, including interactive workshops and case studies.
- Potential Topics (discussed with EDAC and SMAC):
  ○ Data AI and Governance
  ○ Common AI Applications
  ○ Digital Transformation

■ Upcoming - ARIN RPKI Training
- Resource Public Key Infrastructure (RPKI) is a security framework that helps secure the internet's routing infrastructure.
- Target date: Feb 2025
- Target audience: CEN members who BGP peer with CEN
  ○

● SMAC- Service Management Advisory Council
  ○ Co-Chairs: Ken Sayers & Jonathan Garbutt
  ○ Council meetings scheduled for 10/2, 12/13, 3/11
  ○ Committee members are organizing around aggregated services available for members.
    ■ Unified Communications - RFP team comprising DAS procurement and SMAC members developed timeline for publication in the next 4-6 months
    ■ Security Services - building new survey feedback for the community to help provide priority and direction for the committee and CEN to pursue.

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- ■ Pricing and Port based model - with the new platform being built, will solicit feedback from council and community on port speed and pricing options moving forward.
- ■ CIPA filtering - on hold, discussing options.
- ○ Services Reviews: Walk through of services to review service life cycles will continue: https://ctedunet.net/wp-content/uploads/sites/2510/2021/12/2020-10-20_CEN_Service_LifeCycle_Process23.pdf
- Connecticut Higher Education Roundtable on Information Security (CHERIS) https://ctedunet.net/cheris/
  - ○ Co-Chairs: Owen Brandt, ECSU; John Schaeffer, Conn College
  - ○ Forum of Higher Education IT security professionals that meets quarterly to collaborate on IT solutions, discuss best practices, and share security challenges.
  - ○ No updates
- Co-Hosted the Internet2 Connector Principals Meeting on Sept 16 and The Quilt Fall Member Meeting September 17-19 in Hartford. This is a closed event for I2 and/or The Quilt members only.
  - ○ This is the first time either meeting has taken place in CT! CEN provides light administrative support and local knowledge for both Internet2 and The Quilt to run their events.
  - ○ Local participants as speakers in the Quilt general session program on the 18th include Mark Raymond, Doug Casey, Michael Mundrane and John Barden from CT, and others from New England.
  - ○ https://www.thequilt.net/public-event/2024-the-quilt-in-person-fall-member-meeting/
  - ○ Mark Raymond provided the opening keynote address.
  - ○ Doug Casey (CET) helped lead a discussion on Digital Equity (DE) that included counterparts from Maine and Rhode Island as well as the NTIA program officer for DE in the region.
  - ○ Michael Mundrane (UConn), and John Barden (Yale) assisted on a CIO discussion.
- Cyber Nutmeg https://ctedunet.net/cybernutmeg/
  - ○ Cyber Nutmeg 2024 will build on the recent success of the CTNG:CEN partnership and continue the one-day event designed to heighten your awareness of cybersecurity threats and defenses you can deploy to protect your organization. This event is intended for state, municipal, and educational leaders, including but not limited to first selectmen, mayors, town managers, superintendents, and the IT and cybersecurity professionals who support them. Cyber Nutmeg consists of three main components: Threat Briefing from the FBI, Homeland Security, and CT Counter Terrorism and Intelligence (CTIC); Cyber Security Awareness Training/workshops; a National Guard led Tabletop exercise where blended groups can work collaboratively to focus on today's most prevalent threats.
  - ○ Date: October 10, 2024
  - ○ Venue: Hartford Marriott Downtown
  - ○ Event website: https://cvent.me/aN42zl
  - ○ Registrations: 254
  - ○ Attendees: 205
  - ○ P/L: $5,134; (loss of $33,540 when including in-kind contributions).

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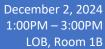LOB, Room 1B

4. Promote Advocacy

- Outstanding Leader Awards - Call for nominations (https://ctedunet.net/cola/)
  Awards are presented at the CEN Annual Conference
  - Individuals who have provided extraordinary leadership, energy, ideas, and achievements for the advancement and development of the CEN community.
  - Any individual at a CEN member institution is eligible for this award, if they have not already received it.
  - Non-CEN Members, such as R&E members, vendors, or resellers, may be considered on an individual case basis
- Working with CT DEEP on awareness campaigns and communication of CEN ConneCT programs
  - Broadband programs overview:
  - Broadband Roundtable meeting series to engage with constituents is scheduled by DEEP now, CEN participating with CET and DEEP on the 3-part series.
    - September 23, 25, 26
    - December 9, 2PM - Internet Service Providers
    - December 11, 2PM - State, Tribal, and Municipal Governments
    - December 12, 2PM - Community organizations
- Interent2 Trusted Infrastructure Platform
  - Director Kocsondy is co-chairing a meeting series for network connector principals across the country to further develop plans, goals, and strategies for Internet2's 'trusted infrastructure platform' helping further secure the national R&E backbone. Goals of the program are:
    - Support National and Global Research
    - Initiate National Peering and Routing Optimization
    - Deliver Network Transparency
    - Enhance Routing Integrity for the US and Global R&E space
    - Leverage Network Automation and Self-Provisioning

5. Enhance Core Resources

- CEN Staff
  - CEN currently has 15 full-time staff members, 3 part-time student workers, 1 contracted specialist, and 3 special payroll.
  - Upcoming Searches
    - Network Engineer – Offer Extended
    - Cyber Security Engineer – Repost - Job advertisement in process
    - Cybersecurity Analyst - 2 positions - Job advertisement in process
    - GIS Specialist – on hold
- Extranet Capacity Upgrades
  - We improved the capacity to Internet2 (I2) to 2x100G in NYC and added 100G in Boston. The Boston link will be moved to Hartford for a 2x100G link once the site is ready in February/March timeframe. Overall connectivity to I2 will be 400G or 2x100G at 2 geo-diverse locations (Hartford and NYC).
- DDoS enhancements
  - DDoS cloud providers changed from Akamai to Radware as a cooperative move along with other NEREN partners in the region. This DDoS service is only used if/when the local on-premises Arbor-NetScout DDoS solution needs additional capacity.

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- ○ Radware is used by many organizations in the R&E network space as well as Internet2 Community.
- ● Triangular Core Capacity Augment
  - ○ 400Gbps technologies represent the latest in speed, capability, and capacity for advanced carrier and enterprise networks.
  - ○ We are in the early planning stages to augment the triangular core with 400Gbps links adding capacity and resilience to current network infrastructure and in preparation for Next Generation Infrastructure upgrades.
  - ○ Status: Complete in October
- ● In partnership with the Northeast Research and Education Network (NEREN)
  - ○ CEN is part of a collaborative effort to connect the Massachusetts Green High Performance Compute Center (MGHPCC) to the NEREN backbone. This connectivity will help CT based researchers and their institutions by providing high throughput connectivity and access to resources at the MGHPCC and beyond. Components include:
    - ■ Optical node install to integrate MGHPCC into NEREN fabric
    - ■ Optical node installation in Lee, Mass on schedule to add east-west resilience to MGHPCC
    - ■ New service with Internet 2 to set up an 'Exchange' for NEREN partners to aggregate services in the region fostering collaboration and cost control.
  - ○ Status: NEREN optical node installation at MGHPCC in complete. Lee Mass node and fiber target completion in winter 2025 time frame.
- ● CEN Connect (ARPA-CPF) Project Updates
  - ○ CENConnect is a program that provides direct investment in middle-mile broadband infrastructure in support of Connecticut's municipalities, schools, colleges, universities, libraries, healthcare, open access, and cultural arts institutions, through upgrades and expansion of the CEN (https://ctedunet.net/cen-connect/). In addition, the program offers grant funding opportunities to attach to the CEN platform for Community Wi-Fi access to CT citizens in need. Program funding is made available as part of Governor Lamont's Connecticut Plan for the American Rescue Plan Act. Federal funding agency is the US Department of Treasury.
  - ○ Next Generation Infrastructure (NGI)
    - ■ Scope: Comprehensive upgrade of the CEN equipment infrastructure bringing 400G backbone and handoff options of 1G, 10G, 25G, 40G, 100G, and 400G to every member location.
    - ■ Site survey / audit of every service location - Complete May 31,2024
    - ■ Network Lab / Automation / Orchestration build out – in process – partial completion June, remaining in December / January
    - ■ Optical Upgrades – 100% complete as of November.
    - ■ Packet Upgrades – 10% complete
      - ● Design doc reviewed
      - ● 4 Core and 8/19 hub chassis are physically installed
  - ○ Connecting Connecticut's Communities Initiative (C3I)
    - ■ Target Member Communities: Libraries, Municipalities, COGS, and Charter Schools
    - ■ Scope: Expand network services to target members/sites with free fiber build
    - ■ Current progress update:
      - ● 176 total potential participants
      - ● 123 engaged (interested parties we call hand raisers)
      - ● 50 commitments (signed agreements), 23 declined

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- For those who have declined, the US Treasury has approved reallocation of funds to committed participants to connect more facilities.
- 118 (up from 67) additional sites being quoted (e.g. Community Centers, and/or other municipal facilities)
  - Community WiFi
    - Scope: $10M Grant funds to expand WiFi to communities in need, expand 'eduroam' adoption / use
    - Developing Content for Grant Guidance
    - Purchased Salesforce Grant Module, build out will begin after guidance is done
    - Promotion / engagement planning underway
    - Status: Sent to US Treasury for programmatic review 11/23