CT Education Network:
Commission for
Educational Technology
Quarterly Update

CEN
Connecticut's Trusted Internet Partner

March 1, 2021
1:00PM – 3:00PM
Virtual Meeting
Connection Detail in Invite

Categories have been arranged for alignment with CEN's 2019-2024 Strategic Plan.
2020 Annual Report

1. Provide Value

- 2020 Cost Avoidance Savings

CEN Service	Aggregated CEN Cost	Alternative Member Cost	Comments
Internet Access	$6.8 M	$12.6 M	Compared to average service cost in MA/NY/RI
DDoS Mitigation	$122 K	$22.8 M	Compared to MS Azure subscription price of $2,944/month
iBoss	$226 K	$613 K	Comparison of best alternate consortia rates.
Securly	$734 K	$1.4 M	Comparison of best alternate consortia rates.
Bandwidth Bonus	$41 K	$774 K	Assumes member utilization for an average of 9 months.
Totals	**$7.9 M**	**$38.1 M**	**Cost Avoidance of $30.2M**

- 2020 Denial of Service Statistics

Threat Mitigation System (TMS) Overview

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
833	20.80 TB	45.26 TB	6.49 TB	19.99 Gbps	27d 10h 48m
↓14.83%	↑158.31%	↑33.90%	↑73.28%	↓0.21%	↑3047.78%

Denial of Service (DoS) Alert Summary

Number of DoS Alerts	Volume of DoS Alert Traffic	Volume of Largest DoS Alert	Rate of Largest DoS Alert	Duration of Longest DoS Alert
8464	257.40 TB	10.30 TB	61.03 Gbps	2d 19h 21m
↓22.75%	↑48.36%	↑33.33%	↑58.58%	↓13.23%

- CT Library Fiber Consortium Project
  - Project to connect libraries through federal E-rate and matching State Library bond funds.
  - Many project sites connect underserved communities where connectivity options have remained relatively unchanged for decades. This project provides high quality service at reasonable costs to bridge gaps in the digital divide and help libraries continue to thrive as community assets.
  - Phase 5: 18 sites have library/town approval to move forward.
  - The current project across all phases (1–5) will bring total fiber-connected libraries to 168 (including 47 branches), representing 70% of all 239 libraries statewide.
  - Total savings on funding years 1-4 is $1,392,000 (FCC/USAC E-Rate dark finder IRU savings).

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- o Awarded Phase 6 on January 14, 2020 targeting remaining eligible libraries. 2 committed.
  - o Connecticut Libraries Fiber Consortium awarded E-rate bid for Phase 7 to CEN. Five libraries interested in moving forward.
- New Members/Customers since the last Commission meeting (in order of turn up)
  - o Goodwin University
  - o Winchester Volunteer Fire Department
  - o Winsted Fire Department Station 1
  - o North Haven Police Department
  - o Middlebury Police Department
  - o Eastford Public Library
  - o The Open Hearth
  - o Oxford Public Library
  - o Fair Haven Branch Library
  - o Courtland Wilson Branch Library
  - o Mitchell Branch Library
- Current Member Count = 649

2. Ignite Innovation

- Eduroam https://www.eduroam.us/
  - o Goal is to address digital divide issues impacting students learning and provide more seamless network access experience for students
  - o Tom Dillon helping coordinate activities as CET Infrastructure Advisory Council Chair, with CEN resources and fiscal support
  - o Pilot districts and neighboring higher ed include: Metro Hartford Information Systems (MHIS) and Trinity College, Middletown Public Schools, Library, and Wesleyan University, New Haven Public Schools and SCSU, Stratford Public Schools
  - o City of New Haven committed and is rolling out as part of COVID response
  - o Discussions with Internet2 on programmatic approach to rolling out the service across a state
  - o Discussions with state about a funded pilot program to increase adoption
- Additional services are in development and will be prioritized based on community feedback
  - o With help of SMAC Chair(s), items are categorized and prioritized
  - o UConn procurement will assist with RFP development
  - o Aligning initiatives with existing UConn RFP cycle where possible to make more efficient use of time and effort

3. Foster Collaboration

- Annual Member Conference; May 11-14, 2020. https://ctedunet.net/annual-conference/
  - o Conference will be virtual
  - o 3 day event with multiple concurrent AM and PM sessions, 24-28 total sessions
  - o Call for proposals ended Feb 25
- Service & Technical Advisory Council (STAC)
  - o Chairs: Matt Ross (Farmington Public Schools), Jonathan Garbutt (SCSU).
  - o Survey for additional services and prioritization complete
  - o Procurements groupings complete for RFP prioritization and development
  - o Developing technical criteria for NextGen CEN network

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- o COVID related activities have slowed progress temporarily
- CEN Cyber Corps and Mutual Aid Pact, _on hold_.
  - o Framework for technical mutual aid and training amongst the membership and related community
  - o Communicating and collaborating with DESPP Region 3 where initiatives overlap
  - o Layered approach based on incident scale and response needed
  - o Focused on training, assessments, remediation if/when incidents happen
  - o Compliment forensic analysis efforts by public and/or private companies
  - o CEN and Region 3 agreed to put on joint efforts on hold and participate in the newly formed _Volunteer Cyber Incident Response Team_ (VCIRT) subcommittee of the State Cybersecurity Committee. Committee presented recommendations last calendar year.

4. Promote Advocacy

- Everyone Learns Initiative - WiFi Hotspot Project https://ctedunet.net/everyonelearnswifiinitiative/
  - o Leverage CEN network and member locations to provide WiFi Hotspots across 40 target towns
  - o Original scope was $2.2M; $1.7M authorized to provide walk-up/drive up WiFi service through external/on-building mounted 802.11AX wireless access points. ~5 month rollout.
  - o Cost includes software licensing, equipment, enclosures, wiring, material, labor, project management, bandwidth, etc.
  - o APs and installation are donated to the participating member location; CEN will manage for the first year.
  - o Project delays due to scheduling and COVD related access delays at participating sites
- State Broadband Legislation
  - o Serve as subject matter expert to state and local legislators, and community leaders about the Governor's HB-6442 AN ACT CONCERNING EQUITABLE ACCESS TO BROADBAND.
- Internet2 CAP Scholarship Recipients from CEN Membership/Connecticut
  - o 38 teachers won 39 total scholarships. 13 from CT, one received a double award for two classes.
  - o Over 1600 students will benefit from the scholarships across the U.S.
  - o Winning teachers came from schools that connected to 7 different R&E networks.
  - o Each teacher will receive a free one-on-one interactive online course of their choosing from the Center for Interactive Learning and Collaboration (CILC.org). These one-on-one courses usually cost between $84 and $336 each.
  - o Internet2 press release including the full list of Internet2 Distance Learning Scholarship Winners.
    - ▪ https://internet2.edu/winners-announced-for-internet2-community-anchor-programs-distance-learning-scholarship/

5. Enhance Core Resources

- CEN Staff
  - o CEN currently has 10 full-time staff members, 4 part-time student workers, and 1 volunteer (1 day /week)
  - o Job searches
    - ▪ Financial Assistant 1 – In approvals
    - ▪ Network Security Analyst 2/3 – JD Complete
    - ▪ Network Engineer 2/3 – JD in revision
    - ▪ Program Assistant 1 – JD in development

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- Hub/Distribution Layer Equipment Upgrades
  - $1.5 M bond allocated to replacing devices at distribution layer of the network that are end of life/end of support
  - Design complete, equipment received, config templates built, and implementations started
  - COVID related challenges include travel, scheduling, and access to site facilities
- iBoss Capacity Increases
  - Issues surfaced in early January where the on-net iboss clusters became unstable
  - Consultation with iboss ensued, no particular RFO was identified, recommendation made to increase capacity
  - Three step plans to course correct
    - Stabilize the current/legacy environment by replacing old 2U appliances (complete)
    - Implement new, more scalable, load balancing on the NBC-28 chassis for greater efficiency and capacity (underway)
    - Lessons learned and member forum on filtering for the future (projected in summer)
- Extranet Projects
  - NEREN Collaboration (MA, ME, NH, NY, RI, VT) for increased connectivity into NYC and Boston areas as the busiest telco areas in the Northeast, increasing CEN's capability and reach
  - Will result in more diverse options and lower commodity Internet prices, increase commercial peering to reduce costs, backhaul opportunities to Ashburn (VA) and Chicago, and peering partnerships with other Regional Optical Networks (RONs) within the research and education network space
  - RFP for IP transit is delayed within UConn Procurement due to staff turnover and backlog. All proposals have been evaluated and scored. Currently in contracting phase for two providers.
- Policy Review (on hold)
  - Incremental progress. Plan is to revise / update as needed, circulate to CEN Advisory councils for comment, submit to CET.