Annual Report of the Commission for Educational Technology

Inclusive of FY 2012 – 2015

Submitted in Accordance with CGS Sec. 4d-80(c)(8)

Hartford, Connecticut

December 1, 2015

The Commission for Educational Technology was established in 2000 by Public Act 00-187.

The Commission is composed of the (1) The Commissioner of Administrative Services, or the commissioner's designee, the Commissioner of Education and the president of the Board of Regents for Higher Education, or their designees, the State Librarian, or the State Librarian's designee, the chairperson of the Public Utilities Regulatory Authority, or the chairperson's designee, the chief executive officers of the constituent units of the state system of higher education, or their designees, (2) one member each representing the Connecticut conference of Independent Colleges, the Connecticut Association of Boards of Education, the Connecticut Association of Public School Superintendents, the Connecticut Educators Computer Association, and the Connecticut Library Association , (3) a secondary school teacher designated by the Connecticut Education Association and an elementary school teacher designated by the Connecticut Federal of Educational and Professional Employees, and (4) four members who represent business and have expertise in information technology, one each appointed by the Governor, the Lieutenant Governor, the speaker of the House of Representatives, and the president pro tempore of the Senate.

CGS Section 4d-80 lists six statewide technology goals:

1. Connecting all institutions of higher education, libraries, public elementary and secondary schools, regional educational service centers and other parties through a state-wide high speed, flexible network that will allow for video, voice, and data transmission;
2. Wiring to all school classrooms and connecting them to the Internet and to the state-wide-high-speed network through wired, wireless, and any other digital transmission technology providing high speed connectivity;
3. Providing access for all public schools, public libraries, and libraries at institutions of higher education to a core set of on-line full text resources and to the ability to purchase collaboratively for other collections in order to maximize buying power;
4. Ensuring, in cooperation with the State Board of Education, competency in computing skills by the sixth grade for all students;
5. Ensuring competency in specific computing skills and the integration of technology into the curriculum for all public school teachers; and
6. Ensuring that institutions of higher education offer a wide range of course and degree programs via the Internet and through other synchronous and asynchronous methods.

The Commission is required to report annually on its activities and progress made in the attainment of the state-wide technology goals, and provide recommendations to the joint

standing committee of the General Assembly having cognizance of matters relating to education and appropriations and the budget of state agencies, the State Board of Education, and the Board of Governors of Higher Education.

Legislative Changes

There were two legislative change during this period of time for the Commission. The first change in 2011, was made to reflect agency merger activities enacted by the legislature. This change was editorial in nature.

The second change, in 2013, modified the membership of the Commission. P.A. 13-247 added members from:

- Office of Policy and Management,
- Department of Economic and Community Development,
- University of Connecticut,
- Office of the Consumer Counsel,
- Connecticut Conference of Municipalities
- Connecticut Council of Small Towns
- A chief elected official from a Municipality, and
- A representative of small business

P.A. 13-247 removed the following members:

- chairperson of the Public Utilities Regulatory Authority
- chief executive officers of the constituent units of the state system of higher education,
- Connecticut Association of Public School Superintendents
- Connecticut Educators Computer Association,
- secondary and elementary school teachers,

P.A. 13-247 also made the following changes to the Commission Membership:

- amended “four members who represent business and have expertise in information technology” to “four members who represent business or have expertise in information technology”
- Required quarterly meetings
- Changed chairmanship of the Commission from election to appointment by the Governor.

Meetings of the Commission for Educational Technology

In 2012, the Commission met in September and December.
In 2013, the Commission met in September and December
In 2014, the Commission met in March, June, September and December.
In 2015, the Commission met in March, June, September and December.

CET Leadership

In 2013, coincident with the change in statute that defines the Commission, Mark Raymond, the Chief Information Officer for the state within the Department of Administrative Services, was appointed chair of the Commission by Governor Malloy. CIO Raymond succeeded Kendall Wiggin, CSL who admirably led the Commission for Education Technology with dedication since 2007.

The primary activities of the Commission during this period of time were:

- The expansion of the network as a result of the federal Broadband Technology Opportunity Program (BTOP).

- The development and execution of a two-year plan to connect municipalities to the network with the help of the Regional Performance Incentive Program (RPIP) grants.

- An independent review of the CEN pricing structure to assess alignment with Commission goals.

- Re-establishment and recruitment of the Executive Director position for the Commission to be funded through the use of the CEN funding mechanism.

- The cost-effective management of the network that saw overall network use grow from 12 Mbps to over 40 Mbps while reducing user costs.

- Stable and reliable network operation that allowed the state to deploy Smarter Balance online testing with no technical disruptions from networking.

Connecticut Education Network (CEN)

CEN is America's first statewide K-12 and higher education network to be built exclusively using state-of-the-art fiber optic connections. Initially established in 2000, CEN provides a high speed, redundant, connection to every K-12 school district and most public libraries in the state. These educational institutions use CEN to access the Internet, Internet2, iCONN, and profit from CEN's professional development targeted at educating on new technologies and resources. CEN also serves higher education institutions, private K-12s, government agencies and open access members.

CEN is connected to every public school district in Connecticut, including 19 of the state's technical high schools and 14 Charter schools. As CET policy dictates, it is each district's responsibility to connect the rest of its school buildings to its local CEN-connected building. CEN maintains connections to 160 library sites, including 132 principal public libraries. There are a total of 37 CEN connections to higher education institutions, including 11 of the state's community college campuses.

Annual Report 2012

Introduced a new term 'Nutmeg Network' which refers to a combination of multiple state networks to provide end to end connectivity: drawing on the Public Safety Data Network (PSDN), and the Connecticut Education Network (CEN). The governing bodies for the network are CET, and the E911 Commission (a new steering agency for public safety). A new responsibility of the CET is to oversee Open Access, which has been added as a condition of the federal ARRA grant. Access to CEN was previously limited to the education and research community. This is partly due to E-rate restrictions, which have been removed.

The network services pricing structure is set as follows: the discount process is 100% for K-12, 50% for State Agencies, and 45% for CEN Members. Public Safety is being paid by state E-911 funding. Others will pay full cost.

Since the Broadband Technology Opportunity Program (BTOP) grant was issued, CEN has updated and overhauled the whole core of the network and 21 hub sites with limited staff. One hundred edge devices at schools have been upgraded. This was accomplished with a small team of 3 technical engineers. Over two thirds of the project is completed. They have also updated non BTOP sites.

Annual Report 2013

CEN completed the BTOP grant and successfully added 120 sites bringing the total over 420 sites on fiber backbone. Of the non-BTOP sites all but 37 of our sites have been upgraded. The sites that remain are more difficult to access or swap out the equipment.

CEN hosted its first member conference in May 2013 at Rentschler Field. There were 300 attendees and due to the large turnout, it was decided to host next year's conference at the convention center.

On a daily basis, our bandwidth commitments are about 17—18Gb per second across all members. Normal traffic levels doubled on the day that IOS7 was released by Apple, doing over 30Gb per second. The CEN engineering team remains very confident that the required capacity is in place for both backbone and through providers to handle substantial increases like state mandated testing and other large usage periods.

The network has three 10GbE connections to commercial providers and the team is pursuing the network's first 100GbE connection to Internet2.

Jackson Laboratories will be joining the network for research activities that will heavily utilize the circuits. Also UConn & UConn Health have research initiatives with NextGen CT and BioScience CT that will heavily utilize these circuits as well.

A group of researchers from UConn and UConn Health won a bid for a National Science Foundation (NSF) grant funding and CEN has an active role in this project. Specifically, there will be three major improvements to the existing network infrastructure: (1) construct a Science DMZ at the Storrs campus that provides an aggregate access bandwidth of 100Gbps to its regional network provider, (2) re-architect the current Science DMZ at the Farmington campus and increase its access bandwidth from 2Gbps to 100Gbps, and (3) establish a layer-2 connection between the Storrs and Farmington campuses over this new infrastructure dedicated to scientific traffic between these two campuses.

Annual Report 2014

The Connecticut Education Network continues to see a significant annual increase in traffic; the CET handles roughly 25-27Gb per second daily.
The Municipal Connection Project has 80+ towns going through the grant process with 53 that will connect through CEN, and 28 will connect through PSDN. Eight towns are already connected. There are 169 towns in Connecticut and this project has already positively engaged over half of that number with many still undecided. It is hoped to increase this number over the next year.

CEN hosted its second annual member conference on May 22, 2014 at the Hartford Convention Center. As it was the second year of the event, there was an increase in participants to 350+ as well as an improvement in the speakers and increase in vendors at the event. It was agreed to continue next year's event at the Convention Center.

Annual Report 2015

CEN has 59 Connecticut towns/ Regional Councils of Government (RCOGs) connections and six other state agencies including CT Criminal Justice Information System (CJIS), CT Department of Administrative Services (DAS-BEST), CT Department of Developmental Services (DDS), CT Department of Emergency Services and Public Protection (DESPP) and CT Department of Motor Vehicles (DMV) and CT Office of Higher Education.

CEN has 10 open access members: The Connecticut Center for Advanced Technology, Connecticut Institute for the Blind, Connecticut Public Affairs Network, Connecticut Public Television, Connecticut Science Center, Digital Back Office Data Center, Internet2, Jackson Laboratories, Mystic Aquarium Institute for Exploration, and UConn Foundation.

In addition to providing enhanced Internet access and opportunities for virtual collaboration, Connecticut's provision of CEN connectivity to public school districts continues to save millions of dollars statewide each year. Additional savings also have been realized by public libraries. The FCC has stated that it was impressed with the scale of the Connecticut network and noted its cost effectiveness; they use CEN as an exemplary model of statewide collaboration (so effective that some E-rate schemes aren't applicable to us as it would duplicate effort and increase costs; they are bearing these in mind for future E-rate guideline recommendations). The state filed applications under the Federal E-Rate program for CEN connections to schools and libraries, and received $52,733.31 in E-Rate reimbursements for fiscal year 2015.

The CEN network usage continues to increase year on year, this year saw an overall increase in usage on the network by 67%. This past year has seen improved performance and reduced costs for CEN members and state agencies by connecting and sharing circuits across the Nutmeg Network. Through careful use of resources and planning, CEN has reduced members cost to use the network by over 35%. Expanded Content Distribution Network (CDN) caching delivers higher quality streaming video and other content in a more efficient and cost effective manner.

In cooperation with the UConn, CEN began providing a cost effective, 100 gigabit per second (100GbE) network connection, via the Internet2 Network backbone, to all CEN members. This Internet2 link capability benefits all CEN members but particularly our research community by facilitating high-performance data intensive research collaboration and exchange among peers at both national and international institutions.

The CEN Team is creating a targeted marketing campaign to raise member awareness of the fiber optic network that is first class in the nation. In May 2015, CEN conducted its third annual member conference with close to 450 individuals, almost one hundred more than the previous year.

Meanwhile, the network continues to grow. Over 31 Connecticut towns/ Regional Councils of Government (RCOGs) have connected to the CEN through the second year of Municipal Grant Funding grants program. With this investment in CT, the network will exceed 100 connections for municipalities across the state. Overall network backbone capacity has been improved to serve CEN customers that generate more than 50% increase in usage annually.

iCONN

As part of the Connecticut Education Network,
iCONN (www.iconn.org) provides all students, faculty and residents with online access to essential library and information resources. It is administered by the Connecticut State Library. Through iCONN, a core level of information resources including secured access to licensed databases is available to every citizen in Connecticut. In addition, specialized research information is available to college students and faculty. iCONN also includes a collection of downloadable eAudios and eBooks for access on mobile devices like smartphones and tablets.

The Goals of iCONN are:

- To ensure universal access to a core level of library and information resources for every resident of Connecticut through their public library, school, college, and from home
- To help provide necessary information resources to every school in Connecticut so that all students are prepared to function in an information society
- To provide information resources to the increasing number of students taking advantage of on-line courses at Connecticut's colleges and universities
- To support the information needs of all Connecticut citizens

Budget

Legislative and gubernatorial cuts to the iCONN database line item were absorbed by renegotiating payment schedules with database vendors.

Annual Savings / Cost Avoidance

The total cost of all iCONN databases to local communities exceeds $35 million in one year, while the cost to provide iCONN and the statewide library catalog was in excess of $1.9 million. This represents a cost avoidance of more than $33 million. See:

Cost Benefit: What iCONN Saves the State's Libraries and Municipalities

Usage (FY 2014)

For iCONN's licensed full-text databases, there were a total of 9,429,240 page views (a measure of when search results are actually viewed): 1,336,350 or 14.2% from public library patrons; 942,152 or 10% from school library patrons; and 7,150,735 or 75.8% from college library patrons. The total page views represent a 24.4% increase compared with the previous fiscal year.

Downloadable eAudio books were checked out 9574 times, a 15.70% increase over the previous year. Downloadable eBooks, a much smaller collection than eAudio Books and in the first year of circulation, checked out 1564 times.

The statewide library catalog ("reQuest") was searched 621,926 times, and there were 610,569 full record views. Over 200 libraries successfully lent 128,384 items through reQuest, a 1% decrease over the previous fiscal year. Holdings in reQuest increased to 23.6 million items, and the number of records (unique titles) increased to 6 million.

The *Treasures of Connecticut Libraries* digital collection had 7618 item views in 2015. It remains one of the top 6 most popular State Library collections. 50 libraries and their partnering institutions are represented in the collection, which has grown to 1869 objects. Information about the Treasures project can be found at: http://cslib.cdmhost.com/cdm/landingpage/collection/p128501coll0

The *Newspapers of Connecticut* digital collection began as a pilot project to select and digitize a sampling of Civil War era newspapers in Connecticut to coincide with the 150 year Civil War commemoration beginning in 2011. The first issues were added in March 2011. A total of 3306 newspaper issues from 81 newspaper titles have been added to the collection. The *Newspapers of Connecticut* collection had 17,549 item views in FY 2015. Newspapers digitized by local libraries in Connecticut are now able to be included in this collection. Information about the project can be found at: http://cslib.cdmhost.com/cdm/landingpage/collection/p15019coll9. Note: the statistics for *Treasures* and *Newspapers* are not comparable to previous years because the product changed the way statistics were counted in 2014.

Increasing Usability and Removing Barriers to Access

Permalinks

To make iCONN web addresses easy to remember and share, iCONN developed permalinks to all its audience-specific major resource web pages, as follows:

Resources for the Public http://iconn.org/classicpublic/	Popular Magazines - Public Libraries http://iconn.org/popularmagazinespublic/
Resources for High Schools http://iconn.org/classicschool/	Popular Magazines - High Schools http://iconn.org/popularmagazineshighschool/
Resources for Middle Schools http://iconn.org/classicmiddleschool/	Popular Magazines - Middle Schools http://iconn.org/popularmagazinesmiddleschool/
Resources for Elementary Schools http://iconn.org/classicelementary/	Popular Magazines - Elementary Schools http://iconn.org/popularmagazineselementaryschool/
Resources for Colleges & Universities http://iconn.org/classiccollege/	

iCONN OneSearch Video Tutorial

Database provider EBSCO created a video tutorial demonstrating use of the iCONN OneSearch discovery service. The 4 minute 37 second video is linked to from several pages on iCONN's web site. See:

Help - iCONN OneSearch Video Tutorial (4:37)

EBSCO Search Boxes

To assist users with more focused search requirements, iCONN created a number of search boxes that search individual EBSCO resources, such as Academic Search Premier, Biography Reference Center, and Consumer Reports. iCONN made the HTML to these boxes available to libraries in Connecticut to embed in their own web sites. See:

EBSCO Search Box Code

Links to EBSCO Resources for K12 Schools

iCONN worked with EBSCO to create token-embedded links to EBSCO databases for K12 schools to use. These links enable students to connect to the databases from outside of the school building without the need to login first with a library card number. See:

Token-embedded EBSCO Links for Schools

iCONN Downloadable eAudio and eBook Service Account Creation for Schools

iCONN's downloadable eAudio and eBook service, called OneClickdigital by vendor Recorded Books, requires users to create no-cost individual accounts with a valid Connecticut public library card. A significant portion of the titles in the collection are K12 or Young Adult listening or reading, but not all school students have public library cards. So iCONN furnished all Connecticut K12 IP addresses to Recorded books so that K12 accounts can be created from within the school building without the need for a public library card number. iCONN added catalog records for OneClickdigital titles in iCONN OneSearch and the statewide catalog, so searches of those resources will yield downloadable eAudio and eBook titles as well.

iCONN Dashboard for Educators

iCONN created a web page that consolidates key information about iCONN.org for K12 educators. Called the Dashboard for Educators, it is linked to from each of iCONN's classic resource menus for elementary, middle, and high schools.

Content

Using rare surplus funds, iCONN expanded its new collection of OneClickdigital eBooks by 581 titles in the month of May, 2014. This addition caused iCONN's eBook checkout numbers to increase from 112 in May to 181 in June alone, an 83.61% increase. The number of holds on eBooks for the same two months also increased, from 25 in May to 44 in June.

iCONN licensed content is featured in a State Library Division of Library Development libguide called Financial Literacy. The iCONN content includes direct links to *Consumer Reports*, *Kiplinger's Personal Finance*, *Money Magazine*, and *Wall Street Journal* for the convenience of libraries and their users. See:

http://libguides.ctstatelibrary.org/dld/Financial_Literacy

...and especially the box named Personal Finance Magazines.

2015 Commission Members

Chair: Raymond, Mark	Department of Administrative Services, Bureau of Enterprise Systems and Technology Chief Information Officer
Caruso, Nicholas	Senior Staff Associate, Connecticut Assoc. of Boards of Education
Dillon, Thomas	Speaker of the House & Founder, Flagship Networks
Elsesser, John	Town Manager, Coventry & Connecticut Council of Small Towns
Feinmark, Russell	Speaker of the House
Hughes, Kristy	University of Connecticut
Kitching, Jeff	Office of the Governor & Superintendent of Plainville Schools
Mavrogeanes, Richard	Pro Tempore of the Senate & President, Discover Video
Mindek, James	State Department of Education
Mundrane, Michael	University of Connecticut, Chief Information Officer
Pellegrini, Lisa	Minority Leader of the Senate & First Selectman, Town of Somers
Shanley, Scott	Connecticut Conference on Municipalities & Town of Manchester General Manager
Smith, Catherine	Department of Economic and Community Development Commissioner
Stanco, Bart	Office of the Governor & Gartner Group, Chief Information Officer
Vallee, William	Consumer Counsel, State Broadband Policy Coordinator
Vittner, John	Office of Policy and Management, Director
Widness, Jennifer	Connecticut Conference of Independent Colleges, President
Wiggin, Kendall	Connecticut State Library, State Librarian
Zak, Scott	Board of Regents, Director of IS Applications