



State of Connecticut

Department of Information Technology

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Connecticut Education Network

Progress, Highlights and Activities

Overview

In 2000 Governor Rowland, Lt. Governor M. Jodi Rell and the State Legislature significantly elevated the state's efforts to integrate and promote the use of technology in education. Central to these efforts was the development of the Connecticut Education Network, a state-of-the-art communications network to interconnect 1,100 K-12 public schools, public and private higher education campuses and 350 library locations throughout the State of Connecticut

The Department of Information Technology (DOIT) was identified as the lead agency in constructing the network.

Today – less than four years after the initial charge was made – the network is now more than 40 percent complete, extending to 42 percent of the state's K-12 students, 40 percent of higher education students, and 13 library systems.

CT Education Network Completed Connections	
<i>Sites</i>	<i>Quantity</i>
K-12	36
Higher Education	24
Public Libraries	13
Other	1

Now

74 Connections in
51 Cities and Towns

By fall 2004, the network reach will have nearly doubled to 82 percent – or 464,000 – of the state's K-12 students, and 88 percent, or 150,000, of higher education students.

CT Education Network New Connections Planned in 2004	
<i>Sites</i>	<i>Quantity</i>
K-12 Hubs	87
Higher Education	12
Public Libraries	23
Other	TBD

By Fall '04

196 Connections in
120 Cities and Towns

By July 2005 the network deployment is targeted for completion, reaching 100 percent of its goals.

Network Additions, 2003

2003 saw the addition of ten public school systems and three institutions of higher education.

Public School systems added include each of the Regional Vocational-Technical High Schools the public school systems of Waterbury, Woodbridge, Orange, Cromwell, Groton, Wethersfield,

Wallingford, West Haven, and East Windsor. Higher education institutions joining the network include Quinnipiac College, University of New Haven, and Yale University.

**SITES PROVIDED WITH CEN CONNECTIONS
AS OF JANUARY 2004**

K-12 Sites

1	ACES	Hamden
2	Amity Regional High	Woodbridge
3	Ansonia	Ansonia
4	Bristol Board of Education	Bristol
5	Cheshire Town Hall	Cheshire
6	Cromwell Middle School	Cromwell
7	Housatonic Valley Regional HS	Canaan
8	Danbury - Henry Abbott VT	Danbury
9	Danbury Board of Ed	Danbury
10	Danbury High School	Danbury
11	Derby	Derby
12	East Haven	East Haven
13	East Windsor Jr/Sr High	East Windsor
14	East Hartford Board of Education	East Hartford
15	Hamden	Hamden
16	Hartford	Hartford
17	Meriden Town Hall	Meriden
18	Middletown High School	Middletown
19	Milford	Milford
20	Naugatuck	Naugatuck
21	New Canaan Board of Education	New Canaan
22	New Haven	New Haven
23	New London	New London
24	Newington	Newington
25	North Haven High School	North Haven
26	Orange Board of Education	Orange
27	Plainfield Board of Education	Plainfield
28	Salem School	Salem
29	Shelton	Shelton
30	Seymour	Seymour
31	Sheehan High School	Wallingford
32	Waterbury Board of Education	Waterbury
33	West Hartford	West Hartford
34	West Haven	West Haven
35	Wethersfield High School	Wethersfield
36	Beecher Road School	Woodbridge

Higher Education Sites

37	Charter Oak State College	New Britain
38	Albertus Magnus College	New Haven

39	Trinity College	Hartford
40	University of Hartford	Hartford
41	University of Connecticut Law School	Hartford
42	University of Connecticut Health Center	Farmington
43	University of Connecticut Waterbury	Waterbury
44	Connecticut State University System	Hartford
45	Southern Connecticut State University	Hamden
46	Eastern Connecticut State University	Willimantic
47	Central Connecticut State University	New Britain
48	Yale University	New Haven
49	University of New Haven	West Haven
50	Rensselaer Hartford	Hartford
51	St Joseph's College	West Hartford
52	Mystic Aquarium (UConn-sponsored participant)	Mystic
53	American School for the Deaf (UConn-sponsored participant)	West Hartford
54	Community Technical College System	Hartford
55	Capital Community College	Hartford
56	Quinnipiac College	Hamden
57	Gateway Community College N. Haven	North Haven
58	University of Connecticut Avery Point	Groton
59	University of Connecticut Hartford	West Hartford
60	Wesleyan University	Middletown
61	Regional Vocational Technical School System	Statewide

Library Sites

62	Acton Public Library	Old Saybrook
63	Brainerd Memorial Library	Haddam
64	Burnham Library	Bridgewater
65	Deep River Public Library	Deep River
66	East Haddam Free Public Library	Moodus
67	Groton Public Library	Groton
68	Harwinton Public Library	Harwinton
69	Killingworth Library	Killingworth
70	New Fairfield Free Public Library	New Fairfield
71	Rathbun Free Memorial Library	East Haddam
72	Saxton B Little Free Library	Columbia
73	Stonington Free Library	Stonington
74	Wheeler Library	N. Stonington

The following sites are currently being added to the Connecticut Education network under active expansion projects, assisted by the 2003-2004 federal E-rate approval:

**SITES PLANNED TO BE ADDED TO THE NETWORK
BEGINNING JANUARY, 2004**

K-12 Sites

1	Ansonia - Emmett O'Brien VT	Ansonia
2	Avon High School	Avon
3	Berlin Town Hall	Berlin
4	Bethany	Bethany
5	Bethel High School	Bethel
6	Bloomfield	Bloomfield
7	Bridgeport -Bullard Havens VT	Bridgeport
8	Bridgeport Public Schools	Bridgeport
10	Burlington	Burlington
11	Canaan	Canaan
12	Canton Senior High School	Collinsville
13	Darien BOE	Darien
14	Deep River	Deep River
15	East Haddam	East Haddam
16	East Hartford High School	East Hartford
17	East Lyme	East Lyme
18	Ellington Middle School	Ellington
19	Enfield Town Hall	Enfield
20	Fairfield Board of Ed	Fairfield
21	Farmington High School	Farmington
22	Glastonbury High School	Glastonbury
23	Grasso – VT	Groton
24	Hamden - Eli Whitney VoTech	Hamden
25	Hartford – CREC	Hartford
26	Hebron	Hebron
27	LEARN – RESC	Old Lyme
28	Litchfield	Litchfield
29	Litchfield – RESC	Litchfield
30	Manchester - Cheney VT	Manchester
31	Manchester	Manchester
32	Mansfield EO Smith High	Mansfield
33	Meriden - HC Wilcox VT	Meriden
34	Middlebury	Middlebury
35	Middletown - Vinal VT	Middletown
36	Milford- Pratt VT	Milford
37	Monroe Elementary School	Monroe
38	New Britain - Goodwin VT	New Britain
39	New Canaan Town Hall	New Canaan
40	New Fairfield	New Fairfield
41	New Milford	New Milford

42	Newtown High School	Sandy Hook
43	North Haven	North Haven
44	North Stonington	N. Stonington
45	Norwalk BOE	Norwalk
46	Old Lyme	Old Lyme
47	Old Lyme to Learn	Old Lyme
48	Old Saybrook	Old Saybrook
49	New Hartford	New Hartford
50	Plainfield	Plainfield
51	Plainville High School	Plainville
52	Prospect	Prospect
53	Ridgefield	Ridgefield
54	Rockville High School	Vernon
55	Rocky Hill	Rocky Hill
56	Salem	Salem
57	Shepaug Valley High	Washington
58	Sherman	Sherman
59	Simsbury High School	Simsbury
60	Somers	Somers
61	South Windsor High School	South Windsor
62	Southbury	Southbury
63	Southington	Southington
64	Sprague	Sprague
65	Stamford - JM Wright VT	Stamford
66	Stamford Board of Ed	Stamford
67	Stonington	Stonington
68	Stratford Board of Education	Stratford
69	Suffield	Suffield
70	Thompson	Thompson
71	Tolland High	Tolland
72	Torrington	Torrington
73	Trumbull - CES	Trumbull
74	Trumbull Board of Ed	Trumbull
75	Waterbury - JF Kaynor VT	Waterbury
76	Waterford	Waterford
77	Weston	Weston
78	Westport Town Hall	Westport
79	Wethersfield High School	Wethersfield
80	Willington - District 19	Willington
81	Wilton High School	Wilton
82	Windham – Windham VT	Windham
83	Windham Middle School	Windham
84	Windsor High School	Windsor
85	Windsor Locks High School	Windsor Locks
86	Winsted	Winsted
87	Wolcott	Wolcott

Higher Education Sites

88	Asnuntuck Community College	Enfield
89	Fairfield University	Fairfield
90	Housatonic Community College	Bridgeport
91	Manchester Community College	Manchester
92	Naugatuck Community College	Waterbury
93	Norwalk Community College	Norwalk
94	Sacred Heart University	Fairfield
95	St Vincent's College	Bridgeport
96	Teikyo Post University	Waterbury
97	University of Bridgeport	Bridgeport
98	UConn Stamford	Stamford
99	Western Conn. State Univ.	Danbury

Library Sites

100	Prosser Public Library	Bloomfield
101	Cheshire Public Library	Cheshire
102	East Windsor	East Windsor
103	Enfield Public Library	Enfield
104	Essex Library Association	Essex
105	Granby Public Library	Granby
106	Bill Memorial Library	Groton
107	Brainerd Memorial Library	Haddam
108	Hamden Library System	Hamden
109	Killingly Public Library	Killingly
110	Jonathan Trumbull Library	Lebanon
111	E C Scranton	Madison
112	Whitten Memorial	Manchester
113	Godfrey Memorial Library	Middletown
114	Otis Library	Norwich
115	Portland Public Library	Portland
116	Preston Public Library	Preston
117	Simsbury Library	Simsbury
118	Southington Public Library	Southington
119	Ferguson Library	Stamford
120	Westbrook Public Library	Westbrook
121	Westport Public Library	Westport
122	Bracken Memorial Library	Woodstock

Partnership with University of Connecticut for Advanced Services Support

In July 2003, the Department of Information Technology and the University of Connecticut (UConn) signed a memorandum of agreement to create a joint Connecticut Education Network Advanced Services Center, or CEN-ASC.

In addition to continued deployment of the CEN network, the CEN-ASC supports emerging technologies and higher education services.

Under the agreement, UConn will provide high-level engineering and design talent to continue CEN deployment, and introduce new advanced services to CEN participants. It will also provide high-level consulting on demand to K-12, library and higher education institutions connected to CEN.

UConn will also sponsor, in conjunction with Yale University, access to the National Internet2 Abilene Network to bring world-class access to high speed networking to all CEN connected K-12 and library locations, and, optionally, to all Connecticut institutions of higher education.

Abilene Network, Internet2 Access

Thanks to the sponsorship of Yale University and the University of Connecticut, the Connecticut Education Network connected to the Abilene Network in 2003.

Abilene is a leading edge, research and education network developed by Internet2, a national consortium of 204 universities working with industry and government on advanced network applications and technologies.



By being named a Sponsored Education Group Participant (SEGP), the Connecticut Education Network joins an elite group of K-12 network systems also invited to connect to Abilene. As a result, all CEN members now have high-speed access to the non-commercial capabilities of Internet2.

The Abilene Network supports the development of applications such as virtual laboratories, digital libraries, distance education and tele-immersion, as well as the advanced networking capabilities that are the focus of Internet2.

Connecticut's CEN network is one of only a small handful of State Networks truly capable of delivering Internet2 capabilities to every school district and campus in the State.

Whereas almost every state except Connecticut has network bottlenecks between their Internet2 connections and each school district, CEN's optical architecture actually extends research-university grade networking all the way to each school district.

Security

In 2003, CEN completed the upgrade of core backbone firewalls to accommodate additional security and management options. School Districts and Libraries may now request additional rules specific to their needs. The new solution also allows significant growth of the CEN in 2003 and 2004.

Internet Filtering – Added Strength, Added Flexibility

An important part of the DOIT's network plans for the CEN is the provision of content screening software capable of implementing the Connecticut State Acceptable Use Policy and also giving further control to individual districts for all traffic entering CEN from external source

In 2002, DOIT installed a network content filtering system at its East Hartford Data center that will allow all K-12 and Library traffic from the network to the Internet to be filtered for content appropriateness. The solution allows age-appropriate filtering for K-8, 9-12, adults and custom groups.

In 2003, DOIT adopted a first-in-the nation “delegated administration” feature that enables local school districts to tailor the level of filtering to their specific needs. The benefit of the feature is its ability to delegate the administration of filtering functions to multiple administrators throughout the organization.

This feature is especially useful to larger school districts who may prefer to have different levels of access throughout their systems. Filtering restrictions and requirements vary depending on school type and age group, with the greatest restrictions in the younger age groups.

DOIT participated in a national web-cast on this new feature in May 2003, including a live Q&A with participants from around the nation.

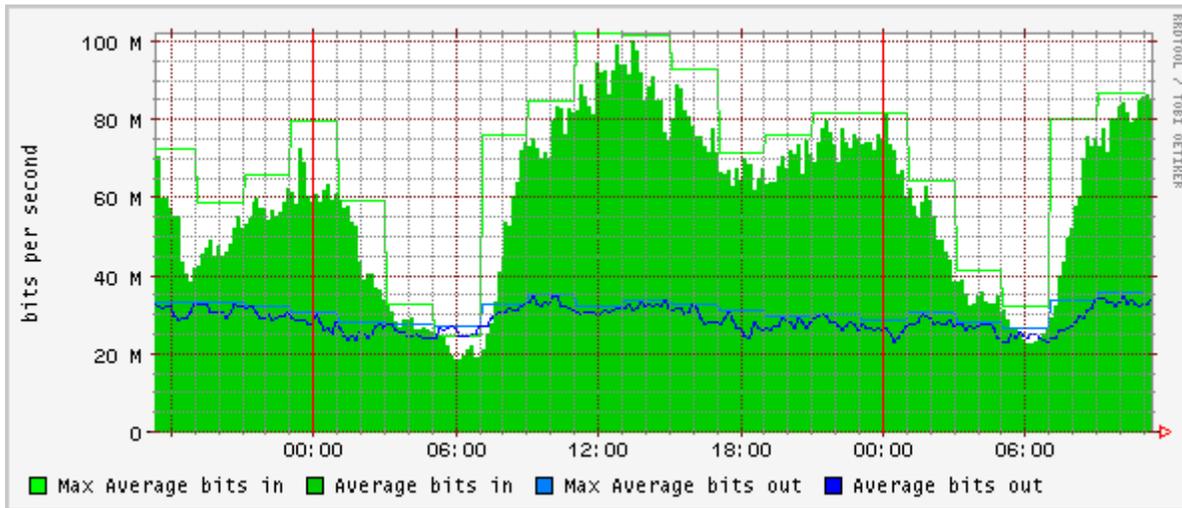
To ensure excellent response time for CEN users taking advantage of the CEN N2H2 filtering system, CEN recently significant upgraded its caching capacity in both throughput and online storage. Online storage alone increased from 30 to 350 GB.

Online Traffic Monitoring Tools

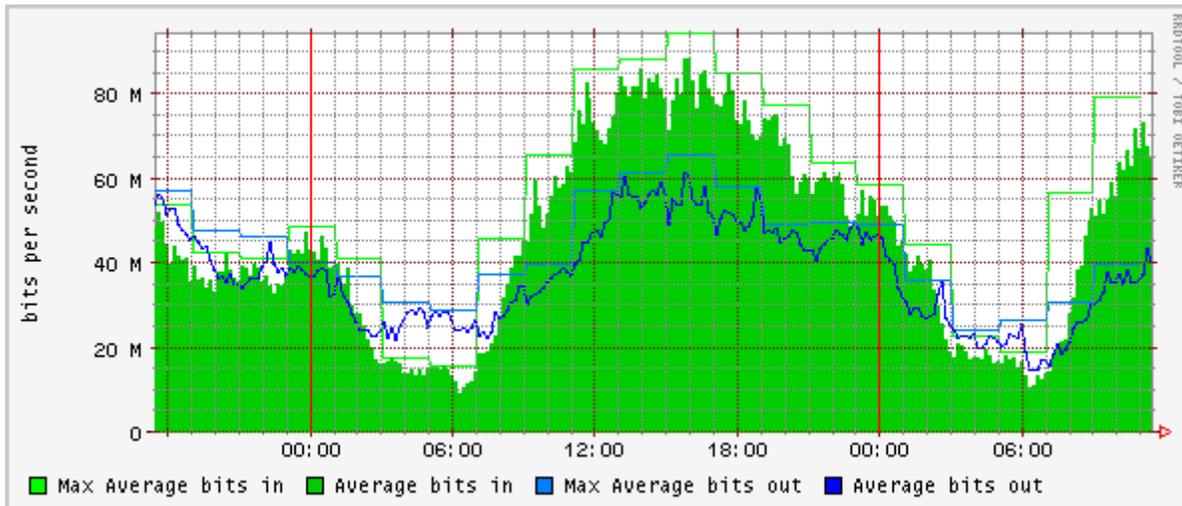
On-line traffic monitoring tools now allow CEN and network administrators to measure the volume of use the network is receiving in the schools.

These tools can show traffic and use in the aggregate – from the entire network – down to the local school district. This information is available publicly on the CEN website at www.ct.gov/cen.

Connecticut Education Network K-12 and Library Internet Traffic



Connecticut Education Network Higher Education Network Traffic



New Resources – Statewide E-rate Application

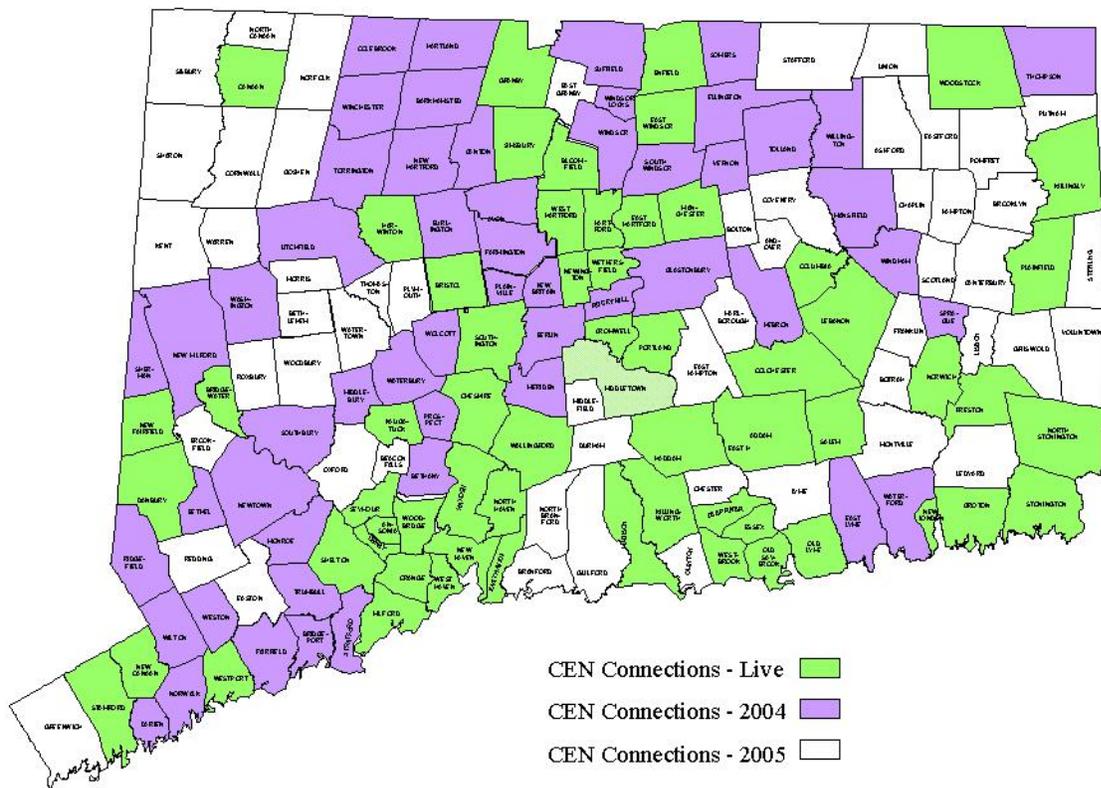
In January 2003, CEN filed the State of Connecticut’s first state-wide consortium application for support of the CEN K-12 and Library services. Approval of the application, which came in January 2004, provided a major boost in funding for the continued deployment CEN.

This new support, approved by the federal Universal Service Fund program, will be provided in the form of steeply discounted telecommunication services. These discounts will enable the state to save \$3.5 million per year in network operating costs.

The lower cost will enable the state to nearly double the amount of K-12 districts to be added to the CEN in 2004, from the 53 currently being connected to 87. In addition, the discounts will allow more than 40 additional public libraries to be connected.

To ensure no local e-rate dollars would be impacted by the State’s submission, the state consortium application requested e-rate discounts only on the connection from the State to each school or library. Not included are Internet Services, in-district services, or internal connections which schools may wish to apply for independently.

The initial review by the Schools and Libraries Division on the Universal Service Fund Administration complemented the State’s conservative approach to the application process.



The Network in Action

The Black Sea Expedition

The network's potential for delivering high-impact educational experiences for children is illustrated by Dr. Robert Ballard's fifth expedition to the Black Sea in the summer of 2003.

The expedition - to excavate an underwater wreck found the previous year – was seen live by the public, thousands of miles away, thanks to a connection that the CEN – with its access to Internet2 - provided to the Mystic Aquarium Institute for Exploration under the sponsorship of the University of Connecticut. The connection brought Internet2 access to the Institute and allowed live video of the mission to be available on the internet to the public.

For more information, visit www.expedition2003.org

Dr. Ballard's description in the Fall/Winter edition of Chief Information Officer magazine is worth noting for his emphasis on the use of technology in education.

“We also, for the first time ever, connected to other scientists and researchers (as well as the public) by wiring our mission live via satellite and Internet technology....”

“This level of connectivity will advance the pace of scientific discovery exponentially. In the same way, this live mission broadcast has turned the expedition into an educational experience. Children all over the world will be able to follow the mission as it's happening.”

-- Dr. Robert Ballard – *Chief Information Officer Magazine, Fall/Winter*

Monterey Bay, California

A new program at the Mystic Aquarium enables participants to remotely control robotic undersea vehicles in the Monterey Bay Kelp Forest in Monterey, California. The technology enabling this live access and interaction is the Abilene Internet2 high-speed backbone network, access to which was provided by CEN and the University of Connecticut to the aquarium. Connecticut schools connected to the CEN began access to a live web feed of the Monterey National Marine Sanctuary beginning in August, 2002.

Connecticut Digital Library (iConn)

Since proposed by Lt. Governor M. Jodi Rell in 1999, funded by the Legislature in 2000 and formally launched in early 2001, the Connecticut Digital Library has grown from a concept to a major research tool for state citizens. iCONN is part of the Connecticut Education Network and is available to Connecticut students and residents either through their schools, libraries or homes. It provides all students, faculty and residents with online access to a wealth of online publications and databases from 1980 to the present and has been searched more than ten million times over the past two years.

State IT Contracts Open to School Districts

New Telecommunication Contracts

DOIT issued, and evaluated responses to, a Request for Proposal (RFP) for the procurement of telecommunications products and services for the executive branch. New master agreements – with more favorable pricing - were announced in December 2003.

DOIT has required all vendors to extend this favorable pricing to all political subdivisions of state government including local education systems. School systems may realize significant savings - in many cases more than 20 percent - through utilization of the State contracts.

The agreements cover more than 12 areas, including Local Exchange and Centrex Services, Long Distance Calling; Directory Assistance; Telephone Calling Cards; Inbound 1-800 Toll Free Services Wireless Services and Equipment; Public Telephones; Facsimile Services; Conference Calling; Data Networking, ATM and Frame Relay Services; Internet Access and more.

Contracts Open the K-12 School Systems

Other Contracts

DOIT continues to offer other contracts off of which school systems can purchase. Links to the direct contract award can be followed by clicking on the title below. They can also be reviewed in the “[Contract Award](#)” Section of the DOIT web site at www.ct.gov/doit.

Personal Computers

Personal Computer Deployment Services

Apple Equipment and Accessories

Computers, training, professional development, software and student information systems.

Dell 2650 and 6650 PowerEdge Servers

Base servers with more than twenty additional options.

Radio Parts, Supplies and Accessories

Contract approves ten vendors offering equipment at discounts ranging from 7 to 31 percent of list price.

Radio On-Call Services

On-call service for repair, installation, and removal of radio equipment.

Data Entry Services

Data Processing Services

Microsoft Software and Associated Maintenance

Software, licenses, upgrades and more with prices applicable to K-12 schools.

Novell Software Master License Agreement

Schrinkwrap Software

Several thousand software products available for order at discount. Product and ordering information available at <http://www.ciacentral.com/hartford/>. New Haven, Hartford and New Britain are among those school districts have procured products through this contract.

Computer Technology Related Training Courses & Services

Classes offered by six vendors include computer basics, word processing, spreadsheets, desktop publishing, databases, project management, and web publishing.

Additional classes can be reviewed by going directly to each vendor's web site. Discounts under this contract range from 10 - 74 percent off of catalog pricing.

HIPAA IT Consulting Services

Health Insurance Portability and Accountability Act pre-qualified vendors to assist in compliance activities and projects, including business analysis, writing, training, project coordination, etc.

IT Consulting Services

Pre-approved vendors available to work on IT projects.

Computer Peripherals

More than 70 PC and Macintosh products in 10 categories, including storage drives, hardware, memory, networking, modems, power/ups surge products, writing toolkits, and cabling. Prices reflect ten percent discount off of list price.

E-Rate Eligible Optical Layer 2 Lan Service

Contract covers network connection services.

Nokia Firewall Hardware, CheckPoint Firewall Software, Support and Installation Services

Firewall products, software subscription and support services including installation and monitoring.

Network E-Rate Services for Schools and Libraries

Discounted telecommunication services for schools and libraries, including DSL lines, cellular phone and other services. This contract has been extended until January 17, 2005.

E-Rate Eligible Network Services, Leased Fiber and Internet Services

Fiber and network installation, management, building connections, wiring, and other services.