



# Welcome to the Illinois Century Network

Broadband Services for K-12

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# 1 Introduction

The Illinois Century Network (ICN) is owned and operated by Illinois Department of Innovation and Technology (DoIT), an Illinois state agency, and provides Internet access and broadband services to over 4000 Illinois institutions including K-12, libraries, higher education, community colleges, state agencies and local municipalities.

All public K-12 in Illinois are eligible to receive ICN services at no charge, with costs covered by the E-rate program and state funding. ICN services includes Internet access, broadband connections and security services. Security services includes auto distributed denial of service mitigation, centralized firewall, K-12 traffic separation, Cisco Umbrella DNS based content and security filtering and vulnerability scans.

Information provided in this document includes:

- ICN Overview
- ICN and Public K-12 typical connection architecture
- ICN Service Descriptions
- Last Mile and Wide Area Network (WAN) circuits
- E-rate Guidance to Connect to the ICN

If you have any questions regarding connecting to the ICN please email [DoIT.ICN.K12@illinois.gov](mailto:DoIT.ICN.K12@illinois.gov).

## 2 Illinois Century Network

The ICN is the Illinois state network owned, operated and maintained by the Illinois Department of Innovation and Technology (DoIT), an Illinois state agency. The ICN provides high speed broadband communication services and secure access to the public Internet for K-12, libraries, higher education, community colleges, state agencies and local municipalities (“ICN Customers”). Over 4000 customers are connected to the ICN. The principal method of connection is via a “last mile service provider” or “service provider” that connects from the customer location to the ICN.

### 2.1 ICN and Public K-12 Connection Architecture

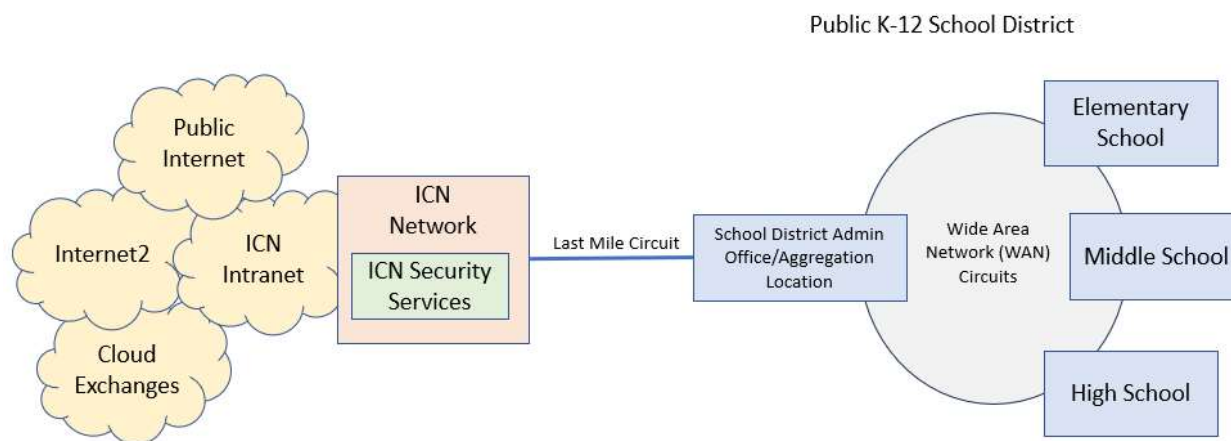


Figure 1. Public K-12 School District connection to ICN

Figure 1 shows the architecture for public K-12 connection to the ICN. The Last Mile circuit is from the school district head end or administration office to the ICN. Wide Area Network or WAN circuits are circuits between school locations and the school aggregation location or administration office. The school administration office/aggregation location may be co-located with the Elementary, Middle or High school.

The Last Mile and WAN circuits may be procured and provided by DoIT at no charge to the school district or may be provided by the school district.

ICN Services are also provided at no charge and consist of:

- Public Internet access
- ICN state intranet access
- Private point to point connections
- Auto Distributed Denial of service mitigation
- Centralized Firewall – ICN hosted
- Cisco Umbrella

- Vulnerability Scans

## 2.2 ICN Service Descriptions

### 2.2.1 Public Internet and ICN State Intranet Access

The ICN provides secure optimized access to the Internet and communication services. The ICN is focused on providing best in class service to Illinois customers, and is optimized to provide reliable, low latency and high quality of service access to the Internet.

Optimized access to the Internet is enabled by:

- The presence of cache servers at the Springfield and Chicago POP's
- Direct traffic peering with 101 entities, reducing need to traverse the public Internet for access to common web destinations
  - For example, ICN provides direct peering with major content delivery networks such as Facebook, Microsoft, Google, Apple and Amazon providing a shorter path and secure direct connectivity to cloud based services.
- Direct connection to Internet2, the high speed research and education network
- Upstream Internet Egress purchased from Sprint, AT&T, Cogent and GTT at Chicago, Springfield and St Louis providing access to the worldwide public Internet

Regarding quantity of bandwidth available from ICN for school districts, as much bandwidth as required by the school district for their learning needs is available. To implement one to one device programs in a media rich environment, current guidance ranges from 1 to 3 Mbps per student for total Internet bandwidth needed.

#### Private point to point connections

Via the ICN, point to point connections can be established between locations connected to the ICN, as required by the school district. For example, a point to point connection could be established between the school location and a "cloud exchange" allowing the school secure access to cloud services from Google, Microsoft, Amazon and others. Or if the school district is working directly with a Higher Education institution, then a dedicated, private point to point link could be established between the two locations.

### 2.2.2 Security

Security services include auto distributed denial of service (auto DDOS) mitigation, centralized firewall, traffic separation, Cisco Umbrella DNS-based filtering and Vulnerability scans.

#### Auto Distributed Denial of Service Mitigation

According to Netscout (<https://www.netscout.com/what-is/ddos-attack>), the vendor for ICN's auto DDOS mitigation infrastructure,

*“DDOS attacks are programmatically generated attacks intended to disrupt the availability of applications, services, data, content, and/or infrastructure to legitimate users of those entities. They are attacks against capacity and/or state, and are generated using multi-node botnets, bespoke attack infrastructure and/or DDOS-for-hire services.”*

ICN’s DDOS mitigation infrastructure blocks inbound (towards the school district) DDOS attacks thus protecting the availability of the school district network and services. The ICN mitigation infrastructure also blocks outbound communication from compromised internal devices to attacker command and control devices. This stops the proliferation of malware within the school district network and ultimately avoids a data breach.

### **Centralized Firewall**

All school district traffic is protected via ICN centralized firewalls. Traffic to and from school districts traverses the firewall ensuring “clean” data flows. By design, the firewall policies on the centralized firewall are coarse ensuring no interworking issues with school specific data flows. However, the firewall does actively monitor and block “indicators of compromise” such as ransomware and “command and control” botnet server communication. The firewall also provides advanced protections via Intrusion Prevention and Anti-Virus systems.

### **Public K-12 Traffic Separation**

School district traffic on the ICN is separated from other customer traffic thus increasing the protection against cyberattacks.

### **Cisco Umbrella**

Cisco Umbrella is a DNS layer security and content filtering solution. Malicious and unwanted domains, IP addresses, and cloud applications are blocked before a connection is ever established. Further information on the Cisco Umbrella solution is available at <https://umbrella.cisco.com>. Two Cisco Umbrella training webinars were recently completed specifically for ICN customers, and these are available at [www.illinois.gov/k12broadband](http://www.illinois.gov/k12broadband).

### **Vulnerability Scans**

School district customers of ICN may request Vulnerability Scans of their network using Nessus tools and dynamic reports, provided at no charge.

## **2.3 Last Mile and WAN Circuits**

To have Last Mile and WAN circuits provided at no charge by DoIT, please contact [DoIT.ICN.K12@illinois.gov](mailto:DoIT.ICN.K12@illinois.gov) for next steps.

Alternatively, a school district can procure their own Last Mile circuit to the ICN. This allows the school district to select a service provider, but still benefit from no charge ICN Internet and security services. ICN will work with the service provider to facilitate interconnection.

For a school district to procure their own point to point circuit to the ICN and receive E-rate funding, requires the school district's E-rate consultant, or the school district directly, to complete an E-rate Form 470, requesting bids for a point to point circuit to the ICN. Step by step instructions on this is given in Appendix A.

## **2.4 Questions or Further Information**

If you have any questions or require further information, please contact [DoIT.ICN.K12@illinois.gov](mailto:DoIT.ICN.K12@illinois.gov).

## 3 Appendix A

### E-rate Guidance to connect to the Illinois Century Network (ICN)

To receive E-rate subsidy for a point to point circuit to the ICN, we recommend the following steps. You can either add a new Service Request to your Form 470 (that you create for all your services) **OR** create a new Form 470. For example, you may want to create a new Form 470 if you have already filed your Form 470 for your current services.

Please note, whether you add a new Service Request to your Form 470 or create a separate Form 470 you should

- Upload the ICN Point of Presence (POP) List document as described below
- Add a New Service Request as described below
- Add text to the Narrative section, providing further detail, as described below

#### 3.1 E-rate Form 470 Guidance

- The FCC Form 470 is prepared and certified in the E-rate Productivity Center (EPC) portal at <https://portal.usac.org/suite/>
- The FCC Form 470 you will file is for Category 1 services.

#### 3.2 Upload ICN POP List document

- In the Form 470 you are given the opportunity to upload a document or documents in the form of a “Request for Proposal” or “RFP” document. Please note that the document does not have to be an actual RFP. Any document uploaded is referred to as an RFP.
- Upload the ICN POP List document, available as a PDF at [www.illinois.gov/k12broadband](http://www.illinois.gov/k12broadband) under Resources, at the link “ICN POP List”. This document informs prospective service providers of the ICN POP locations available for interconnect.
- The screen capture below shows the page where documents can be uploaded.



If you are using RFPs for any of the requested services, start by uploading them all first.

**RFPs for Service Requests**

Is there a RFP for any of the services you are requesting?

☒ YES ☐ NO

**Please upload all RFPs for the services you are requesting.**

UPLOAD Drop file here

You must upload your actual RFP document. Uploading a document with a hyperlink to another website, including bid management sites, is not sufficient and can lead to funding denial.

[BACK](#) [DISCARD FORM](#) [SAVE & SHARE](#) [SAVE & CONTINUE](#)

### 3.3 New Service Request

- Next, you will add a “New Service Request” as shown below

Next, you will describe the services you are requesting.

**Service Requests: Category One**

There are currently no Category One service requests. Please enter the service requests below by selecting 'Add New Service Request'.

[ADD NEW SERVICE REQUEST](#) [EDIT SERVICE REQUEST](#) [REMOVE SERVICE REQUEST](#)

### 3.4 New Service Request Questions and Responses

- The FCC Form 470 uses Progressive Disclosure in the selections you will make to establish some of the details of the type of services you are requesting
- Since these services are Data Transmission Only (with no Internet Access), you should select the following options on your FCC Form 470.
- There are three questions you will be asked – the responses should be as shown below:

#### FCC Form 470 - Funding Year 2025

##### Illinois Department of Innovation and Technology Consortium - Your District Name FY 2025 C1 Circuits - Form #250002630

Last Saved: 10/16/2024 2:08 PM EDT

Basic Information **Service Requests** Technical Contact Information Procurement Information FCC Form 470 Review Certifications & Signature

Please select the option below that matches the services for which you are seeking bids.

Visit our website for more information on how to file the FCC Form 470.

#### ▲ Add New Service Request

☒ I seek bids for internet access and/or data transmission service.

☒ I seek bids to purchase data transmission service only (i.e., that does not include internet access service).

☐ I seek data transmission service without internet access service.

☐ I seek to lease capacity, e.g., a specific number of dark fiber strands or capacity over a leased lit network, that will be used for data transmission service.

A value is required

## FCC Form 470 - Funding Year 2025

### Illinois Department of Innovation and Technology Consortium - Your District Name FY 2025 C1 Circuits - Form #250002630

Last Saved: 10/16/2024 2:08 PM EDT

Basic Information

Service Requests

Technical Contact Information

Procurement Information

FCC Form 470 Review

Certifications & Signature

Please select the option below that matches the services for which you are seeking bids.

Visit our [website](#) for more information on how to file the FCC Form 470.

#### Add New Service Request

☐ I seek bids for internet access and/or data transmission service.

☐ I seek bids to purchase data transmission service only (i.e., that does not include internet access service).

☐ I seek data transmission service without internet access service.

**Service Type**  
Data Transmission and/or Internet Access

**Function \***  
Standalone Data Transmission Service

This service option does not include Internet access service; if this option is selected, the applicant will have to procure Internet access service separately.

## 3.5 Circuit Detail

- Next you will provide general details about the number of circuits, number of entities, bandwidth min/max etc.

Service Type  
Data Transmission and/or Internet Access

Function \*  
Standalone Data Transmission Service

This service option does not include Internet access service; if this option is selected, the applicant will have to procure Internet access service separately.

Quantity \*

Unit  
Each

Minimum Capacity  
Please select a value

Maximum Capacity  
Please select a value

Number of entities served? \*

Are you also seeking Installation, Activation and Initial Configuration for this service? \*  
☐ Yes  
☐ No

We recommend checking YES in this section of the Service Item request so you can receive discounts on this component if applicable.

CANCEL

SAVE & CREATE ANOTHER REQUEST

SAVE REQUEST

## 3.6 Narrative Section

- Next you should complete the Narrative section of the Service Item.
- You should include as much information as possible so prospective respondents can formulate a complete response

- Suggested narrative for a point to point circuit to the ICN is as follows. In the below narrative please replace the text within the square brackets with your school specific information:
  - For the Service Request “Data Transmission Only, without Internet access” pricing for a fiber based data transmission service without Internet access between [School/Admin building Name, address, city, IL, zip] and the Illinois Century Network (ICN) is sought. Pricing should be provided for the following terms and bandwidth levels. [Specify Term of Contract, for example, 1 year, 3 years, 5 years, including month to month service if desired] and [Indicate Minimum and Maximum Bandwidth Requested, also specify other bandwidth levels pricing is requested for]. For a list of available ICN point of presence (POP) sites, with addresses, please see attached document titled “ICN POP List”.

**Narrative**

If you would like to provide further detail about the services or equipment sought, you may do so in this box below. Examples include:

- Any disqualification factors;
- Additional details about the eligible locations that will be receiving these services; or
- Other information about the services requested that would help bidders develop bids that are responsive to your needs.

[BACK](#)
[DISCARD FORM](#)

[SAVE & SHARE](#)
[SAVE & CONTINUE](#)

### 3.7 Remaining 470 Questions

- You will now answer a few more questions and continue through the FCC Form 470 until you get to the screen that allows you to “Review FCC Form 470”
- Click this option and wait for a task in your menu bar to review the PDF.

News **Tasks (11)** Records Reports Actions

FCC Form 470 - Funding Year 2022

Illinois Department of Innovation and Technology Consortium - test for webinar - Form #220002132

Last Saved: 10/20/2021 12:21 PM EDT

Basic Information Service Requests Technical Contact Information Procurement Information **FCC Form 470 Review** Certifications & Signature

When the FCC Form 470 PDF is ready, a task will become available to complete certification.

### 3.8 Certifying the FCC Form 470

- Your pending task will look like this:



- Click the hyperlink and you will be given the option to either Send for Certification (if you are not authorized to certify the form) or, Continue to Certification (if you are authorized to certify the form).
- During the Certification process, there are many Certifications that must be checked, then simply click “Certify”
- The Certified Form 470 will show on your landing page as “Certified” immediately and your 28 day clock officially starts
- All service providers will be able to access the Certified Form 470 using various search tools across all of USAC’s platforms.
- The FCC Form 470 should be filed as soon as possible.
- Your 28 day competitive bidding period must be complete before you can file FCC Form 471 so don’t delay.