

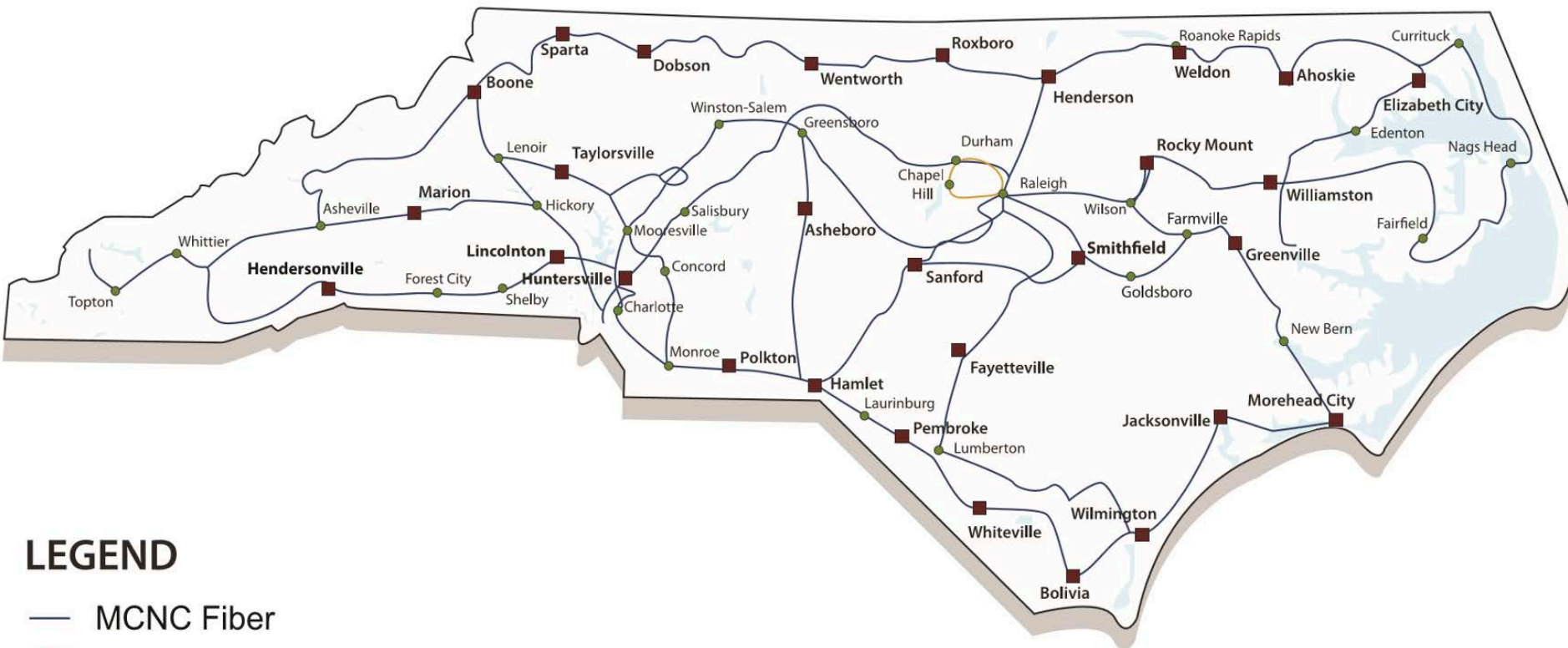
Joint Legislative Education Oversight Committee

School Connectivity Initiative
and Cybersecurity

- **Founded in 1980**
- **Private, Non-Profit Technology Provider**
- **Own and Operate over 4,000 miles of fiber-optic network infrastructure across NC**



NCREN Fiber Map



LEGEND

- MCNC Fiber
- MCNC Co-location Facility
- MCNC Fiber (Triangle Ring)
- City

As of December 2019

What Does MCNC Do?



Connectivity



Consulting



Training &
Education



Cybersecurity



Data Center

Who Does MCNC Serve?



K-12



Universities /
Colleges



Community
Colleges



Research
Institutions



Non-Profits



Healthcare



State, County,
Local Governments



Libraries

NC STATE

Friday Institute for Educational Innovation

Advancing education through innovation in digital-age
teaching, learning and leadership

fi.ncsu.edu

School Connectivity Initiative (SCI)

- Leverage economies of scale,
- to provide equitable, high-quality internet access
- to every school,
- regardless of geographic location
- or economic status,
- at the lowest cost possible

E-Rate



- Part of FCC Universal Service Fund
- Connections **to** and **inside** school buildings
- Bias to rural and economically challenged communities
- Not home access
- www.usac.org/e-rate/

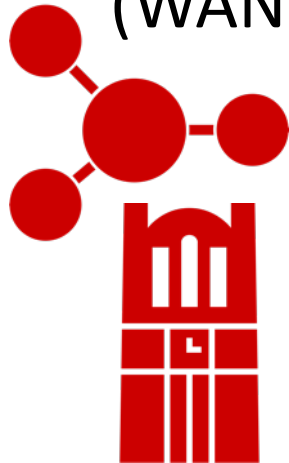
Monthly charges and credits	
Smartphone Line Access	\$20.00
	\$20.00
Surcharges	
Fed Universal Service Charge	\$2.66
Regulatory Charge	\$0.73
Administrative Charge	\$0.15
	\$1.78
Taxes and gov fees	
NC State 911 Fee	\$2.32
NC Telecom Relay Srvs Surchg	\$0.65
NC State Telecom Sales Tax	\$0.08
Wake Cnty Telecom Sales Tax	\$1.08
	\$0.51

From student desk to the world

School
(Wi-Fi)



District
(WAN)



State
Backbone
(NCREN)



Internet



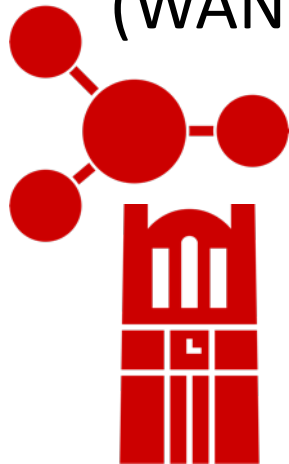
Current State of K-12 Connectivity

School
(Wi-Fi)



Wi-Fi in
every
classroom

District
(WAN)



Fiber to
every
school

State
Backbone
(NCREN)



Backbone
to every
county

Internet



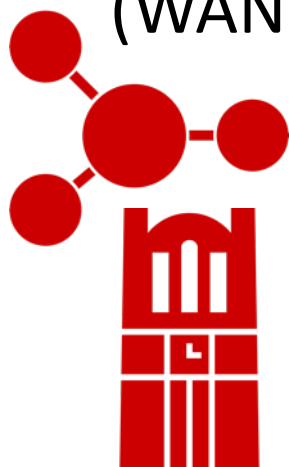
300 Gbps+
to Internet

Funding

School
(Wi-Fi)



District
(WAN)



State
Backbone
(NCREN)



Internet



Wi-Fi (CAT2)

WAN

Backbone &
Internet

2019 E-rate Year

\$29M

\$33.5M

\$14M

Total

\$20.5M

\$26M

\$9.9M

E-Rate

\$8.5M

\$7.5M

\$4.1M

State

SCI Summary 2019

	E-Rate	State	Total
E-Rate Eligible Expenses	\$56.4M	\$20.1M	\$76.5M
E-Rate non-Eligible		\$11.1M	\$11.1M
Total	\$56.4M	\$31.2M	\$87.6M

For each \$1 the State appropriated to this program in 2019, the PSUs received \$2.81 in value

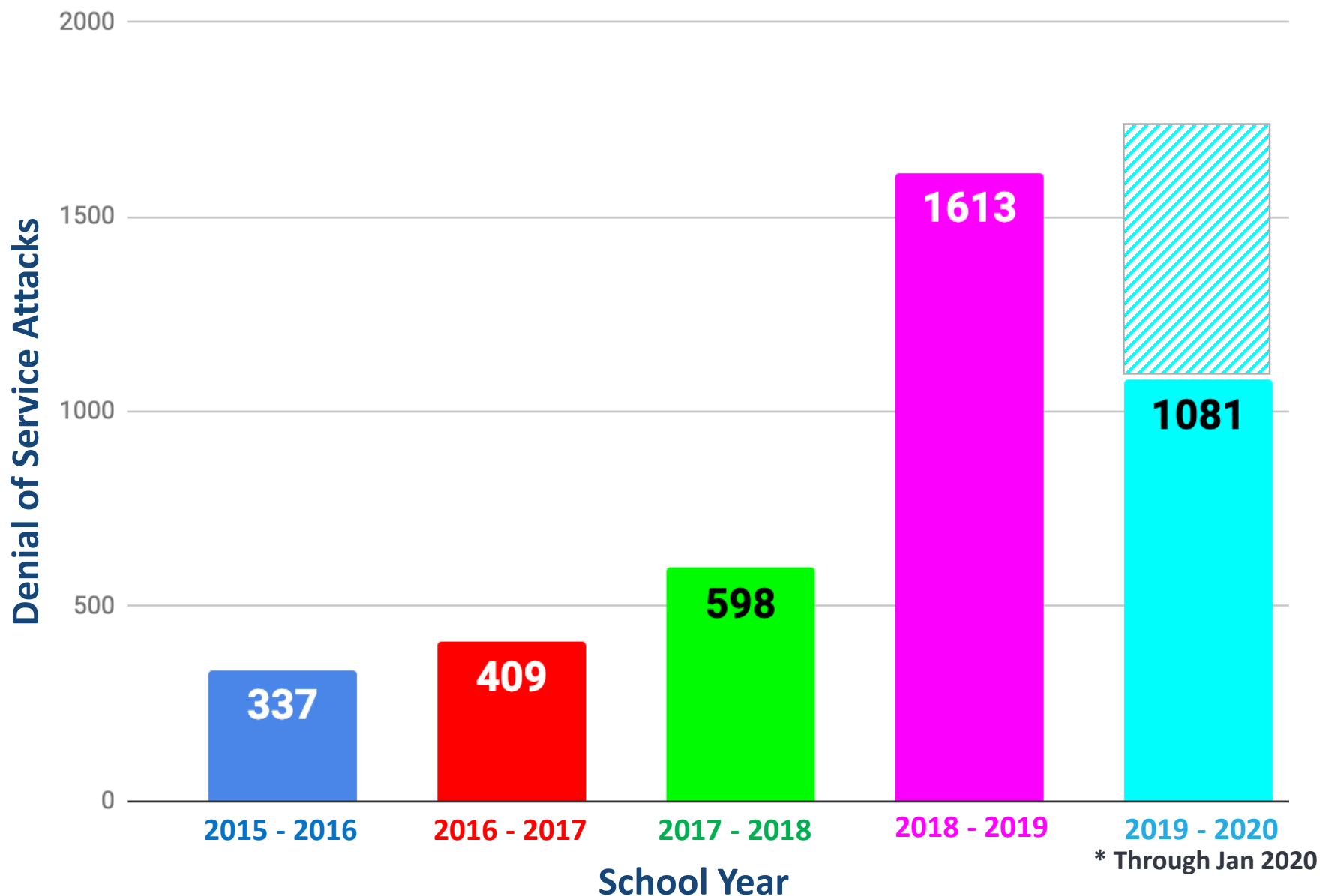
NC Reported Ransomware Attacks

Date	Affected Entity	Ransomware /Malware
Feb. 2016	Durham	Unknown
Dec. 2017	Mecklenburg County	LockCrypt
Feb. 2018	Davidson County	SamSam
May 2018	Pasquotank County	Scarab
Oct. 2018	Onslow County Water and Sewer	Ryuk
Nov. 2018	City of Durham	Unknown
March 2019	Orange County (hit 3 times in 6 yrs)	Ryuk
March 2019	Pasquotank-Camden EMS	Unknown
March 2019	Robeson County	Ryuk
April 2019	City of Greenville	RobinHood
July 2019	Richmond Community College	Ryuk
Aug. 2019	Lincoln County Sheriffs Office/911 (X2)	DopplePaymer
Sept. 2019	NC Wildlife Resources Commission	DopplePaymer
Oct. 2019	NC State Bar	Neshta (dropper)
Oct. 2019	Columbus County School System (x17)	Ryuk
Oct. 2019	ABC Board (x21)	Sodinokibi
Dec. 2019	EBCI	Sodinokibi (Insider Threat)
Jan. 2020	Duplin County	Ryuk



*From March 5, 2020 IT Oversight Update

Denial of Service Attacks in NC





Public Safety



Research



Non Profits



State/Local Government



Education



Healthcare



Libraries

BUILD A STRONG CYBERSECURITY FOUNDATION WITH MCNC SECURITY SERVICES

Active Vulnerability Analysis

Continuously scan your network to identify vulnerabilities. Receive **prioritized recommendations** on which vulnerabilities to address first and **detailed remediation advice**.



Advisory Consulting

MCNC cybersecurity professionals assist in all areas of information security and risk management including **Staff Augmentation**, **Cybersecurity Program Reviews** and much more!



DNS Security Filtering

Protect against **Malware**, **Phishing**, **Command & Control (Botnet)** and **DNS Exfiltration** at the DNS Level. Powered by Akamai Technologies' ETP, this is a lightweight, easy to deploy extra layer of protection.



Enhanced DDoS Protection

Enhanced DDoS Auto-Mitigation is employed to detect and **reroute** impacted traffic to scrubbing centers **automatically within a few seconds of the attack**.



Web Security Service

Web Security Service is a **cloud-based web content filtering** and an advanced security protection service, provided in collaboration with Zscaler.



- 1 NC's education community relies on technology for success**
- 2 Organizations that cannot operate effective cybersecurity controls, cannot succeed in a digital world**
- 3 Most education entities do not have access to the resources and expertise needed to maintain effective cyber defenses**

A world where cyber attacks no longer pose a significant threat to education in NC

“Whole-of-State” Cyber Approach

*From March 5, 2020 IT Oversight Update



A State-Wide Approach for Education Cyber Protection