CONNECT K•12

2020
EXECUTIVE SUMMARY

Pairing actionable intelligence with motivated leadership is the key to enabling digital learning opportunities everywhere.

CONNECTED NATION®

FUNDS FOR LEARNING®
YOUR E-RATE GUIDES

www.connectk12.org

"If we teach today as we taught yesterday, we rob our children of tomorrow."

— John Dewey

table of **contents**

Connect K-12 is a free, actionable internet speed and pricing information tool for America's K-12 school districts. Using open E-rate data, the tool includes national, state, and school district level connectivity metrics to drive school network upgrades to 1 Mbps per student.

Connect K-12 has been designed as a resource for leaders in state government and school district administrators, including superintendents and technology directors, who are helping school districts upgrade their connectivity.

letter from the vice president

Emily Jordan
Vice President,
Connect K-12
Connected Nation

Every classroom, every day.

This is our focus—to ensure that digital learning opportunities are available anytime for every student, no matter where they live.

We have come so far in the last decade. The commitment of state and school district leaders to connect students is evident in the immense progress that has been made to upgrade more than 22,000 school buildings to fiber optic cable and other scalable infrastructure. Because of this dedication, as well as the meaningful partnerships between service providers and community leaders, the successful reform of the federal E-rate Program in 2014, and the work of our predecessor organization EducationSuperHighway, America's public K-12 school districts now deliver basic connectivity to 46.8 million students at a 90 percent reduced cost of internet access.

We simply can't afford to lose momentum now.

That is why we are launching Connect K-12, a free online portal that will equip state and school district leaders with powerful intelligence so they can identify better internet pricing and negotiate cost-effective upgrades to meet the digital learning demand. In launching Connect K-12, Connected Nation and our partner, Funds For Learning, will carry forward EducationSuperHighway's achievements in continuing to make school district internet speed and pricing data transparent and easily accessible—all at no cost to users.

Connect K-12 aims to provide valuable insights that will catalyze informed action to improve school connectivity across the country.

But none of that can happen unless state and school district leaders continue to be champions for robust connectivity in classrooms everywhere.

These objectives are more important than ever given the dramatic impact the COVID-19 pandemic has had on America's education landscape.

Digital learning is no longer reserved for the most innovative and affluent school districts. It has become essential for the continuity of learning itself, and schools now have both the challenge and opportunity to pioneer a new path forward—one that will foster exciting, immersive learning opportunities for K-12 students everywhere, even after the pandemic has passed. But this unprecedented level of technology integration will be completely dependent upon the availability of a robust internet connection.

Connect K-12 aims to support school districts and state leaders in their efforts to drive connectivity upgrades and meet or exceed the Federal Communication Commission's (FCC) goal to provide internet access of at least 1 Mbps per student in every school throughout the United States. We can and must do this so that teachers are able to focus on what matters most: delivering world-class learning opportunities to every student, in every classroom, every day.

We are inspired by the commitments that **44** governors have made to achieve the FCC's bandwidth upgrade goal, but much work still needs to be done to ensure every student in America has the bandwidth they need at an affordable price. We call on state and district leaders to support their students and schools by utilizing Connect K-12 to catalyze the continued growth of robust networks and the decline of broadband costs.

With gratitude,

Emily Jordan
Vice President,
Connect K-12
Connected Nation

47%
of districts nationwide are already meeting the 1 Mbps per student goal, which is 15.4 million students, 6,132 school districts.

5.84 M
students were upgraded to bandwidth of at least 1 Mbps per student in 2020.

Yet the challenge remains...
32 million students do not yet have access to the bandwidth they need to use digital learning in every classroom, every day.

With the data available on the Connect K-12 tool, 33% of districts can be upgraded in the 2020-2021 school year! That's 4,300 school districts nationwide.

In 2020, 1,508 districts, serving 5.84 million students, upgraded to the 1 Mbps per student goal.

summary of findings

Over the past five years, school districts have shown marked progress in increasing bandwidth within their schools. In 2020, **6,132** of America's **12,862** districts have upgraded their connections and are meeting the bandwidth goal of at least 1 Mbps/student.
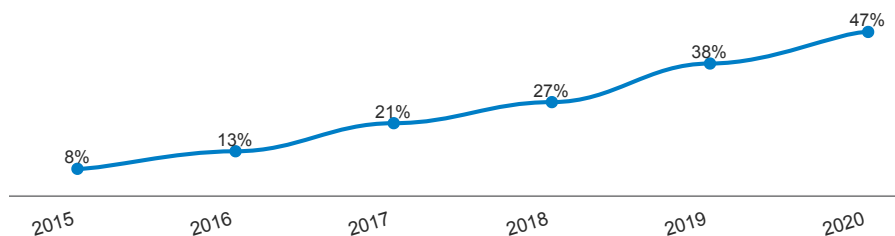
Today, **33 percent** of America's K-12 students have access of at least 1 Mbps per student in the classroom—equating to more than **15.3** million K-12 students, an increase of 3.78 million students since 2019. However, despite such progress, **67 percent** of students still need access to scalable broadband for digital learning—a bandwidth gap affecting **31.5** million students.

In 2020, the integration of digital teaching and learning has grown at a pace that has arguably exceeded that of bandwidth growth, particularly in light of the COVID-19 pandemic. The number of devices that are expected to rely on school networks once in-person classes return will be dramatically higher, and the demand for more robust connectivity will only continue to increase.
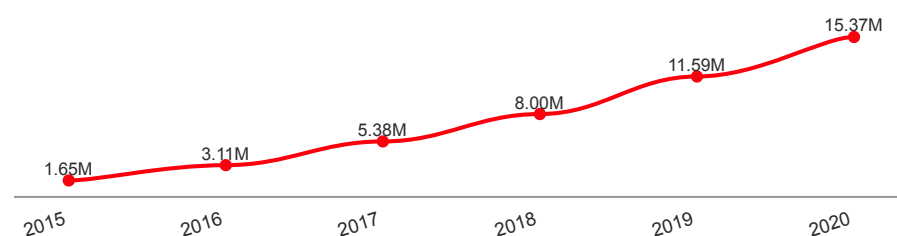
Districts meeting or exceeding the 1 Mbps per student goal are helping to ensure students and teachers are not inhibited by bottlenecks in capacity brought on by the influx of new devices.
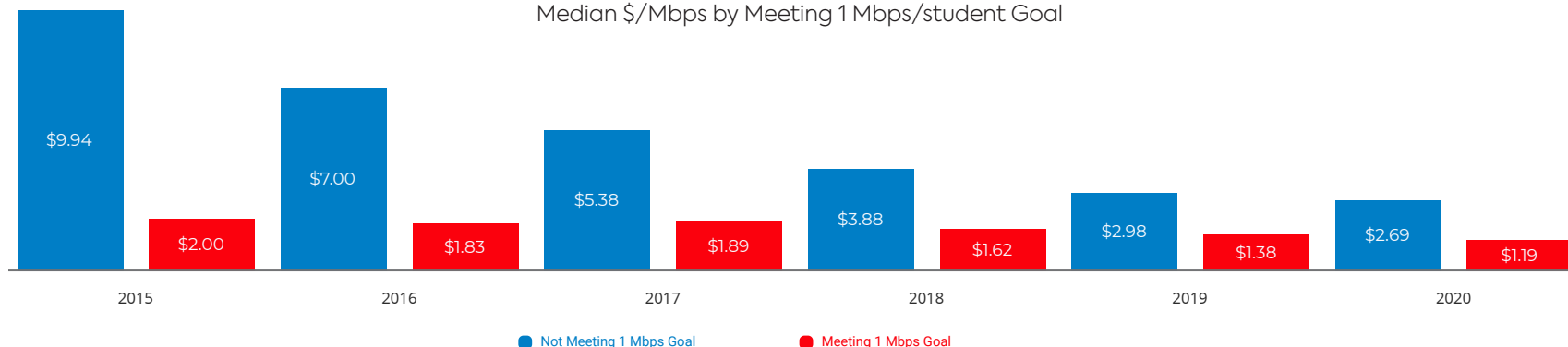
Districts Meeting 1 Mbps/student

- 2015: 8%
- 2016: 13%
- 2017: 21%
- 2018: 27%
- 2019: 38%
- 2020: 47%

Student Meeting 1 Mbps/student

- 2015: 1.65M
- 2016: 3.11M
- 2017: 5.38M
- 2018: 8.00M
- 2019: 11.59M
- 2020: 15.37M

Districts meeting 1 Mbps per Student pay less for bandwidth

Median $/Mbps by Meeting 1 Mbps/student Goal

Year	Not Meeting 1 Mbps Goal	Meeting 1 Mbps Goal
2015	$9.94	$2.00
2016	$7.00	$1.83
2017	$5.38	$1.89
2018	$3.88	$1.62
2019	$2.98	$1.38
2020	$2.69	$1.19

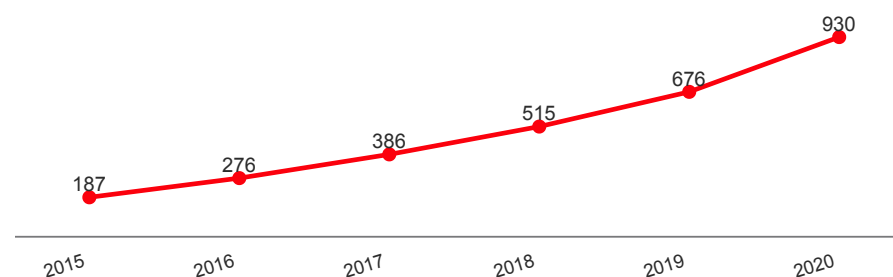● Not Meeting 1 Mbps Goal   ● Meeting 1 Mbps Goal

The good news is that the median bandwidth per student has increased nearly **five-fold** since 2015, and by 37.6 percent in the past year alone.

Meanwhile, the cost of bandwidth has continuously decreased since 2015. In 2020, the median cost per megabit is **18 percent** lower than in 2019. Since 2015, the median cost per megabit that school districts are paying has decreased by an astounding **84 percent** (**$9.85** per megabit) to a median price of **$1.85** per megabit in 2020.
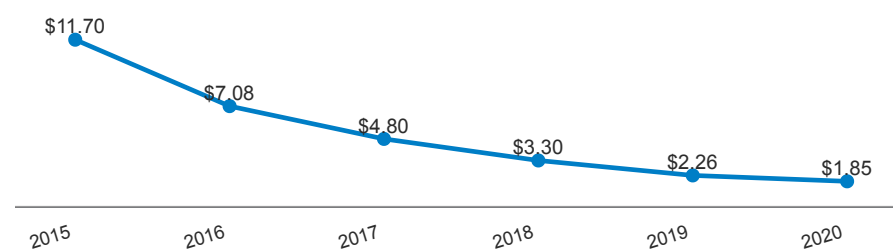
Trends show that districts meeting the 1 Mbps per student goal are also paying less overall for bandwidth, with districts paying a median of **$1.50** less per megabit than districts not meeting the goal in 2020. Many school districts can utilize Connect K-12 pricing transparency data to negotiate better bandwidth pricing—often meeting the 1 Mbps goal without increasing their budgets for such service.

School district leaders can view contract metrics for other districts in their area and, in turn, use that knowledge to obtain better pricing with their existing provider or competitors via the RFP process prescribed by E-rate program rules.

Median Bandwidth per Student (Kbps)

2015	2016	2017	2018	2019	2020
187	276	386	515	676	930

Median Cost per Mbps

2015	2016	2017	2018	2019	2020
$11.70	$7.08	$4.80	$3.30	$2.26	$1.85

summary of findings

IMPACT OF MORE BANDWIDTH

Prior to the pandemic, **81 percent** of teachers said they "strongly agree" or "agree" they see great value in using digital learning tools in their classrooms.[1] While 2020 survey data is not yet available, this number has surely increased.

In 2019, **85 percent** of teachers wanted to use more digital learning in the classroom.[2] Now, **93 percent** of teachers reported they were doing at least some online instruction, with 50 percent saying they were teaching online-only.[3] This dramatic shift in utilization supports the increased demand for better broadband in schools and at home.

In June 2020, **58 percent** of teachers said their opinion of educational technology has grown more positive as a result of the increased usage of technology during the COVID school closures in the spring of 2020.[4]

Whether schools can soon implement a return to in-classroom learning or must continue to implement remote learning (or a hybrid of the two), it is evident that digital learning will increasingly play a significant role in every student's educational journey at all grade levels.

Prior to the start of the 2020-2021 school year, **73 percent** of district leaders and teachers believed that when school buildings reopened, access to better connectivity would make high-quality teaching and learning easier.[5] We now know that the marked increase in digital learning during the national quarantine has had lasting effects, and district leaders all across the country focused on the ever-evolving demand for bandwidth as they entered this school year.

It is incumbent upon state and district leaders to ensure that bandwidth at schools is never a bottleneck to student learning and preparation for the world beyond the classroom. The Connect K-12 tool is intended to empower school leaders with the knowledge, pricing and bandwidth comparison data they need to get more bandwidth for their budget.

67% of students still need access to **scalable** broadband for digital learning — a bandwidth gap affecting **31.5** million students.

summary of findings

COMMITMENTS FROM GOVERNORS

So far, 44 state governors have committed to achieving the FCC's 1 Mbps per student bandwidth goal in their respective states. The incredible leadership many of these governors have shown throughout the pandemic has, among other things, highlighted the value they place on K-12 education and the importance of ensuring that learning never stops. It is their continued action, supported by state legislatures, broadband leaders, and state education departments, that will ensure digital learning is possible for every student in America, both in the classroom and at home.

Governor David Ige, Hawaii

"Connection, communication, and collaboration are critical to both innovation and to student success. Hawaii has long been a leader in broadband access for students, with 100% of our schools having fiber access for many years. I am committed to maximizing our students' learning opportunities and support the goal of every student having access to 1 megabit per second of bandwidth."
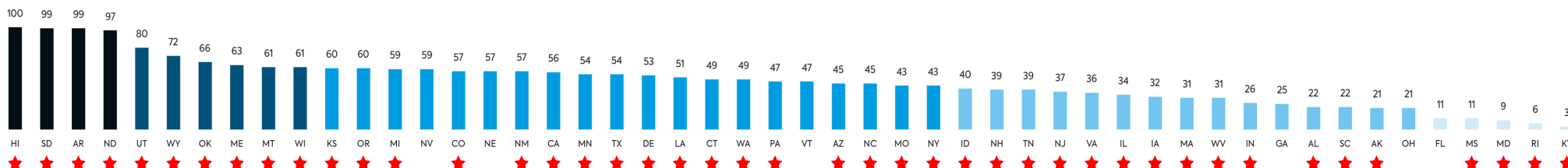
Governor Kristi Noem, South Dakota

"South Dakota is one of the nation's leaders in providing reliable, high-speed internet to our students. Connectivity in the every classroom, every day, arms our students with the tools they need to prepare for digital careers and to advance South Dakota's economy."

Nationwide, 44 states have **committed** ★ to reach the 1 Mbps per student goal

% of school districts meeting the FCC recommended bandwidth of 1 Mbps per student

State	%
HI	100
SD	99
AR	99
ND	97
UT	80
WY	72
OK	66
ME	63
MT	61
WI	61
KS	60
OR	60
MI	59
NV	59
CO	57
NE	57
NM	57
CA	56
MN	54
TX	54
DE	53
LA	51
CT	49
WA	49
PA	47
VT	47
AZ	45
NC	45
MO	43
NY	43
ID	40
NH	39
TN	39
NJ	37
VA	36
IL	34
IA	32
MA	31
WV	31
IN	26
GA	25
AL	22
SC	22
AK	21
OH	21
FL	11
MS	11
MD	9
RI	6
KY	3

These metrics are preliminary and are subject to modification until October 2020.

Governor Kim Reynolds, Iowa

"Connectivity to broadband internet is no longer a luxury, but an essential component to any child's education. We are focused on bringing every student's classroom into the 21st century so that they can take full advantage of the digital learning happening right now. While we have made progress, we know that there's more to do to reach the FCC's long-term goal of 1 megabit per second per student."

Governor Doug Ducey, Arizona

"Yesterday's broadband speeds cannot support the rapid innovation that is shaping K-12 education. Too many students, specifically in our rural areas, and in our tribal nations are missing out. This is why Arizona is working to increase access to reliable, affordable broadband at the level of 1 Mbps per student to harness digital learning in the classroom and gain the skills necessary to succeed in today's technology-driven economy."

Governor Gretchen Whitmer, Michigan

"Michigan teachers are hard at work preparing our students with 21st century skills for tomorrow's jobs. Ensuring high-speed internet access is in every school is critical to achieving the FCC's long-term goal of 1 megabit per second per student. That's why Michigan is focused on eliminating broadband deserts and making internet access more affordable. I look forward to working with stakeholders to increase connectivity speeds in order to expand every student's learning experience and prepare a next-generation workforce that's ready to excel in the future economy."

Governor Kate Brown, Oregon

"In Oregon, we are making a historic investment in our schools so that all of our kids can graduate high school with a plan for the future and the tools to compete in a global economy. To achieve that, our schools need to provide real-world digital learning opportunities. Through the recent creation of the Oregon Broadband Office, we are committed to ensuring every student — especially those in rural and underserved communities — has access to at least 1 megabit per second of connectivity."

considerations for state leaders

For decades, schools have served as the primary anchor institutions within their communities. With the COVID-19 pandemic having exposed the home connectivity gap, families have naturally turned to schools for support in not only continuing the education of their children, but also in provisioning broadband connectivity as well as fostering a sense of community during a time of literal and figurative disconnectedness.

As COVID-19 continues to impact the education community at all levels, school districts will need to continue making adjustments to accommodate this new reality—a reality that will inevitably rely on increased technology and robust connectivity. Class sizes will shift, the applications and services that must ride upon school networks will continue to evolve, and some combination of in-person and remote learning will need to occur. And certainly, more students will have devices than ever before—devices that are completely dependent upon having robust internet access at school and at home. For state and district leaders, **this makes meeting the 1 Mbps per student goal more important than ever.**

School networks must now be prepared to handle increasing amounts of traffic, particularly livestreaming and two-way video conferencing via applications like Zoom, Cisco Webex, and Microsoft Teams—as well as student devices and the digital learning applications installed on them—resources that will need to remain integrated into the fabric of teaching and learning well beyond the pandemic.

CELEBRATING SUCCESS, BUT PRESSING FORWARD

In 2014, the FCC modernized the E-rate program, and in doing so, established three connectivity standards to ensure digital learning was available in all of America's K-12 classrooms:

1. A fiber connection to every school, so that school bandwidth can reliably grow to meet the demands of digital learning over time.
2. Wi-Fi in every classroom, to support digital learning programs that require every student to have a device.
3. 100 Kbps per student of internet access bandwidth, the minimum recommended capacity to enable digital learning in the classroom.

By 2019, these goals had largely been achieved, with over 99 percent of school districts nationwide delivering more than 100 Kbps of internet bandwidth per student. Now, the focus has shifted to equipping school districts with the bandwidth needed for digital teaching and learning to happen in every classroom, every day. That is why the FCC raised the bandwidth target, starting with the 2017-2018 school year, to 1 Mbps per student.
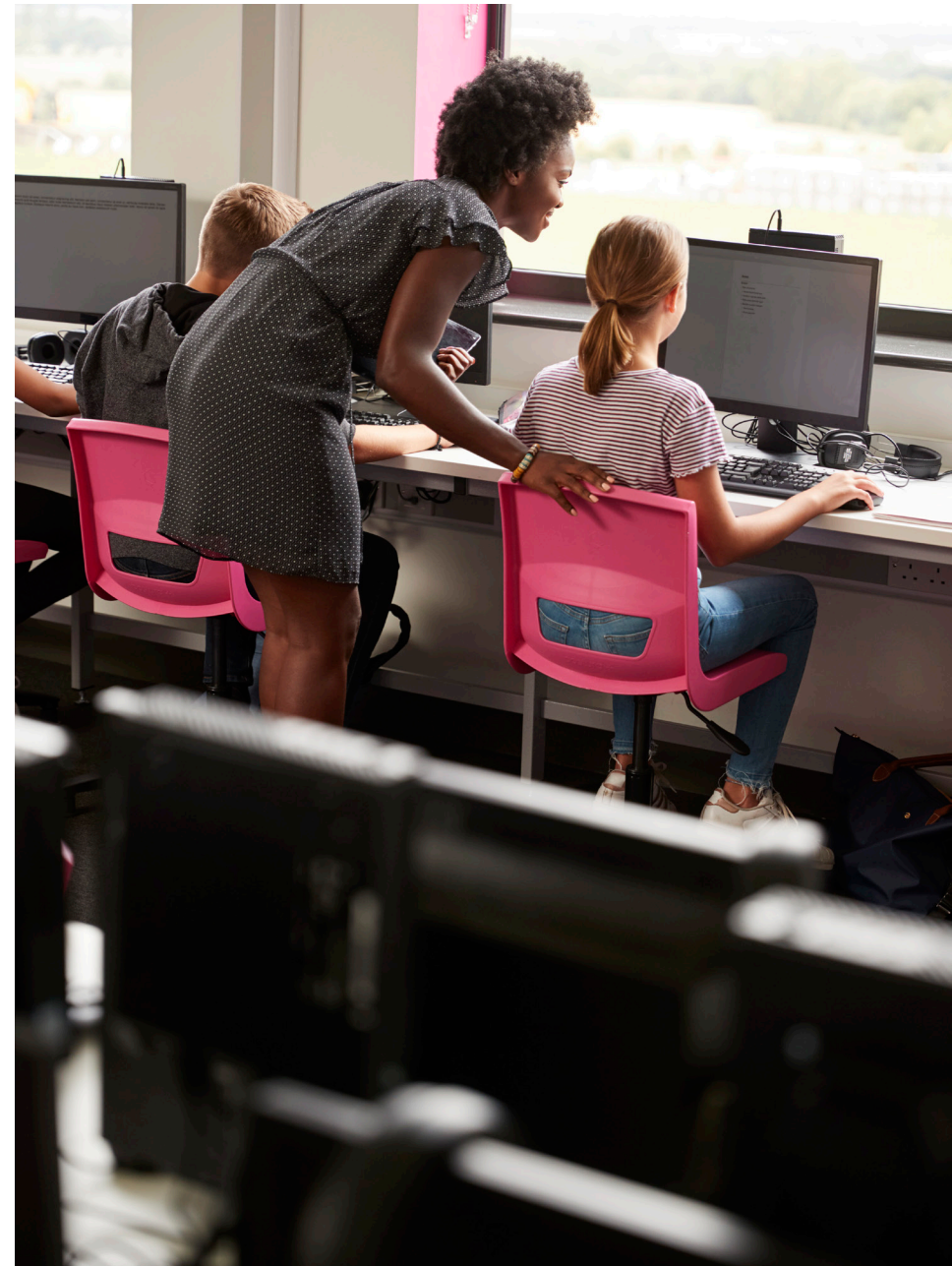
Connect K-12 will enable state and district leaders to identify opportunities for upgrades in ways that maximize the E-rate program's effectiveness. Connect K-12's internet pricing and bandwidth transparency can provide valuable intelligence in helping district leaders navigate the required bidding and evaluation process to capture E-rate support.

considerations for state leaders

BENEFITS OF STATE NETWORKS IN DELIVERING SCALABLE BANDWIDTH

One way that state leaders have been providing scalable bandwidth of 1 Mbps and beyond is by building and expanding state education networks. Since Congress first authorized the E-rate program in the Telecommunications Act of 1996, several states have built statewide education networks that seek to equitably deliver robust connectivity to schools regardless of location. The states of Kentucky, North Carolina, and Utah have been leaders in that regard, and while their implementation models differ from one another, each of these states (and others like them) can tell remarkable success stories about how they have been able to deliver scalable connectivity and economies of scale to meet the evolving needs of teachers and students—even to far-flung schools that would have little hope of having broadband access otherwise.

State education networks provide a beneficial service to school districts by offloading the procurement and management of high-speed broadband networks. They take responsibility for network security and reduce bandwidth demand by peering with content networks and caching frequently used content locally. Importantly, by actively monitoring the usage on each district's network, they have the ability to scale up individual circuits as bandwidth demand increases. These benefits mean that individual school districts can focus less on achieving and maintaining adequate access and more on delivering rich learning experiences for their students.

DATA, INSIGHT, AND A CALL TO ACTION

Connect K-12 was created to provide essential insights on school connectivity for state and district leaders, including where to act and when. District-level intelligence highlights where service provider contracts are expiring and when so that it is easy to identify opportunities to negotiate bandwidth upgrades. State leaders can also use this information to provide targeted support to districts that may need assistance, and even identify areas where consortium bidding may be possible.

We believe that pairing actionable intelligence with motivated leadership is the key to enabling digital learning opportunities everywhere. Connect K-12 was created to support that action with reliable data. To educate and prepare America's children for our changing economy, we must ensure K-12 public schools have adequate bandwidth to make digital learning opportunities pervasive. Therefore, we call on state and district leaders to support this mission by utilizing the resources available in Connect K-12 to continue to drive bandwidth up and prices down.

about Connect K–12

ABOUT THE REPORT

The Executive Summary tracks progress toward the K-12 bandwidth goals established by the Federal Communications Commission (FCC). The report, published annually, highlights national and state progress toward achieving in-school connectivity goals and recommendations for meeting future connectivity needs: 1 megabit per second per student bandwidth speeds at affordable pricing.

ABOUT THE DATA

The figures and analysis in this summary are based on 2020 application data from the FCC's School and Libraries Program ("E-Rate"). It includes data from **12,862** public school districts, representing more than **46.8** million students across all 50 states and the District of Columbia.

Public school district applicants requested **$2.21** billion in funding from the E-rate program in **2020**. All E-rate applications are subject to review before funds are distributed, which ensures that school districts have accurately reflected their requested services. As a result, this data represents the best national source of current information on school district connectivity; specifically, what broadband services schools are buying and how much they are paying for these services.

CITATIONS

1. University of Virginia
2. Schoology State of Digital Learning
3. NewSchools/Gallup Survey
4. EducationWeek
5. ESH 2019 State of the States

ABOUT CONNECTED NATION AND FUNDS FOR LEARNING

Connected Nation and Funds For Learning have partnered to launch and maintain Connect K-12.

Connected Nation® is a nonprofit dedicated to improving lives by providing innovative solutions that expand access, adoption, and use of high-speed internet and its related technology to all people. Connected Nation will work with state leaders to identify and support school districts that need to upgrade their connectivity to meet the FCC's 1 Mbps per student bandwidth goal by 2024.

Funds For Learning® is a professional firm specializing in the federal E-rate funding program. Funds For Learning will manage the technology platform and ensure data in Connect K-12 is accurate and updated annually.