CoSN’s 2nd Annual E-rate and Infrastructure Survey
In Partnership with AASA, The School Superintendents Association and MDR
Key Findings/Executive Summary

In September of 2014, CoSN partnered with AASA – The School Superintendents Association and MDR to survey school district leaders regarding the current state of broadband and technology infrastructure in U.S. school districts. The survey collected data from K-12 school district administrators and technology leaders/Chief Technology Officers about E-rate, broadband, and infrastructure in school systems across the country. Since this is the second year the survey has been conducted, we are able to gather greater insights into the current state of education technology infrastructure and the access and connectivity challenges educators encounter. Educators, without question, face increasing demand for bandwidth as a result of many factors, including mobile learning, online assessments, growing numbers of devices in school settings, and digital content.

CoSN’s 2nd Annual E-rate and Infrastructure Survey comes at a particularly important time in terms of the policy discussion. In March 2010, the Federal Communications Commission (FCC) published the National Broadband Plan, calling for broadband that is abundant, affordable, and reliable. The plan recognized the need not only for residential connectivity but also identified Community Anchor Institutions, including schools and libraries, as gathering places that require more bandwidth to accommodate the demand of multiple users in one place. For these Community Anchor Institutions, the National Broadband Plan recommended a 1 Gbps connection. President Obama launched his ConnectED initiative in 2013, calling for improved broadband access for schools to 100 Mbps in the short term (two to three years) and 1 Gbps in the long term (five to seven years). The FCC’s July 2014 E-rate reform order adopted short-term goals for broadband access of 100 Mbps and long-term goals of 1 Gbps.

This survey of education and technology stakeholders from the nation’s schools was designed to provide valuable data to aid in the critical choices the FCC must make over the coming months regarding the E-rate program.

Key Findings

School systems across the country (especially those in rural communities) lack broadband capacity and experience high costs in their efforts to deliver adequate internet access to classrooms. Capacity and cost are consistently the two greatest impediments to expanded connectivity, regardless of community type. 84% of responding districts indicated their needs are not being met by the E-rate program. This is the second year that districts note the significant gap between E-rate funding and their needs. Only 9% of the districts indicated they
have adequate bandwidth to fully meet the demand for online assessments and digital content anticipated over the next 18 months. The FCC will need to increase significantly the E-rate cap if the ConnectED connectivity goals are to be reached.

Most Significant Barriers to Increasing Internet Connectivity in School Districts

<table>
<thead>
<tr>
<th>Barrier</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost of monthly recurring expenses</td>
<td>58%</td>
</tr>
<tr>
<td>Inability to pay for the capital or upfront, non-recurring expense</td>
<td>38%</td>
</tr>
<tr>
<td>Wireless to classrooms</td>
<td>32%</td>
</tr>
<tr>
<td>Geography that limits competition</td>
<td>27%</td>
</tr>
<tr>
<td>WAN transport between buildings</td>
<td>18%</td>
</tr>
<tr>
<td>Internet provider at capacity cannot provide more bandwidth</td>
<td>11%</td>
</tr>
<tr>
<td>Our transport (internet pipe) at capacity and must be replaced (e.g. we have copper vs. fiber connections)</td>
<td>10%</td>
</tr>
<tr>
<td>Lack of need (we are not using what we have)</td>
<td>6%</td>
</tr>
</tbody>
</table>

High Costs & Adequate Funding

- **The affordability cost of Internet access remains the biggest barrier to robust connectivity in schools today.** Monthly recurring ongoing expenses were the top concern (58%) for school districts across the country for the second year in a row.

- **The cost of connectivity in rural districts is even higher—for example, 10% of the rural districts pay over $250 per Mbps per month, and at times the cost is a staggering $800 per Mbps.** By contrast, 37% of the rural districts pay $10 or less per Mbps per month, while 49% of urban/suburban districts pay $10 or less per Mbps.

- **Capital or up-front, non-recurring expense is the second biggest barrier (38%) to increasing robust Internet connectivity in school districts.**

- **Funding is the biggest obstacle (60%) to meeting the FCC’s short-term goal of 100 Mbps/1,000 students.**
60% of the districts reported using consortium buying services for bandwidth/Internet access, up from 44% last year. Many districts participate in more than one purchasing cooperative. Rural districts report participation in consortium buying more often than urban and suburban districts.

WAN costs in suburban and urban districts are significantly more expensive due to the need for individual connections to each building in a district. 13% of rural districts report WAN costs of more than $100/Mbps and 27% report no WAN costs. By contrast, 20% of urban/suburban districts pay more than $100/Mbps and only 20% report no WAN costs.

51% of districts reported that the FCC’s decision to phase out E-rate support for voice and other services in July 2014 will have significant negative fiscal impact on them.

Lack of Capacity

34% of the districts reported having 3 or more days of downtime a year for Internet services. Shockingly 5% of the districts experience 30 or more days of downtime, a rough equivalent of almost one day per week during the school year.

45% of the school districts indicate they do not currently have the capacity to deploy a 1:1 initiative.

25% of districts reported that not a single school in their district could meet the FCC’s short-term goal of 100 Mbps/1,000 students.

68% of all districts said that not a single school in their district could meet the FCC’s long-term connectivity goal of 1,000 Mbps (1 Gbps), a finding even more concentrated in rural areas, where 73% of rural districts have no schools that could meet this goal.

Alarmingly, 34% of all districts reported WAN speeds of 100 Mbps or less, which is one-tenth of the minimum connection speed recommended by SETDA for WAN connections. In rural districts, it is even worse, with 44% reporting WAN connections of 100 Mbps or less and 16% report speeds of less than 10 Mbps. 17% of rural districts (12% of all districts) reported that their typical Internet transport connection is over slower technologies (T-1, copper, DSL, Satellite, or Microwave), making it nearly impossible to reach 1 Gbps speeds necessary to make the digital transition.
27% of the survey respondents reported geography is a limiting factor (up 7% from last year).

11% reported their provider is at capacity. 10% of districts reported that their transport pipe was at capacity.

Districts struggle to achieve reliable Internet connectivity, with 60% of districts indicating they are using only one Internet provider. Single point of failure networks are not considered best practice, leaving a district vulnerable in case of an outage. The numbers are worse in rural school districts, where 65% use only one Internet provider.

The Last Mile Challenge

Lack of Competition. When asked for the number of providers responding to E-rate request for services, 6% of school districts received no responses and 26% received only one response. 80% of large districts (with more than 50,000 students) and 59% of urban and suburban districts received three or more bids for E-rate services, compared with only 35% of rural districts.

Rural districts have slower internal data connections. 80% of urban/suburban districts report typical connection between data switches and router at 1 Gbps or greater, compared with 65% of rural districts.

Wi-Fi in rural districts is much less likely to meet current technical standards. Only 25% of rural districts have Wireless Access Points that support the most current standards (802.11n/ac), a rate that is less than half that of very large districts, where 59% have WAPs that meet the 802.11n/ac standards.

High costs, inadequate funding, lack of capacity, and the last mile issue remain key challenges for schools and school districts working to transform their learning environment.

CoSN surveyed over 29,000 district technology leaders and received 584 responses in approximately three weeks. This level of response has a less than 5% margin of error with a confidence rate of more than 95%. Responses came from 47 states (Delaware, Rhode Island, Utah, and the District of Columbia not reporting) with diverse geographic types and sizes, which reflect the overall landscape of schools in our country today.