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PARTNERSHIPS, SHARING, and COMMUNITY ANCHOR INSTITUTION BROADBAND

Joint procurement, aggregated purchasing, and coordinated planning can significantly reduce the costs of providing high-quality broadband to anchor institutions.

by Joanne Hovis

The SHLB Broadband Action Plan includes the following:

Connecting Anchor Institutions: A Vision of Our Future

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Introduction

Partnerships, aggregation, and coordination in securing broadband services are valuable tools for community anchor institutions (CAIs). Aggregating buying power on a regional or statewide basis is a tested best practice that can enable anchor institutions to achieve lower per unit pricing, higher bandwidth, and improved service quality. Policymakers should encourage anchors to consider joint procurement and coordination with entities representing other anchor sectors in their state or region. Aggregated procurement also encourages broadband providers to collaborate and bid with other providers—which could flatten pricing and reduce geographical disparities.

Description of the Aggregated Purchasing Model

Under the aggregated purchasing strategy, multiple anchors (such as school districts and/or libraries) on a regional or super-regional basis—or ideally, on a statewide basis with support of one or more state agencies—combine their request for proposal (RFP) processes to solicit and contract for Internet bandwidth and wide area network (WAN) connections, dark fiber, wavelengths, Ethernet, or any other service. (The RFP process established by the Federal Communications Commission (FCC) in its E-rate program is conducive to this model, but the strategy can also benefit CAIs that do not participate in E-rate.)

In this approach, the anchors cooperate to develop the joint RFP and select the vendor(s). Ideally, the buying group would be as large as possible and would include both rural and metropolitan-area anchors—thus enabling, on the one hand, rural communities to benefit from the substantial buying power of higher-volume urban districts and, on the other, enabling urban communities to benefit from the buying power afforded rural stakeholders by federal funding programs. Establishing a joint urban-rural consortium for the purchase of broadband services can also permit the CAIs to adopt a "postalized rate" pricing regime that allows rural CAIs to pay the same per-unit rate as the urban CAIs.

Policymakers should encourage partnerships, aggregation, and coordination in securing broadband services.

The FCC encourages consortium buying in both the E-rate program[1] (for schools and libraries) and in the Rural Healthcare program.[2] In the Rural Health Care Pilot program, originally adopted in 2007, the FCC found that "the flexible, consortium-based approach of the Pilot Program fostered a wide variety of health care broadband networks that enabled better care and lowered costs, . . . enabling smaller HCPs [health care providers] to draw on the medical and technical expertise and administrative resources of larger HCPs." As a result, the FCC has directed the Universal Service Administrative Company (USAC) to prioritize consortium applications for expedited review in both the E-rate and Rural Healthcare programs.[3]

Statewide or Regional Procurement

Aggregated buying is a best practice that has also been utilized powerfully at the state and regional level. A large-scale state or regional procurement strategy can leverage the collective buying power of several anchor institutions, which together represent a massive customer for commercial service providers. Significant leadership and organization are necessary to implement aggregated buying, including convincing stakeholders at the local level to participate. But the challenge can be overcome by pointing out the significant cost benefits. These benefits include:

- Lower per unit pricing across the full range of key services, including Internet bandwidth and WAN transport costs;

- Potential increased investment and improved services by private sector providers;

- Reduced (per CAI) administrative and processing costs; and

- Additional management expertise that could benefit participants with limited technology resources.

Lower Unit Pricing

An anchor institution, when acting alone, often is a relatively small purchaser, particularly in smaller communities in rural areas. Indeed, even if an anchor -- such as a school district -- is one of the bigger buyers in the region, it still has relatively modest buying power. Dramatically compounding this problem is the fact that, in many areas, there may be only a single broadband provider with the facilities to serve the anchors. As a result of the modest buying power and the effective lack of competition, rural and single anchors have little to no leverage to secure pricing comparable to that of larger buying groups or metropolitan area districts that may be fortunate enough to have slightly more competition.

In contrast, the aggregate of the communications purchases made by all anchors in a region or state is substantial—and in total likely represents one of the largest communications purchasing sectors in that area. Greater purchasing power can deliver better pricing because bidders offer lower per unit costs in order to secure the volume business opportunity.

The aggregated purchasing strategy is also likely to have positive impacts on commodity Internet bandwidth costs. The cost of bandwidth varies dramatically depending on location (i.e., it will be significantly less costly in Chicago or El Paso than in Peoria or Farmington) and the size of the total purchase (i.e., large bulk purchases of bandwidth will result in lower per-megabit costs than will smaller purchases). The ability of the broader anchor community to buy commodity bandwidth in bulk and then distribute it across a region or state to locations where it is needed can dramatically decrease the per-megabit price of that bandwidth.

One example of the cost savings from joint procurement is the recent initiative by the New Jersey Department of Education to engage in the cooperative purchase of broadband to improve Internet access to 219 schools in 145 New Jersey districts. The New Jersey Digital Readiness for Learning and Assessment Project is expected to generate average savings of 76 percent while increasing Internet capacity by 2.5 times.[4]

Increased Private Sector Investment

The opportunity to realize more revenue and improve long-term business opportunities can convince commercial providers to make additional network investments to serve consortium purchasers. The scale enabled by large group buying is likely to create a business opportunity so appealing to the service provider community that it may organize itself to build additional fiber and offer improved services. Service providers may also offer certain benchmarks for service and upgrade service levels in order to win such a large opportunity.

The new E-rate rules, which explicitly allow E-rate funding for special construction and dark fiber, also present new opportunities for aggregate purchasing. The prospect of receiving substantial ongoing E-rate subsidy for services, and the opportunity to obtain upfront payment for network expansion (particularly for fiber construction), amplify the business opportunity for service providers.

The development of new infrastructure would serve not only the anchor customers, but also many other users in the surrounding area. Indeed, fiber built to currently unconnected anchors can serve as a "middle-

mile bridge" into areas where the anchors are located—and then provide a means of extending service over time to business and residential customers. At the same time, the construction will have direct economic development benefits, as well as catalyzing long-term indirect benefits that flow from the new communications services.

Reduced Administrative and Processing Costs

Another significant benefit of regional, super-regional, or statewide procurement is lower (per anchor) net administrative costs, including RFP preparation, RFP review, contract negotiations, contract administration, invoice review and payments, and, very significantly, interaction with the E-rate administration. One of the E-rate program's biggest challenges is the considerable administrative cost involved at the local level. While the FCC has made efforts to reduce the administrative burden, some of the components of the E-rate application process have become more complex as a result of the significant E-rate rule changes in the two E-rate orders adopted in 2014, particularly for "big-ticket" applications. Collaborative purchasing leads to the opportunity to share the costs of an E-rate consultant or consultants, thereby lowering administrative costs for all participants in the consortium.

Bringing Additional Resources to Help

Consortia applicants can also benefit from shared management and technological expertise. Either the purchasing cooperative itself, or service providers, can provide management services to help even out the technological skill and capacity of the membership. This benefits all members of the purchasing group in that it makes sure that all members are able to benefit evenly from the purchase, installation, and management of connectivity for their organization. This benefit is particularly important for rural CAIs that may not have the resources to hire engineering and legal support necessary to ensure the application meets all the criteria for approval.

Several Case Studies Demonstrate the Value of Collaboration and Joint Purchasing

Alabama

In Alabama, a state consortium of 39 school districts and 16 public libraries released an invitation to bid (ITB) in February 2016 seeking providers of both lit fiber services and self-provisioned (dark) fiber.[5] On April 21, 2016, the Alabama State Department of Education, in its role as the Alabama K-12 Joint Purchasing Program administrator, announced its intent to award contracts to 11 broadband providers. The school districts and participating libraries may use the awarded contracts as an option and are not required by the Alabama State Department of Education to make purchases from these awarded contracts.[6] Craig Settles notes that "[t]his tactic of combining libraries and schools to pursue E-rate funding can garner significant money to offset broadband build-out costs, and as leverage to secure funds from various other sources."[7]

North Carolina

In North Carolina, the statewide research and education network known as MCNC leads aggregated transport purchases on behalf of all school districts—and has achieved not only exceptional per unit pricing and efficiencies, but also consistency of service among districts and greatly reduced administrative costs.

MCNC is an independent non-profit that operates the North Carolina Research and Education Network (NCREN). NCREN connects all K-12 school districts, community colleges, universities, and some non-profit health care sites throughout North Carolina "to each other, the Internet, and global research networks at very high speeds."

NCREN has built its own fiber optic network (funded in part with federal grants and in part with local contributions from the public and private sectors) to all Internet points of presence in the state and also to many of the school district buildings throughout the state. Where it has not built its own fiber, MCNC has leased dark fiber from the private sector (and in turn makes available to the private sector dark fiber within its owned footprint).

The state supports the participation of K–12 schools at the level of $20 million per year to fund the portion of the schools' costs that are not covered by the federal E-rate program. Among other benefits, this strategy maximizes the benefit of the E-rate program for North Carolina schools by increasing the level of services delivered to the schools and by eliminating the burdens of navigating the E-rate program by individual schools. (It is centrally managed by the North Carolina Department of Public Instruction.) In turn, the schools are obligated to utilize their savings on technology projects, such as providing devices and services to students and faculty, that are not covered by the E-rate program.

This program resulted from a study commissioned by the state that sought new strategies for realizing the potential of broadband for North Carolina schools. The study found each school district was contracting independently for its services. As a result, there was no economy of scale and a very low quality of communications between and among the schools. The study recommended connecting all the school districts to NCREN so they could communicate among each other, as well as to the outside world through the public Internet.[8] The study led to a detailed planning project and eventually to the very successful initiative to connect all school district buildings in the state.

The funding includes engineering services by MCNC staff to provide assistance to the school districts, to do network assessments, to support technology migration, and to plan how to realize the benefits of the broadband networks. There is no cost to the school districts, and the program ensures they receive centralized, trustworthy, third-party support. Among other accomplishments, the program has resulted in:

- A dramatic increase in the amount of federal E-rate money flowing into North Carolina;

- A rise in aggregate K-12 traffic from 959.7 Megabits in May 2009 to 58.37 Gigabits in May 2015;

- An increase in the median connection speed to 1 Gbps; and

- Connections for more than 100 charter schools.

The K–12 initiative has been so successful that the community college system, representing 58 colleges, elected also to move to NCREN and specifically asked for the same engineering support. (The state's libraries are eligible to connect, but unfortunately are currently not funded by the state to participate and receive no centralized support.)

The system has also created new business and new revenues for local phone companies, who are partners in the program. MCNC's connection is only to the school district location and then the local company provides the connectivity from the district building to the schools themselves. With the increase in use by the schools, these companies have seen the volume of business they are doing with schools increase dramatically, resulting in an outcome in which all parties benefit.

In the health care area, MCNC also operates the North Carolina Telehealth Network, which enjoys FCC discounts, and enables high-bandwidth services to non-profit health care facilities.

Nebraska

Network Nebraska-Education is a statewide education network, funded and controlled by the local school districts, education service units and colleges that opt into its services. The state authorized Network Nebraska-Education in 2007, allowing state and university staff to build and operate a state-wide backbone, as well as aggregation points. Network Nebraska-Education aggregates all of the network traffic of the state's schools and universities into two Internet purchases, one from Windstream and the other from Cogent Communications.[9]

Initially the network received a small three-year loan of $270,000 from the state, but quickly paid it back and became financially self-sufficient. Each entity that opts into the service pays a $200/month participation fee, as well as an interregional transport fee of $22/month for K-12 districts and $69/month for higher education institutions.

In 2013, the Nebraska Information Technology Commission found that the network decreased the average cost of wide area network (WAN) circuits by 39 percent over five years, and the unit cost of statewide Internet access by 98 percent over six years. Today, more than 97 percent of public K-12 schools use Network Nebraska-Education.[10] In addition, the CIO's office acts as a public consultant for school districts to help them take advantage of E-rate.

Indiana

The Indiana State Library (ISL) released a statewide RFP in 2005 to serve all libraries in the state. As a result of that RFP, ISL contracted with Education Networks of America (ENA), a managed service provider that offers aggregated broadband service to participating libraries throughout the state. ENA was also independently selected by the Indiana Department of Education and committed in its response to ISL to take advantage of opportunities to share resources and leverage its larger footprint to benefit both libraries and schools. With this approach, ISL benefits from economies of scale, comprehensive and equitable service, E-rate filing management, and procurement process savings. Because of these benefits, the contract with ENA has been extended through June 2018.

The managed network service provider model offers flexibility in service delivery for a collective buying approach. Managed service providers typically are not constrained by state and federal regulatory bodies in the manner in which they deliver service. Connectivity to end sites can be achieved by means of virtually any available technology, carrier, or network that provides the required service and reliability levels. Last mile or backbone connectivity in this model can be provided through traditional telecommunications circuits, fiber optic connectivity through municipal and non-traditional carriers, standardized and emerging wireless technologies, and existing or new-build fiber optic networks. A managed service provider can be vendor and technology neutral. This means everything from contract management to vendor changes and bandwidth upgrades is handled seamlessly, freeing CAI resources from conducting these activities. It also means the CAI is not locked into single service provider-specific contracts that limit the ability to employ innovative connectivity solutions.

Recommendations

Federal, state and local policymakers should take the following steps to promote collaboration and aggregation of purchasing of broadband services for anchor institutions:

- Local anchors, including school districts and library systems, should be encouraged to work collectively or take initiative to reach out to other CAIs to create partnerships. Many anchors are not accustomed to working in large consortia, but state and local policymakers should work extensively to build stakeholder support for this strategy because the benefits of consortium buying are so significant.

- States and local governments should create a "Broadband Purchasing Coordinator" position, or task the state CIO to serve this role, to encourage collaboration, thereby maximizing benefits to stakeholders.

- Government officials should engage in joint procurement of broadband services for urban and rural schools, libraries, health, government offices, and other anchor institutions to maximize the opportunities for cost savings and to give greater incentives to the private sector to build out new facilities in hard-to-reach areas.

- States should support anchor institutions' efforts to leverage buying power and navigate such federal funding programs as the E-rate and Rural Health Care Program. A state investment in planning, organization, and guidance – as well as centralized navigation of the federal funding programs – would not only enable remote and smaller anchors to achieve better broadband outcomes, but would also ensure lower per-unit pricing and bring greater federal funding to their states.

- The FCC and USAC should follow through on the stated policy of prioritizing consortium funding requests and should encourage and incentivize consortium bidding in every way possible.

- Policymakers should consider awarding contracts to managed service providers that work with a variety of facilities-based providers simultaneously and can centrally manage the provision and upgrade of service to CAIs.

- States should consider asking for E-rate bids for both lit fiber and dark fiber and consider how aggregate acquisition of shared dark fiber networks (i.e. self-provisioning) compares with the rates for lit fiber services.

Endnotes

1   Federal Communications Commission, In the Matter of Modernizing the E-rate Program for Schools and Libraries, Report and Order and Further Notice of Proposed Rulemaking, WC Docket 13-184 (July 23, 2014) ("First E-rate Modernization Order"), ¶168. [The FCC stated, "Consortium purchasing can drive down the prices paid by schools and libraries for E-rate supported services. In this section, we reduce or eliminate some of the existing barriers to applicants' participation in consortia."]

2   Federal Communications Commission, In the Matter of Rural Health Care Support Mechanism, Report and Order, WCDocket 02-60 (December 21, 2012) ¶50.

3   First E-rate Modernization Order, ¶168.

4   State of New Jersey Department of Education, "Christie Administration Announces Millions in Savings and Faster Internet Access in 219 Schools through Innovative Broadband Cooperative" (September 3, 2015) http://www.state.nj.us/education/news/2015/0903broad.htm

5   Alabama State Department of Education https://connect.alsde.edu/sites/erate/aljp/lspan/Shared%20Documents/ALJP2016LSPAN.pdf?Mobile=1 accessed June 12, 2016.

6   Alabama State Department of Education, "Intent to Award" (April 21, 2016) https://connect.alsde.edu/sites/erate/aljp/lspan/Shared%20Documents/Intent%20to%20Award%20ALJP2016LPAN%20ITB.pdf

7   Craig Settles, "Libraries: Broadband Leaders of the 21st Century" (2016) http://cjspeaks.com/wp/wp-content/uploads/2016/04/snapshot-03-16.pdf

8   e-NC Authority, Developing Regional Education Networks (May 2006) http://www.ncwiseowl.org/Impact/div_it/docs/Developing%20Regional%20Education%20Networks.pdf

9   Corinne Lestch, "Network Nebraska Fosters Distance Learning at Schools," State Scoop (May 14 2015) http://statescoop.com/network-nebraska-fosters-distance-learning-schools/

10   Jessica Hughes, "How Nebraska Built a Network With the Lowest Internet Costs," Government Technology (October 27, 2014) http://www.govtech.com/pcio/articles/How-Nebraska-Built-a-Network-with-the-Lowest-Internet-Costs.html

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"Grow2Gig+: Anchors Advance Communities" is the SHLB Coalition campaign to make gigabit speeds for anchor institutions a national priority. "Connecting Anchor Institutions: A Broadband Action Plan" is a crucial component of the Grow2Gig+ campaign, which also includes an interactive website that provides a hub for discussion, updates, and information to guide these national efforts. Gigabit broadband for community anchor institutions is an attainable goal, but only if we reach together. Help us Grow2Gig+! www.shlb.org/action-plan

The **Schools, Health & Libraries Broadband (SHLB) Coalition** is a 501(c)(3) advocacy organization that supports research and public policies that promote open, affordable, high-capacity broadband connectivity for anchor institutions and their communities. Founded in 2009 in Washington, DC, the SHLB Coalition receives financial support from its non-profit and corporate members and from the Bill & Melinda Gates Foundation. For more information, visit www.shlb.org/.

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