

**Before the  
Federal Communications Commission  
Washington, D.C. 20554**

In the Matter of )  
 )  
Modernizing the E-rate Program for ) WC Docket No. 13-184  
Schools and Libraries )

**ORDER**

**Adopted: September 11, 2015**

**Released: September 11, 2015**

By the Chief, Wireline Competition Bureau:

**I. INTRODUCTION**

1. In this Order, the Wireline Competition Bureau (Bureau) releases the eligible services list (ESL) for funding year 2016 for the schools and libraries universal service support program (more commonly referred to as the E-rate program)<sup>1</sup> and authorizes the Universal Service Administrative Company (USAC) to open the annual application filing window no earlier than 60 days after release.<sup>2</sup>

2. Last year, the Commission adopted two orders modernizing the E-rate program.<sup>3</sup> In response to the first of the *E-rate Modernization Orders*, we shortened and simplified last year's ESL, while including in that ESL the changes the Commission made to the program for funding year 2015.<sup>4</sup> In the *ESL Public Notice* for this coming funding year, we proposed keeping the basic structure of the ESL while modifying the ESL to reflect the changes the Commission made to the E-rate program for funding year 2016 in the *Second E-rate Modernization Order*, and to provide some minor clarifications.<sup>5</sup> Based on our review of the record, we now adopt those proposed changes to the ESL, with modifications as described herein.

**II. BACKGROUND**

3. Sections 254(c)(1), (c)(3), (h)(1)(B), and (h)(2) of the Communications Act collectively grant the Commission authority to specify the services that will be supported for eligible schools and libraries

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<sup>1</sup> See *Schools and Libraries Universal Service Support Mechanism, Eligible Services List for Funding Year 2016* (rel. September x, 2015) (Appendix B) (FY2016 ESL). The ESL specifies the services and products that are eligible for E-rate discounts.

<sup>2</sup> 47 C.F.R. § 54.502(d) (requiring the final ESL to be released at least 60 days prior to the opening of the application filing window).

<sup>3</sup> *Modernizing the E-rate Program for Schools and Libraries*, WC Docket No. 13-184, Order, 29 FCC Rcd 8870 (2014) (*E-rate Modernization Order*); *Modernizing the E-rate Program for Schools and Libraries, Connect America Fund*, WC Docket Nos. 13-184 and 10-90, Second Report and Order and Order on Reconsideration, 29 FCC Rcd 15538 (2014) (*Second E-rate Modernization Order*) (together, *E-rate Modernization Orders*).

<sup>4</sup> See *Schools and Libraries Universal Service Support Mechanism et al.*, CC Docket No. 02-6 et al., Order, 29 FCC Rcd 13404 (2014) (*2015 ESL and Order*).

<sup>5</sup> *Wireline Competition Bureau Seeks Comment on Proposed Eligible Services List for the E-rate Program*, WC Docket No. 13-184, Public Notice, 30 FCC Rcd 4905 (2015) (*ESL Public Notice*).

and to design the specific mechanisms of support.<sup>6</sup> Pursuant to this authority, in the *Second E-rate Modernization Order*, the Commission, among other things, made the following changes and clarifications to the eligible services framework of the E-rate program: (1) equalized the E-rate program's treatment of lit and dark fiber; (2) allowed applicants to self-provision high-speed broadband networks if the applicant is able to demonstrate that self-provisioning is the most cost-effective option and is able to satisfy certain other conditions; and (3) clarified the cost allocation requirements for circuits carrying both voice and data services.<sup>7</sup>

4. In the *ESL Public Notice*, we sought comment on proposed revisions to the ESL for funding year 2016 reflecting the expanded options for purchasing affordable high-speed connectivity adopted by the Commission in the *Second E-rate Modernization Order*.<sup>8</sup> The proposed revisions included equalizing the treatment of leased lit and dark fiber; allowing support for self-provisioned networks under certain circumstances, clarifying that all equipment and services necessary to operate and maintain fiber networks must be competitively bid, and adding descriptions of eligible special construction charges.<sup>9</sup> We also sought comment on the addition of Integrated Services Digital Network (ISDN) circuits to the list of eligible voice services and clarifications regarding the eligibility of firewall services and components.<sup>10</sup> The comment cycle closed on July 6, 2015.<sup>11</sup>

### III. DISCUSSION

5. Having considered the record, we update the ESL for funding year 2016 as described herein. We adopt several of the changes proposed in the *ESL Public Notice* and provide additional clarifications to address comments and reply comments received in response to the *ESL Public Notice*. The changes that we make to the section of the ESL dealing with Category One services reflect the additional options the Commission provided applicants for purchasing high-speed connectivity to eligible schools and libraries in the *Second E-rate Modernization Order*.<sup>12</sup> With regard to Category Two of the ESL, we adopt changes to the description of eligible firewall services, provide clarifications in response to comments and reply comments, and decline commenters' requests that we add certain services and equipment to the ESL and revise certain descriptions of eligible Category Two services. We make these changes to the ESL to clarify for all stakeholders what services are eligible for E-rate support and certain conditions for eligibility, and to guide USAC in implementing the *E-rate Modernization Orders*.

#### A. Modifications to the ESL Description of Eligible Category One Services

6. Consistent with the Commission's decision in the *Second E-rate Modernization Order* to expand applicants' options for purchasing affordable high-speed connectivity, we adopt several revisions and clarifications to the list of eligible Category One Data Transmission Services and Internet Access,<sup>13</sup>

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<sup>6</sup> 47 U.S.C. §§ 254(c)(1), 254(c)(3), 254(h)(1)(B), 254(h)(2).

<sup>7</sup> *Second E-rate Modernization Order*, 29 FCC Rcd at 15549, 15555, 15602, paras. 30, 43, 162.

<sup>8</sup> *ESL Public Notice*, 30 FCC Rcd at 4905-06.

<sup>9</sup> *Id.*

<sup>10</sup> *Id.* at 4906.

<sup>11</sup> *Id.* at 4905.

<sup>12</sup> *See Second E-rate Modernization Order*, 29 FCC Rcd at 15549, 15555, 15602, paras 30, 43, 162.

<sup>13</sup> To provide clarity for applicants, we change the title of the list of eligible Category One broadband services to "Data Transmission Services and Internet Access" to more accurately reflect how these services are described by applicants and service providers. *See ESH Reply Comments* at 1.

Voice Services, and to the accompanying explanations. We also adopt the proposed addition of ISDN to the list of eligible voice services.

### 1. Eligible Data Transmission Service and Internet Access

7. We adopt the proposal in the *ESL Public Notice* to separately list Leased Lit Fiber, Dark Fiber, and Self-Provisioned Broadband Networks as eligible services under the list of eligible Data Transmission Services and Internet Access and delete the explanation of differing eligible costs for leased lit and dark fiber. In the *Second E-rate Modernization Order*, the Commission decided to equalize the treatment of lit and dark fiber by providing Category One support for the modulating electronics necessary to light dark fiber and for special construction charges for dark fiber beyond the school or library's property line.<sup>14</sup> The Commission also determined that schools and libraries can self-provision networks under certain circumstances and adopted several safeguards to ensure cost-effective purchasing for self-provisioned networks.<sup>15</sup> Therefore, we adopt these substantive ESL changes to implement the *Second E-rate Modernization Order*.

8. In response to comments, and consistent with the *Second E-rate Modernization Order*, we also add a new Note (2) under the list of eligible Data Transmission Services and Internet Access to remind applicants that they must seek bids for lit fiber service and fully consider all responsive bids before selecting and requesting support for a dark fiber or a self-provisioned broadband network.<sup>16</sup> We decline to adopt the recommendation by Unite Private Networks and USTelecom that the ESL characterize a self-provisioned network as an option of last resort.<sup>17</sup> As currently drafted, the ESL accurately reflects the Commission's determination that beginning in funding year 2016, subject to certain additional safeguards, self-provisioning will be eligible for E-rate support when it is the most cost-effective option.<sup>18</sup>

### 2. Special Construction

9. We adopt, as proposed Note (3) and with slight modifications, what we had proposed as Note (2) in the *ESL Public Notice* under the list of eligible Data Transmission Services and Internet Access. Note (3) explains that there are three components of special construction: construction of network facilities, design and engineering, and project management. The *Second E-rate Modernization Order* made several changes regarding the eligibility of special construction charges and this note is necessary to provide guidance to applicants on the eligible components of special construction.<sup>19</sup>

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<sup>14</sup> See *Second E-rate Modernization Order*, 29 FCC Rcd at 15550, para. 31.

<sup>15</sup> See *Id.* at 15557-58, paras. 48-50.

<sup>16</sup> See Unite Private Network Comments at 2; USTelecom Reply Comments at 2. See also *Second E-rate Modernization Order*, 29 FCC Rcd at 15553, 15557, paras. 39, 48.

<sup>17</sup> See Unite Private Networks Comments at 2; USTelecom Reply Comments at 2.

<sup>18</sup> See *Second E-rate Modernization Order*, 29 FCC Rcd at 15557-58, paras. 47-50 (requiring that the applicant demonstrate that a self-provisioned network is the most cost effective option, limiting funding of self-construction to networks built and used within the same funding year, and requiring applicants to secure all resources necessary to make effective use of the services they purchase); see also 47 C.F.R. §54.511.

<sup>19</sup> In order to alleviate the upfront cost barrier to high-speed broadband deployment, the Commission directed USAC to suspend its amortization requirement for large Category One non-recurring charges, permitted applicants to pay the non-discounted portion of special construction costs in installments up to four years, and made special construction costs for dark fiber and self-provisioned broadband networks eligible. See generally *Second E-rate Modernization Order*, 29 FCC Rcd at 15545-62, paras. 16-59.

10. The Commission previously identified special construction charges in the *Sixth Report and Order* as “includ[ing] design and engineering, project management, digging trenches, and laying fiber.”<sup>20</sup> The *ESL Public Notice* proposed a description of eligible special construction costs as “upfront, non-recurring costs of deployment or new or upgraded facilities, including design and engineering, project management, and construction of network facilities.”<sup>21</sup> In response to commenters, we further clarify that eligible special construction costs are limited to these three components by deleting the word “including” in that note.<sup>22</sup> We decline to adopt the request made by some commenters that we classify all eligible upfront non-recurring costs, such as modulating electronics and other equipment necessary to make a Category One broadband service functional (collectively, “Network Equipment”)<sup>23</sup> and upfront payments for dark fiber indefeasible rights of use (IRUs),<sup>24</sup> as special construction.<sup>25</sup> We find that classifying all eligible upfront costs as special construction would be unduly broad and inconsistent with Commission precedent.<sup>26</sup> We instead limit special construction support to the one-time costs of physically deploying new or upgraded network facilities and the services required to complete that deployment, i.e., construction of network facilities, design and engineering, and project management. Other eligible large upfront or non-recurring costs will be considered as separate Category One costs. Limiting special construction costs to the three components identified in Note (3) will ensure that applicants will receive support for the costs necessary to construct the network facilities required to meet the Commission’s connectivity targets adopted in the *E-rate Modernization Order*<sup>27</sup> and will further the Commission’s goal of closing the rural connectivity gap as described in the *Second E-rate Modernization Order*.<sup>28</sup>

### 3. Category One Equipment and Maintenance and Operation Services

11. We adopt, with minor revisions, the proposed explanation at Note (1) in the *ESL Public Notice* that the eligible costs for lit fiber, dark fiber, and self-provisioned broadband networks include the

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<sup>20</sup> *Schools and Libraries Universal Service Support Mechanism, A National Broadband Plan for our Future*, CC Docket No. 02-6, GN Docket Not. 09-51, Order, 25 FCC Rcd 18762, 18773, para. 19, n.54 (*Sixth Report and Order*).

<sup>21</sup> *ESL Public Notice*, 30 FCC Rcd at 4910.

<sup>22</sup> See Illinois Comments at 4 (requesting clarification of the costs included in special construction); SECA Reply Comments at 7-9 (citing the questions raised by Illinois and requesting additional clarifications).

<sup>23</sup> See FY2016 ESL at 2.

<sup>24</sup> The suspension of the amortization requirement in the *Second E-rate Modernization Order* is for all large Category One non-recurring costs, including dark fiber IRU contracts that include upfront payments in excess of \$500,000 and purchases of eligible Network Equipment in excess of \$500,000. See *Second E-rate Modernization Order*, 29 FCC Rcd at 15546, para. 17. See Illinois Comments at 6 (requesting clarification that one-time dark fiber IRU payments are eligible); SECA Reply Comments at 8 (requesting that the relief from the amortization requirement should apply to dark fiber IRUs).

<sup>25</sup> Illinois Comments at 4, SECA Reply Comments at 8.

<sup>26</sup> See *Sixth Report and Order*, 25 FCC Rcd at 18773, n.54; see also *Schools and Libraries Universal Service Support Mechanism, A National Broadband Plan for Our Future*, CC Docket No. 02-6, GN Docket No. 09-51, Order, 28 FCC Rcd 14534, 14540 (Wireline Comp. Bur. 2013) (*2014 ESL and Order*) (stating that “special construction charges include design and engineering costs, project management costs, and digging trenches and laying fiber.”).

<sup>27</sup> See *E-rate Modernization Order*, 29 FCC Rcd at 8885-88, paras. 34-43 (establishing Internet access targets of at least 100 Mbps per 1,000 users short term and 1 Gbps per 1,000 users long term for schools and at least 100 Mbps for libraries that service fewer than 50,000 people and 1 Gbps for libraries that serve 50,000 people or more; establishing wide area network targets of 10 Gbps-capable connections for schools).

<sup>28</sup> See *Second E-rate Modernization Order*, 29 FCC Rcd at 15543, para. 12.

monthly charges, special construction, installation and activation, Network Equipment,<sup>29</sup> and maintenance and operation charges.<sup>30</sup> This description of eligible costs recognizes that self-provisioned broadband networks and dark fiber services require certain equipment and services that are typically included as part of the cost of a leased lit fiber service.<sup>31</sup> Therefore, beginning in funding year 2016 such services and equipment will be eligible for Category One support when purchased by an E-rate applicant that owns a network or lights dark fiber.<sup>32</sup>

12. In response to requests from commenters, we add a sentence to Note (1) to clarify that Network Equipment and maintenance and operation are eligible under Category One when purchased for existing self-provisioned networks and existing leased dark fiber that is lit by an E-rate applicant.<sup>33</sup> This clarification reflects the intent of the Commission to expand the fiber options available to applicants and encourage increased competition by fully equalizing the E-rate program's treatment of lit and dark fiber and by supporting self-provisioned broadband networks.<sup>34</sup> Applicants that currently own a self-provisioned broadband network or lease dark fiber may apply for Category One support for new modulating electronics and other equipment necessary to make the broadband service functional as well as for maintenance and operating costs of those existing networks. For existing dark fiber or self-provisioned networks, applicants will not be required to seek new bids for a lit fiber service in order to receive funding to upgrade or refresh their Network Equipment or to re-contract for maintenance and operation contracts. In addition, we clarify that one-time costs that are part of special construction, specifically design and engineering and project management, are only E-rate eligible as part of a special construction funding request that includes the costs of constructing network facilities.<sup>35</sup>

13. We decline the request made by some commenters that the ESL identify specific Network Equipment and Category One maintenance and operation services eligible for E-rate support.<sup>36</sup>

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<sup>29</sup> The final FY2016 ESL clarifies that Network Equipment eligible under Category One is limited to "modulating electronics and other equipment necessary to make a Category One broadband service functional." See FY2016 ESL at 2.

<sup>30</sup> *ESL Public Notice*, 30 FCC Rcd at 4910.

<sup>31</sup> See *Rural Health Care Support Mechanism*, WC Docket No. 02-60, Report and Order, 27 FCC Rcd 16678, 16736, para. 125 (2012) (identifying maintenance and equipment costs as elements of dark fiber service); *Second E-rate Modernization Order*, 29 FCC Rcd at 15550, para. 31 (modulating electronics are necessary to light fiber).

<sup>32</sup> See *Second E-rate Modernization Order*, 29 FCC Rcd at 15552, para. 36 (concluding that modulating electronics necessary to light leased dark fiber are E-rate eligible). Maintenance costs for dark fiber were previously eligible. See *Sixth Report and Order*, 25 FCC Rcd at 18773, para. 19. Modulating electronics and maintenance and operation costs were previously eligible as part of an eligible lit fiber service. See *2015 ESL and Order*, 29 FCC Rcd at 13420 (clarifying that maintenance charges and modulating electronics can be part of an eligible lit fiber service).

<sup>33</sup> See, e.g., ESH Comments at 1 (explaining that additional guidance is needed on the eligibility of design, maintenance, and operation costs through the whole life cycle of a self-provisioned network); Illinois Comments at 2-4 (seeking clarification that eligible costs are available for dark fiber and self-provisioned networks purchased or constructed before FY2016).

<sup>34</sup> See *Second E-rate Modernization Order*, 29 FCC Rcd at 15549, para. 29.

<sup>35</sup> ESH includes design with maintenance and operation costs. See ESH Comments at 1. Design and engineering costs are limited to special construction and are not available for the whole life cycle of the network.

<sup>36</sup> See e.g. NYC DOE Comments at 3-4 (requesting clarification of the eligibility of network switches at the access, distribution, and core layers, device management servers, network performance reporting servers, firewalls, and application delivery servers); Unite Private Networks Comments at 2-3 (requesting an FAQ or fact sheet identifying specific categories of maintenance and operation to be included in an applicant's total cost of ownership evaluation); US Telecom Reply Comments at 2 (requesting that specific categories of maintenance and operation should be identified in a FAQ or Fact Sheet and posted on USAC's website, with a link provided in the ESL).

Commenters provide several examples of Network Equipment including fiber optic transceivers, network switches, network routers, and other modulating and routing electronics that are all examples of “equipment necessary to make a Category One broadband service functional.”<sup>37</sup> Likewise, we agree that maintenance and operations services identified by commenters, including scheduled and routine maintenance, emergency repairs, relocates, and operation of network services, are also examples of eligible costs.<sup>38</sup> However, these lists are not exhaustive, and we decline at this time to offer a list that could be unnecessarily limiting. Applicants that self-provision broadband networks or lease dark fiber should apply for E-rate funding for the Network Equipment and maintenance and operation services necessary to provide high-speed broadband capabilities.

14. We remind all applicants that all E-rate eligible services and equipment must be competitively bid and applicants are required to choose the most cost-effective option, using price as the primary factor.<sup>39</sup> Though we do not include a comprehensive list of specific eligible services and equipment to the ESL for FY2016, we will continue to assess the services and equipment sought by applicants and may revisit this issue for future funding years.

#### 4. Other Category One Modifications

15. We adopt the proposed addition of ISDN to the list of eligible voice services. No commenters opposed this addition.<sup>40</sup> As explained in the *ESL Public Notice*, ISDN is typically a voice-only service that has been treated as synonymous with primary rate interface (PRI) voice service in previous ESLs.<sup>41</sup> We add ISDN to the list of eligible voice services because we expect that applicants will continue to utilize ISDN as a voice-only service. However, as explained in the *ESL Public Notice*, ISDN may be purchased as a bundled voice and data service.<sup>42</sup> ISDN will therefore remain on the list of eligible Data Transmission Services and Internet Access so that an applicant that purchases bundled ISDN can cost allocate the voice and data portions of the service as described in the *Second E-rate Modernization Order*.<sup>43</sup>

16. To implement the clarification of the required cost effectiveness analysis for data plans and air cards for mobile devices in the *Second E-rate Modernization Order*,<sup>44</sup> we adopt the proposal in the *ESL*

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<sup>37</sup> See E-rate Provider Services Comments at 4 (proposing that fiber optic and other mixed media transceivers, appliance-based form-factor CPE routers, and chassis-based form-factor CPE routers be included in the ESL); SECA Reply Comments at 6 (agreeing with the list of eligible Category One equipment proposed in the E-rate Provider Services Comments).

<sup>38</sup> See Illinois Comments at 7 (seeking clarification that maintenance includes patrol of fiber network, correcting potential hazards or deficiencies, emergency repair and restoration, “call before you dig,” and relocates); SECA Reply Comments at 10 (requesting that eligible maintenance cover scheduled and routine maintenance including network monitoring, ongoing operation, emergency repairs, “call before you dig,” and relocates).

<sup>39</sup> See 47 C.F.R. §§ 54.503, 54.511.

<sup>40</sup> USTelecom requested that we require the applicant, as opposed to the service provider, to determine the appropriate cost allocation for ISDN. We note that E-rate program rules already require the applicant to determine the cost allocation for mixed eligibility services. See 47 C.F.R. 54.504(e).

<sup>41</sup> *ESL Public Notice*, 30 FCC Rcd at 4906.

<sup>42</sup> *Id.*

<sup>43</sup> See *Second E-rate Modernization Order*, 29 FCC Rcd at 15602, para. 162.

<sup>44</sup> *Id.* at 15600, para. 156.

*Public Notice* to expand the eligibility explanation for data plans and air cards and move it to the Eligibility Explanations for Certain Category One Services.<sup>45</sup>

## **B. Modifications to Eligible Category Two Services**

17. We adopt the proposed clarification of the description of firewall services eligible under Category Two of the ESL and provide other clarifications in response to questions about Category Two equipment and services in the existing ESL. We also decline requests from some commenters that we expand the list of eligible Category Two equipment and services or revise other descriptions in Category Two.

### **1. Firewall**

18. Consistent with the Commission's direction in the *Sixth Report and Order* and the *E-rate Modernization Order* that only basic firewall protection provided as part of Internet access is eligible as a Category One service and that other firewall services are eligible as Category Two services, we adopt the clarification proposed in the *ESL Public Notice* that firewall protection that is provided by a vendor other than the Internet access provider or priced out separately will be considered a Category Two internal connections component.<sup>46</sup> Notwithstanding the Commission's direction, commenters request that we clarify the eligibility of firewall services<sup>47</sup> and designate all firewall services as part of Category One Internet access.<sup>48</sup> Commenters also request that we expand eligibility to include other network security services.<sup>49</sup> However, in the *E-rate Modernization Order*, the Commission expressly declined to further expand eligibility to additional network security services in order to focus Category Two funding on other necessary wireless local area network (WLAN) equipment and services.<sup>50</sup> In light of previous Commission direction, we remind commenters that firewall services other than those offered as a standard part of eligible Internet access are eligible under Category Two, and we deny the requests to designate all firewall services as Category One and to add additional network security services to the ESL.

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<sup>45</sup> We decline T-Mobile's request that we add a sentence to the ESL stating that an applicant that does not receive any bids for a fixed broadband connections and Wi-Fi network has satisfied the cost effectiveness test for the purchase of data plans and air cards. T-Mobile Comments at 4. We agree with ESH that, in this unlikely circumstance, the lack of bids does not necessarily establish cost effectiveness. See ESH Reply Comments at 2.

<sup>46</sup> See *Sixth Report and Order*, 25 FCC Rcd at 19808, para. 105; *E-rate Modernization Order*, 29 FCC Rcd at 8917, para. 119 ("limit[ing] internal connections support to those broadband distribution services and equipment needed to deliver broadband to students and library patrons: routers, switches, wireless access points, internal cabling, racks, wireless controller systems, firewall services, uninterruptable power supply, and the software supporting each of these components used to distribute high-speed broadband throughout school buildings and libraries"); see also *2015 ESL and Order*, 29 FCC Rcd at 13409, para. 14.

<sup>47</sup> ESH Comments at 2 (requesting clarification that firewall services hosted by the service provider are eligible), FFL Comments at 3 (requesting clarification of eligible firewall functionalities), SECA Reply Comments at 14 (asserting that next generation firewall should be eligible), USTelecom Reply Comments at 9-10 (requesting clarification of the treatment of firewall services).

<sup>48</sup> Friday Institute Reply Comments at 3 (urging that content filtering and firewall services be made eligible as Category One).

<sup>49</sup> *Id.* at 2 (seeking clarification that content filtering is a form of firewall service); HP Comments at 3 (requesting the addition of enhanced network security features such as Policy Management Systems and Intrusion Prevention Systems to the ESL).

<sup>50</sup> See *E-rate Modernization Order*, 29 FCC Rcd at 8918, para. 121 & n.275 (declining to designate services suggested by commenters, including intrusion protection and detection, malware protection, application control, content filters, DDoS mitigation, and cybersecurity services, as eligible).

## 2. Virtualized and Cloud-Based Functionalities

19. We decline requests by commenters for additions to Note (1) under Eligible Broadband Internal Connections.<sup>51</sup> Note (1) explains that hardware and software solutions that virtualize the functionalities of the eligible internal connections equipment listed in that section are eligible for E-rate support. The Commission made broadband distribution services and equipment that can be virtualized into the cloud, such as wireless controllers, eligible for Category Two internal connections support in the *E-rate Modernization Order*.<sup>52</sup> We added Note (1) under Eligible Broadband Internal Connections in the ESL for funding year 2015 to implement that Commission decision.<sup>53</sup> We agree with commenters that virtualized products, including hardware and software, that perform the same functions as eligible internal connections equipment are eligible.<sup>54</sup> We also agree that virtualized functionalities such as Software Defined Networking (SDN) and Network Function Virtualization (NFV) – solution that virtualize eligible routing, switching, controller, and firewall functionalities – are eligible and may be a more cost effective solution than traditional wireless local area network components.<sup>55</sup> We emphasize, however, that only virtualized solutions that perform the functions of eligible broadband internal connections are eligible. We therefore decline requests from commenters that we make eligible cloud-based applications that replace equipment that is not E-rate eligible, such as servers.<sup>56</sup> Applicants must continue to competitively bid the broadband internal connections equipment and functionalities that meet their needs and select the most cost effective solution.

## 3. Other Category Two Modifications

20. At the request of the New York City Department of Education (NYC DOE), we also clarify that applicants need not demonstrate that actual work was performed in order to receive E-rate support for bug fixes, security patches, and online and telephone-based technical assistance as part of Basic Maintenance of Internal Connections (BMIC).<sup>57</sup> As NYC DOE points out, the *2010 Clarification Order* explained that although fixed price BMIC contracts are eligible for funding only for work that is actually performed, there is a limited exception for bug fixes, security patches, and online and telephone-based

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<sup>51</sup> See e.g. Education Partners Solutions Comments at 2-3 (requesting clarification that equipment and software that provides virtualized network functions is eligible); FFL Comments at 5 (urging the Commission to clarify that operating system software and virtual networking software that provide functionality equivalent to eligible components are eligible); VMWare Reply Comments at 1 (software and hardware that support SDN or NFV should be eligible).

<sup>52</sup> *E-rate Modernization Order*, 29 FCC Rcd at 8917, para. 119.

<sup>53</sup> See *2015 ESL and Order*, 29 FCC Rcd at 13418.

<sup>54</sup> See HP Comments at 2-3 (requesting clarification that SDN applications that replace network hardware are eligible); SECA Reply Comments at 14 (requesting eligibility of SDN and other virtualized options). See *E-rate Modernization Order*, 29 FCC Rcd at 8971, para. 119. Eligibility is limited to the virtualized functionalities of eligible broadband internal connection services and equipment. *Id.* (“limit[ing] internal connections support to those broadband distribution services and equipment needed to deliver broadband to students and library patrons: routers, switches, wireless access points, internal cabling, racks, wireless controller systems, firewall services, uninterruptable power supply, and the software supporting each of these components used to distribute high-speed broadband throughout school buildings and libraries.”).

<sup>55</sup> See HP Comments at 2-3 (explaining that SDN will allow E-rate to fund more applicants at a lower cost); Education Partners Comments at 2 (explaining that SDN and NFV may be the most cost effective, scalable solution for applicants); VMWare Comments at 1 (requesting eligibility for SDN and NFV to allow the most appropriate, scalable, cost effective solutions).

<sup>56</sup> See Education Partners Solutions Comments at 2 (requesting that cloud-based servers be made eligible).

<sup>57</sup> See NYC DOE Comments at 3.

technical assistance.<sup>58</sup> Although the ESL already indicates that bug fixes, security patches, and online and telephone-based technical assistance are eligible BMIC, we add a sentence to the Eligibility Limitations for Basic Maintenance on page 7 of the FY2016 ESL to more closely match the *2010 Clarification Order*.

21. Funds for Learning and SECA request that self-provisioned network monitoring and management functionality for internal connections be identified on the ESL as eligible services.<sup>59</sup> In the *E-rate Modernization Order*, the Commission made managed internal broadband services (MIBS) eligible for internal connections support.<sup>60</sup> The Commission determined that network management and operation services are only E-rate eligible when provided by a third party as part of eligible MIBS.<sup>61</sup> The Commission did not otherwise change the ineligible status of network monitoring and management equipment and software.<sup>62</sup> Applicants seeking support for such services can therefore seek support for such services as MIBS, but cannot seek otherwise seek support for such functionality.

22. We also adopt other minor clarifications and edits proposed in the *ESL Public Notice*. For example, we change references to “Internet access services” to “Internet access” throughout the ESL and we delete the explanation of 800 service.<sup>63</sup>

23. We make no other changes to the ESL for funding year 2016, and we specifically decline to address or consider certain comments requesting that we add services to the list or provide additional clarifications.<sup>64</sup> Several commenters raise E-rate eligibility issues that are beyond the scope of the *ESL Public Notice*, were resolved by the Commission in the *E-rate Modernization Order* and *Second E-rate Modernization Order* and are therefore outside the scope of this proceeding,<sup>65</sup> or are beyond the scope of

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<sup>58</sup> *Id.*; *Schools and Libraries Universal Service Support Mechanism, A National Broadband Plan for Our Future*, CC Docket No. 02-6, GN Docket No. 09-51, Order, 25 FCC Rcd 17324, 17235-17326, paras. 5-6 (2010) (*2010 Clarification Order*).

<sup>59</sup> See FFL Comments at 3-4; SECA Reply Comments at 13.

<sup>60</sup> *E-rate Modernization Order*, 29 FCC Rcd at 8918-19, para. 123.

<sup>61</sup> *Id.* at 8920, para. 128.

<sup>62</sup> See *2014 ESL and Order*, 28 FCC Rcd at 14550, 14555 (network management software, service and equipment are ineligible); *2015 ESL and Order*, 29 FCC Rcd at 13432 (basic maintenance of internal connections does not include network management services, including 24 hour network monitoring).

<sup>63</sup> See, e.g. *ESL Public Notice*, 30 FCC Rcd at 4910. No comments were filed on these proposed edits.

<sup>64</sup> See, e.g., Education Partners Solutions Comments at 3 (requesting that support for DNS and DHCP services be reinstated); ESH Comments at 1 (recommending removal of certain services and additional clarifications to the list of eligible digital transmission services); SHLB Reply Comments at 2 (urging the Commission to not rule out previously eligible services at this time); ESH Comments at 2 (asking the Commission to require applicants that request support for Internet access service of less than 25 Mbps to establish that no faster service is available).

<sup>65</sup> Some commenters sought to revisit the Commission’s determinations regarding data plans and air cards. See AdTec Comments at 1 (reiterating opposition to any limitations on purchases of data plans and air cards for mobile devices); T-Mobile Comments at 3 (seeking to require applicants to include maintenance and security costs when comparing fixed WLAN solutions to data plans and air cards for mobile devices). The Commission has previously stated that applicants must consider the total cost of all components of delivering service. See *Second E-rate Modernization Order*, 29 FCC Rcd at 15601, para. 158. One commenter requested that applicants should be able to consider the likelihood of receiving Category Two support when determining if mobile broadband services are cost effective. T-Mobile Comments at 6. The Commission previously rejected this argument. *Second E-rate Modernization Order*, 29 FCC Rcd at 15601, para. 159.

the Bureau's authority to annually revise the ESL.<sup>66</sup> Due to the complexity of these issues and the limited scope of the ESL proceeding, we do not address these requests at this time.

#### IV. ORDERING CLAUSE

24. ACCORDINGLY, IT IS ORDERED, that pursuant to the authority contained in sections 1 through 4, 254, 303(r), and 403 of the Communications Act of 1934, as amended, 47 U.S.C. §§ 151-154, 254, 303(r), and 403, and sections 0.91 and 54.502 of the Commission's rules, 47 C.F.R. §§ 0.91 and 54.502, this Order IS ADOPTED.

FEDERAL COMMUNICATIONS COMMISSION

Matthew S. DelNero  
Chief  
Wireline Competition Bureau

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<sup>66</sup> See ESH Comments at 2 (requesting that funding of Internet access of less than 25 Mbps should require the applicant to establish that no faster service is available); CRW Consulting Comments at 3, E-rate Central Reply Comments at 1-3, SECA Reply Comments at 2-4 (all requesting that the Commission revisit its prohibition on duplicative services); Education Partner Solutions Comments at 3-4 (requesting that self-provisioned networks should be required to charge a Universal Service Fund (USF) contributions fee, or USF contributions should be waived for Category One services from telecommunications providers).

**APPENDIX A****List of Commenters****Comments and Reply Comments in Response to the  
*ESL Public Notice*****WC Docket No. 13-184****Commenters**

1. ADS Advanced Data Services, Inc.
2. AdTec
3. CRW Consulting
4. EducationSuperHighway (ESH)
5. Education Partner Solutions, Inc.
6. E-Rate Provider Services, LLC.
7. Funds for Learning, LLC (FFL)
8. Hewlett-Packard Company (HP)
9. Illinois Department of Central Management Services (Illinois)
10. New York City Department of Education (NYC DOE)
11. T-Mobile USA, Inc. (T-Mobile)
12. Unite Private Networks

**Reply Commenters**

1. ADS Advanced Data Services, Inc.
2. ESH
3. E-Rate Central
4. Exebridge, Inc.
5. Friday Institute for Educational Innovation, North Carolina State University (Friday Institute)
6. Hazel Reyes
7. North Carolina Department of Public Instruction (NC DPI)
8. Schools, Health & Libraries Broadband Coalition (SHLB)
9. State E-rate Coordinators' Alliance (SECA)
10. United States Telecom Association (USTelecom)
11. VMWare, Inc.

**APPENDIX B**

**Eligible Services List for Funding Year 2016**

**Schools and Libraries Universal Service Support Mechanism – Eligible Services List**

(WC Docket No. 13-184)

The Federal Communications Commission's (FCC's) rules provide that all services that are eligible to receive discounts under the Schools and Libraries Universal Service Support Mechanism (otherwise known as the E-rate program or "E-rate") are listed in this Eligible Services List (ESL). The E-rate program is administered by the Universal Service Administrative Company (USAC). Eligible schools and libraries may seek E-rate support for eligible Category One telecommunications services, telecommunications, and Internet access and Category Two internal connections, basic maintenance, and managed internal broadband services as identified herein. 47 C.F.R. §§ 54.5, 54.500, and 54.502(a).

Additional guidance from USAC about the E-rate application process and about eligible services, including a glossary of terms, is available at USAC's website at <http://www.usac.org/sl/>. The documents on USAC's website are not incorporated by reference into the ESL and do not bind the Commission. Thus, they will not be used to determine whether a service or product is eligible. Applicants and service providers are free to refer to those documents, but just for informal guidance. This ESL, dated [[Month XX, 2015]], implements changes adopted in the *E-rate Modernization Order* (FCC 14-99) and in the *Second E-rate Modernization Order* (FCC 14-189), and therefore represents a change from prior funding years. This ESL applies to funding requests for Funding Year 2016.

**Category One**

The first category of supported services, Category One, includes the services needed to support broadband connectivity to schools and libraries. Eligible Category One services are listed in the entries for data transmission services and Internet access and voice services. This category consists of the services that provide broadband to eligible locations including data links that connect multiple points, services used to connect eligible locations to the Internet, and services that provide basic conduit access to the Internet. With the exception of dark fiber and self-provisioned broadband networks, maintenance and technical support appropriate to maintain reliable operation are only eligible for support when provided as a component of these services. Voice services, as described below, are subject to a phase down of support beginning in Funding Year (FY) 2015.

**Data transmission services and Internet access**

Digital transmission services and Internet access are eligible in Category One. These services include:

- Asynchronous Transfer Mode (ATM)
- Broadband over Power Lines
- Cable Modem
- Digital Subscriber Line (DSL)
- DS-1 (T-1), DS-3 (T-3), and Fractional T-1 or T-3
- Ethernet
- Integrated Services Digital Network (ISDN)
- Leased Lit Fiber
- Dark Fiber
- Self-Provisioned Broadband Networks
- Frame Relay
- Multi-Protocol Label Switching (MPLS)
- OC-1, OC-3, OC-12, OC-n
- Satellite Service
- Switched Multimegabit Data Service
- Telephone dial-up
- Wireless services (e.g., microwave)

*Notes:* (1) E-rate support is available for leased lit fiber, dark fiber, and self-provisioned broadband networks as described in the *Second E-rate Modernization Order* (FCC 14-189). Eligible costs include monthly charges, special construction, installation and activation charges, modulating electronics and other equipment necessary to make a Category One broadband service functional (“Network Equipment”), and maintenance and operation charges. Network Equipment and maintenance and operation costs for existing networks are eligible. All equipment and services, including maintenance and operation, must be competitively bid.

(2) Applicants that seek bids for special construction of dark fiber or self-provisioned broadband networks must also seek bids for lit fiber service and fully consider all responsive bids.

(3) Applicants may seek special construction funding for the upfront, non-recurring costs for the deployment of new or upgraded facilities. The eligible components of special construction are construction of network facilities, design and engineering, and project management.

(4) Staff salaries and labor costs for personnel of the applicant or underlying beneficiary are not E-rate eligible.

**Eligible voice services.**

Eligible voice services are subject to an annual 20 percentage point phase down of E-rate support beginning in FY 2015, as described in the *E-rate Modernization Order*. For FY 2016, the effective reduced discount rate will be 40 percentage points. The reduced discount rate for voice services will apply to all applicants and all costs for the provision of telephone services and circuit capacity dedicated to providing voice services including:

- Centrex
- Integrated Services Digital Network (ISDN)
- Interconnected voice over Internet protocol (VoIP)
- Local, long distance, and 800 (toll-free) service
- Plain old telephone service (POTS)
- Radio loop
- Satellite telephone service
- Shared telephone service (only the portion of the shared services relating to the eligible use and location may receive discounts)
- Wireless telephone service including cellular voice and excluding data and text messaging

**Eligibility explanations for certain Category One services:**

**Internet access** – Eligible Internet access may include features such as basic firewall protection, domain name service, and dynamic host configuration when these features are provided as a standard component of a vendor’s Internet access service. Firewall protection that is provided by a vendor other than the Internet access provider or priced out separately will be considered a Category Two internal connections component. Examples of items that are ineligible components of Internet access include applications, content, e-mail, and end-user devices and equipment such as computers, laptops, and tablets.

**Wireless services and wireless Internet access** – As clarified in the *Second E-rate Modernization Order*, data plans and air cards for mobile devices are eligible only in instances when the school or library seeking support demonstrates that the individual data plans are the most cost-effective option for providing internal broadband access for mobile devices at schools and libraries. Applicants should compare the cost of data plans or air cards for mobile devices to the total cost of all components necessary to deliver connectivity to the end user device, including the cost of Internet access and data transmission service to the school or library. Seeking support for data plans or air cards for mobile devices for use in a school or library with an existing broadband connection and wireless local area network implicates the E-rate program’s prohibition on requests for duplicative services.

Off-campus use, even if used for an educational purpose, is ineligible for support and must be cost allocated out of any funding request.

Managed internal broadband services, such as managed Wi-Fi, are eligible only for Category Two support.

## Category Two

The second category of equipment and services eligible for E-rate support, Category Two, includes the internal connections needed for broadband connectivity within schools and libraries. Support is limited to the internal connections necessary to bring broadband into, and provide it throughout, schools and libraries. These are broadband connections used for educational purposes within, between, or among instructional buildings that comprise a school campus or library branch, and basic maintenance of these connections, as well as services that manage and operate owned or leased broadband internal connections (e.g., managed internal broadband services or managed Wi-Fi). Category Two support is subject to per-school or per-library budgets as set forth in the *E-rate Modernization Order* and *Second E-rate Modernization Order*. The eligible components and services in Category Two are:

### **Eligible Broadband Internal Connections**

- Access points used in a local area network (LAN) or wireless local area network (WLAN) environment (such as wireless access points)
- Antennas, cabling, connectors, and related components used for internal broadband connections
- Caching
- Firewall services and components separate from basic firewall protection provided as a standard component of a vendor's Internet access service.
- Switches
- Routers
- Racks
- Uninterruptible Power Supply (UPS)/Battery Backup
- Wireless controller systems
- Software supporting the components on this list used to distribute high-speed broadband throughout school buildings and libraries

*Notes:* (1) Functionalities listed above that can be virtualized in the cloud, and equipment that combines eligible functionalities, like routing and switching, are also eligible.

(2) A manufacturer's multi-year warranty for a period up to three years that is provided as an integral part of an eligible component, without a separately identifiable cost, may be included in the cost of the component.

(3) Caching is defined as a method that stores recently accessed information. Caching stores information locally so that the information is accessible more quickly than if transmitted across a network from a distance. A caching service or equipment that provides caching, including servers necessary for the provision of caching, is eligible for funding.

**Eligible Managed Internal Broadband Services**

- Services provided by a third party for the operation, management, and monitoring of eligible broadband internal connections are eligible managed internal broadband services (e.g., managed Wi-Fi).
- E-rate support is limited to eligible expenses or portions of expenses that directly support and are necessary for the broadband connectivity within schools and libraries. Eligible expenses include the management and operation of the LAN/WLAN, including installation, activation and initial configuration of eligible components, and on-site training on the use of eligible equipment.
- In some eligible managed services models, the third party manager owns and installs the equipment and school and library applicants lease the equipment as part of the managed services contract. In other cases, the school or library may own the equipment, but have a third party manage it for them.

**Basic Maintenance of Eligible Broadband Internal Connections**

E-rate support is available for basic maintenance and technical support appropriate to maintain reliable operation when provided for eligible broadband internal connections.

The following basic maintenance services are eligible:

- Repair and upkeep of eligible hardware
- Wire and cable maintenance
- Configuration changes
- Basic technical support including online and telephone based technical support
- Software upgrades and patches including bug fixes and security patches

**Eligibility limitations for Category Two:**

**Eligibility limitations for managed internal broadband services** - The equipment eligible for support as part of a managed internal broadband service may include only equipment listed as a broadband internal connections component above. Upfront charges that are part of a managed service contract are eligible for E-rate support except to the extent that the upfront charges are for any ineligible internal connections (e.g., servers other than those that are necessary to provide caching) which, if included in the contract, must be cost allocated out of any funding request.

**Eligibility limitations for basic maintenance** – Basic maintenance is eligible for support only if it is a component of a maintenance agreement or contract for eligible broadband internal connections. The agreement or contract must specifically identify the eligible internal connections covered, including product name, model number, and location. Support for basic maintenance will be paid for the actual work performed under the agreement or contract. Support for bug fixes, security patches, and technical support is not subject to this limitation. Basic maintenance does not include:

- Services that maintain ineligible equipment
- Upfront estimates that cover the full cost of every piece of eligible equipment
- Services that enhance the utility of equipment beyond the transport of information, or diagnostic services in excess of those necessary to maintain the equipment's ability to transport information
- Network management services, including 24-hour network monitoring
- On-site technical support (i.e., contractor duty station at the applicant site) unless applicants present sufficient evidence of cost-effectiveness
- Unbundled warranties

### Miscellaneous

As described below, various miscellaneous services associated with Category One or Category Two are eligible for support. Applicants should request eligible miscellaneous services in the same category as the associated service being obtained or installed.

#### **Fees**

Fees and charges that are a necessary component of an eligible product or service are eligible including:

- Change fees
- Contingency fees are eligible if they are reasonable and a regular business practice of the service provider. Contingency fees will be reimbursed only if the work is performed.
- Freight assurance fees
- Lease or rental fees on eligible equipment
- Per diem and/or travel time costs are eligible only if a contract with a vendor for the eligible product or services specifically provides for these costs
- Shipping charges
- Taxes, surcharges, and other similar, reasonable charges incurred in obtaining an eligible product or service are eligible. This includes customer charges for universal service fees, but does not include additional charges for universal service administration.

#### **Installation, activation, and initial configuration**

Installation, activation, and initial configuration of eligible components are eligible. These services may include:

- Design and engineering costs if these services are provided as an integral component of the installation of the relevant services
- Project management costs if these services are provided as an integral component of the installation of the relevant services
- On-site training is eligible as a part of installation services but only if it is basic instruction on the use of eligible equipment, directly associated with equipment installation, and is part of the contract or agreement for the equipment. Training must occur coincidentally or within a reasonable time after installation.