



# E-Rate Quick Solution Guide

## Overview

Since its inception in 1997, the US federally funded E-Rate program has helped K-12 school classrooms and libraries gain fair and equal access to the Internet, especially in less fortunate school districts. This program has evolved in concert with networking technologies. Originally E-Rate provided funding for dial up voice services. Today E-Rate offers funding for packet based switching, routing and wireless communications products. Specifically products that are broadband, and bandwidth focused are included in the E-Rate program.

Schools are highly dependent on Internet communications as more and more learning applications including G-suite, Microsoft Office 365, and a myriad of other education programs have become cloud based. These cloud based learning platforms are lowering the computing costs for students, as they can use Chromebooks for all of their display and input functions, and have the cloud provide all of the computing, storage, and hosting functions. However, as cloud computing has become the preferred learning platform, students require highly reliable, low latency, multimedia (data, voice, video) communication networks. This drives the need for enterprise class networking products.

To address today's K-12 Internet needs the FCC has defined two E-Rate equipment categories. Category one focuses on campus based broadband technologies (also known as LANs), and category two focuses on wide area Internet edge connection services. Schools need equipment and services from both of these categories. Equipment purchases can be made within each of these categories independent of the other. The main concern is ensuring interoperability which is why industry standards are so important in this market.

### Arista Networks as a Category Two Equipment Provider

Arista Networks, a top tier networking company with over \$5 billion in annual revenue, offers a broad line of LAN equipment including wired switches, Wi-Fi access points, optical interconnects, Ethernet short and long range cables, edge threat management and network operation subscriptions. All of these offerings enable local area networks access to the Internet with best-in-class performance, simplified topologies, and tightly integrated operations management. A majority of these Arista products are compliant with the E-Rate packaging, service and support requirements and are therefore 100% eligible for applying E-Rate funds.

### Arista E-Rate Unique Product Differentiators

Arista believes that all students deserve equal and affordable access to the Internet, especially within underprivileged school communities. Based on this belief, Arista has created E-Rate packages, leveraging enterprise products, where K-12 schools can use the same features as Fortune 500 companies. This ensures a level playing field especially in the areas of Wi-Fi coverage, Wi-Fi performance, Internet security, and Power over Ethernet (PoE) campus switches.

Core to these offerings are category two products that are easy to install, configure and manage. This addresses many of the adoption issues where schools buy higher end products but lack the skill set to leverage their capabilities. Further, many of the routine tasks such as upgrades, security patches, and topology wide protocol changes within Arista products can be automated so technicians are not required to work over the weekend. These capabilities are all part of Arista's core Extensible Operating System (EOS), Arista's cognitive distributed Wi-Fi architecture and Arista's CloudVision operations platform. These core software technologies are baked into Arista switches and Wi-Fi access points.

### Schools in mid E-Rate Spending Cycles

E-Rate funds work on 5 year cycles with yearly projects where schools issue RFPs (470 forms) based on their needs for that year. Each year new RFPs are written where schools can make upgrade decisions or different vendor choices independent of previous years. It is therefore very important for schools to choose products based upon standards and proven interoperability as this gives them flexibility to make better choices from year to year.

Arista prides itself on open standards where switches, routers, Wi-Fi access points, cables and optics support industry standards. What this means for schools is that they can choose to upgrade classrooms, or their library, or their common meeting areas, with Arista Wi-Fi 6 and Wi-Fi 6E access points. These access points fully interoperate with wired PoE switch infrastructure from third party vendors. Further, schools can decide to upgrade their wired switching infrastructure based on the need for higher capacity uplinks, including 5 or 10 Gbps port speeds, yet keep their current classroom Wi-Fi access points in place. Schools could easily install Arista 710, 720, or 722 PoE switches with full interoperability.

The bottom line is that schools have more choices with RFPs that adhere to industry standards.



## Arista E-Rate Product Offerings

### Arista Wi-Fi Access Points

Arista’s Wi-Fi 6 and Wi-Fi 6E Access Points seamlessly plug into wired PoE (Power over Ethernet) switch ports and are easy to configure from the cloud, without the need for trained technicians on site, as they all support Zero Touch Provisioning. Further, Arista’s access points auto calibrate and re-tune their operating power and channel when needed for such cases as new neighboring access points that are contending for the same channels, or the school has moved the classroom furniture around and the RF signals need to be re-calibrated.

Diagnostics is also simple as Arista offers a graphical user interface that traces problems, and identifies root cause with very few false positives. These diagnostics leverage Arista’s patent pending built in artificial intelligence for better predicting outage and security conditions.

Arista access points offer contact tracing records, where administrators can easily determine by time of day and location, anyone (any device) connected to an Arista access point. This is useful for security, forensics, and location tracking. This feature, P-tracer, leverages Arista built in location intelligence.

Arista offers a full line of both indoor and outdoor Wi-Fi 6 and Wi-Fi 6E access points. Access points include multi-function radio, and include BLE (Bluetooth Low Energy). Where extended coverage is needed, schools can select units where external antennas can be attached.

### Key K-12 Schools, Wi-Fi Features

E-Rate K-12 WiFi Features	Arista Product Offerings
<b>Cleaner, wider, clearer radio channels</b>	Wi-Fi 6E
<b>Auto tuning and recalibration</b>	Standard feature with AP's
<b>Auto configure of newly added AP's</b>	Standard feature with AP's
<b>Contact tracing and location tracking</b>	Standard feature with AP's
<b>QOS mgmt for student/teacher application bandwidth prioritizations</b>	Standard feature with AP's
<b>Dynamic PoE compatibility with switches</b>	Standard feature between AP's & switches
<b>Indoor/Outdoor AP Product Line</b>	Arista has both indoor/outdoor AP's with same software infrastructure

### Arista Fixed PoE Ethernet Switches

Arista’s award winning Extensible Operating System (EOS®) runs in all of Arista switches. EOS is self healing, can be upgraded without any downtime, and provides real time telemetry for proactive alerting based on traffic forwarding issues. This ensures that students have a high quality network, and one that they can depend on for any Internet based learning activities. Further, Arista offers Power over Ethernet within all fixed chassis E-Rate packaged switches.

For classrooms and building locations, where there are no wiring closets, limited cooling, or the need for a quiet environment (libraries) Arista offers a fanless, 12 and 16 port fully managed PoE switch, known as the CCS-710P compact series. This switch has flexible mounting options, including a magnetic mount where it can be easily attached to a filing cabinet or other metal substrates. This switch includes 10 Gbps uplinks for use cases where video broadcasting is being extensively used.

For larger schools, with many 100 Mbps legacy wired devices Arista offers the CCS-720 PoE campus switch with port densities up to 96 ports. Customers can leverage this switch for scaling out their topologies with interfaces that support up to 100 Gbps. This switch includes Arista’s Dynamic Power Management technology for supporting the latest PoE standards more efficiently with load sharing and allocation features. This reduces energy costs.

For schools that require mid size switching form factors Arista offers the CCS-722 PoE switch, with up to 48 ports. This switch also works with legacy 100 Mbps wire rates and can scale out with up to 8, 25 Gbps connections. This switch includes MACsec 256 bit encryption for best in class in-transit secure packet forwarding. Schools should consider this dataplane broadband feature when needing to ensure data privacy in areas where the network is exposed.

### Key K-12 Schools, Ethernet Switching Features

E-Rate K-12 WiFi Features	Arista Product Offerings
<b>Cognitive Power over Ethernet</b>	720XP 2RU and Modular 750 class switches
<b>Versatile 1RU and 2RU PoE switch for classroom connectivity</b>	Fixed, scalable 10 Mbps to 100 Gbps wire rate switches with POE
<b>Common operating system for simplified administration</b>	Extensible Operating System (EOS)
<b>Zero downtime when installing security patches</b>	EOS
<b>Tightly secure segmentation for protecting school, and staff from malicious behaviors</b>	Arista Macro Segmentation Services
<b>Hot swappable power supplies and fans for minimizing network downtime</b>	Standard feature across majority of switches
<b>Simplified, graphically driven operation management dashboards</b>	Arista CloudVision®

### Operations Management

Schools networks, like all other networks where reliability, and rapid time to restoration are imperative require operations management insights. Arista offers a cloud subscription service, known as CloudVision Cognitive Unified Edge (CV-CUE), where schools have secure network discovery, identity, inventory, RF auto-tuning, RF auto channel selection, sticky client remediation, provisioning, and root cause analytics on Arista wired and wireless infrastructures. This subscription service is included with the purchase of Arista access points, including those with E-Rate SKU's. There is a small per switch license fee when using Arista PoE switches.

### Key K-12 Operations Management Features

E-Rate K-12 WiFi Features	Arista Product Offerings
<b>Integrated wired/wireless management</b>	CloudVision Cognitive Unified Edge
<b>Root cause analytics</b>	Cognitive Unified Edge CloudVision
<b>Cloud subscription and on-premises services</b>	Cognitive Unified Edge CloudVision
<b>Simplified licensing and pricing</b>	Single SKU for all Wi-Fi features
<b>Zero Trust Security</b>	MSS-G, ACL's, Multi-protocol virtual LANs
<b>Simple configuration and provisioning</b>	Hierarchical configuration management in Cloudvision CUE
<b>Easy troubleshooting</b>	Dynamic Packet Capture, Live Client Debug, Client connectivity dashboard, client performance dashboard, App QoE dashboard, Auto Root Cause analysis for poor QoE, etc

## Edge Threat Management

Edge Threat Management is a key component of Arista Cognitive Unified Edge (CUE). The Edge Threat Management product offerings are hardware or software based, and enable schools to accelerate new services and technology innovations by consolidating multiple security and networking functions into an “edge as a service” cloud-managed solution.

Both the NG Firewall and Micro Edge components of the Edge Threat Management solution offer web filtering, web monitoring and application control. These management and control features can ensure that students are only able to get to age appropriate content whilst on the campus network and also that students focus on their work during school hours.

## Arista E-Rate Data Sheets

Wi-Fi Access Points Comparison Guide/Data Sheet:

<https://www.arista.com/assets/data/pdf/Datasheets/AP-Comparison-Matrix-Datasheet-WiFi6.pdf>

### Indoor Access Points Datasheets:

Arista C-360: <https://www.arista.com/assets/data/pdf/Datasheets/Arista-C-360-Datasheet.pdf>

Arista C-330: <https://www.arista.com/assets/data/pdf/Datasheets/Arista-C-330-Datasheet.pdf>

Arista W-318: <https://www.arista.com/assets/data/pdf/Datasheets/Arista-W-318-Datasheet.pdf>

Arista 260: <https://www.arista.com/assets/data/pdf/Datasheets/Arista-C-260-Datasheet.pdf>

Arista 230: <https://www.arista.com/assets/data/pdf/Datasheets/Arista-C-230-Datasheet.pdf>

Arista 200: <https://www.arista.com/assets/data/pdf/Datasheets/Arista-C-200-Datasheet.pdf>

## Arista Product and Solution Guides

Arista Cloud Networking Product Portfolio: <https://www.arista.com/assets/data/pdf/AristaProductQuickReferenceGuide.pdf>

Arista Product Overview: <https://www.arista.com/en/products>

Arista Switch Platforms Overview: <https://www.arista.com/en/products/platforms>

Arista WiFi Product Overview: <https://www.arista.com/en/products/cognitive-wifi>

### Outdoor Access Points Data Sheets

O-235: <https://www.arista.com/assets/data/pdf/Datasheets/Arista-O235-Datasheet.pdf>

O-235E: <https://www.arista.com/assets/data/pdf/Datasheets/Arista-O235E-Datasheet.pdf>

### Arista Power over Ethernet Switches Data Sheets

Arista CCS-710P Data Sheet: <https://www.arista.com/assets/data/pdf/Datasheets/CCS-710P-Datasheet.pdf>

Arista CCS-720XP Data Sheet: <https://www.arista.com/assets/data/pdf/Datasheets/CCS-720XP-Datasheet.pdf>

Arista CCS-722 Data Sheet: <https://www.arista.com/assets/data/pdf/Datasheets/CCS-722XP-Datasheet.pdf>

### Edge Threat Management Data Sheets:

<https://edge.arista.com/ng-firewall/resources/datasheets/>

Arista Edge Threat Management Overview: <https://www.arista.com/en/solutions/security/edge-threat-management>

E-Rate Funding For Arista Edge Threat Management Offerings: <https://edge.arista.com/e-rate-funding/>

Arista Cognitive Campus (In building networks) White Paper: <https://www.arista.com/assets/data/pdf/Whitepapers/Cognitive-Campus-WP.pdf>

