Before the
Federal Communications Commission
Washington, DC 20554

In the Matter of	)
	)
Establishing Emergency Connectivity Fund	) WC Docket No. 21-93
to Close the Homework Gap	)
	)

COMMENTS OF
ARK MULTICASTING, INC

I.   INTRODUCTION

ARK Multicasting, Inc. ("ARK") is one of the largest Low Power TV operators in the United

States. It manages 283 licenses and construction permits covering approximately 100 million people

(one-third of the US population) across 40 states with a strong presence outside of major metropolitan

areas. ARK concentrates on providing services to rural America in second and third tier markets, the

very areas that are most in need of Distance Learning. ARK is a pioneer in developing Broadcast

Internet with a handful of firsts in testing and developing ATSC 3.0 in conjunction with Microsoft's

Airband Initiative and major vendors.[1] ARK's technology utilizes a hybrid network architecture that

combines broadcast television spectrum for wide area, high speed downloads using third party existing

wireless networks for uploads. This creative combination of complementary technology platforms for

upstream and downstream content is ideally suited to enhance today's limited options in rural America

with high-speed broadband that is tailor made for distance learning, and provides an avenue to deliver

distance learning content to students who have no Internet at all.

---

[1] See "Initial Comments of ARK Multicasting, Inc.," MB Docket No. 20-145, at 10.

The centerpiece to ARK's distance learning service is a simple and inexpensive network interface device operating as an ATSC 3.0 "modem," edge caching server and router. This device is placed at the network level within the home. It is designed to receive distance learning files over an IP multicasting broadcast feed through a small RF antenna into an ATSC 3.0 receiver. The network interface devices decodes and stores those files for retrieval and usage on personal computing devices such as laptops, tablets or other mobile devices. The initial set up of the device only requires the student to specify a school district, school, grade and teachers so as not to cache unnecessary content. The device can be delivered by mail or private courier and is easily installed with plug and play instructions.

II.   THE PUBLIC NOTICE IS FOCUSED ON TRADITIONAL UNICAST NETWORK INFRASTRUCTURE AND IGNORES BROADCAST DATACASTING AS A SOLUTION

As a threshold matter, the public notice is too narrowly focused on existing unicast broadband networks while ignoring numerous states and school districts utilizing datacasting made possible by ATSC 1.0 and increasingly ATSC 3.0. South Carolina Educational Television (SCETV)[2], Indiana Public Broadcasting Stations (IPBS)[3] and Pennsylvania PBS[4] have all implemented datacasting services to close the digital divide during the COVID-19 pandemic. In fact, these datacasting initiatives reach the most vulnerable students caught in the homework gap – the 658,000 households across the United States where Internet access is never available for educational purposes.[5]

The Public Notice does not appear to contemplate a use case for datacasting despite its adoption by a variety of states and school districts. This is evidenced by the apparently conclusion that "a connected device supported through the Emergency Connectivity Fund be able to support video

---

[2] https://www.scetv.org/education/services-school-districts/datacasting
[3] https://ipbs.org/datacasting/
[4] https://pennsylvaniapbs.org/learning-at-home/datacasting/
[5] https://www2.census.gov/programs-surveys/demo/tables/hhp/2020/wk21/educ3_week21.xlsx

conferencing platforms and other software necessary to ensure full participation in remote learning activities."[6] While ARK takes no position on the system requirements for a connected device to be eligible for funding, we do not believe that video conferencing is an appropriate litmus test for what constitutes remote learning. Datacasting has the same ability to deliver homework assignments, classroom instructional videos and reading materials to students as any internet service provider, but it has the added benefit of being able to provide these key services to students unserved by existing unicast broadband networks. As a result, datacasting is an important distance learning solution for students in areas without any internet access or providers.

Indeed, the Public Notice issued by the Commission is only focused on closing the homework gap by increasing broadband adoption and not on the homework gap created by lack of broadband access. The Commission tentatively concludes that "the construction of new networks is not supported by the statutory text enumerating eligible equipment in section 7402 of the American Rescue Plan."[7]This is an appropriate conclusion as Congress has provided other funding mechanisms to support broadband infrastructure deployment. However, datacasting enables school districts to reach students in unserved households by simply providing the types of end user equipment contemplated in the American Rescue Plan – a network interface device that is effectively a modem utilizing an ATSC tuner and antenna to receive an IP data stream. A data stream which is then decoded and locally cached for retrieval by the student via a Wi-Fi connected computer or tablet, similar to a router.

Because the data stream is transmitted by licensed television broadcasters using existing facilities, no financial support for new network buildout is required, but students without any traditional

---

[6] Public Notice at 7-8
[7] Ibid at 7

internet access at all can still engage in remote learning. LPTV broadcasters, like ARK, also have

unique ability to deploy higher bandwidth ATSC 3.0 broadcast internet services in unserved areas in as

fast as 60-90 days. This deployment is further accelerated by the Commission's recent adoption of

distributed transmission systems (DTS) which allows LPTV to build ATSC 3.0 in a manner that

prioritizes transmission nodes in areas around schools and in neighborhoods as ARK is currently

deploying for the Dallas Independent School District.[8] Finally, ARK – and likely public broadcast

stations – plan to offer broadcast internet remote learning datacasting services to entire school districts,

for the pendency of the COVID-19 public health emergency, free of monthly subscription fees. The only

E-rate funding necessary to spur the deployment of this innovative solution is support for purchase of

customer premises equipment (CPE) by school districts for students.

III.   DATACASTING INHERENTLY SOLVES IMPORTANT ISSUES RAISED IN THE PUBLIC NOTICE

The Commission also tackles important questions about minimum service standards and data

thresholds necessary to support remote learning. The Commission is rightly concerned about multiple

students in a household straining the bandwidth of unicast networks and data caps limiting students'

ability to participate in online learning when data allowances are exhausted. The one-to-many

architecture of broadcasting effectively eliminates these concerns when datacasting is used for remote

learning. Distributing the same large files to entire school districts in an efficient manner is the hallmark

of datacasting.

When datacasting is utilized for remote learning, bandwidth is not constrained by additional

students in a household. Educational materials from all grade levels at all schools in a school district are

---

[8] See Report and Order: Rules Governing the Use of Distributed Transmission System Technologies MB 20-74 at 31

delivered to the caching device at the household, there are no competing bandwidth demands. And because the learning materials are broadcast to the entire footprint of a broadcaster, anyone with the appropriate equipment can receive the learning materials. Data caps are not an issue. Additionally, the location of the student is also irrelevant. An ATSC receiver and antenna can receive remote learning data anywhere inside the broadcasters' footprint and can be easily moved and used in different locations.

The Commission also seeks comment on how to maximize the limited funding provided by the American Rescue Plan in light of studies suggesting that between $6 to $12 billion in funding is needed to provide connectivity and connected devices to all students and teachers who currently lack sufficient broadband access and/or devices to fully engage in remote learning. In contrast, the unicast architecture of traditional ISPs ensures that delivery costs for remote learning compounds with each added student, even if the content delivered to each pupil is largely identical. This is where the multicast architecture datacasting really shines. The same remote learning content that is delivered by traditional ISPs can be broadcast to an entire school district without any incremental increase in cost. To that end, since datacasting does not require "category one" E-rate support, it should be exempt from any definition of "advanced telecommunications and information services" that requires upstream and downstream speed benchmarks. However, because an ATSC receiver and antenna can receive an IP data stream, similar to a modem, and some solutions like ARK's can cache that data for specific individual users, like a router, it is extremely similar to existing "category two" equipment and should be eligible for funding under the definitions in Section 7402 of the American Rescue Plan.

IV.   CONCLUSION

ARK Multicasting strongly supports the efforts to close the homework gap and stands ready to serve all of its communities with distance learning assistance free of charge for the pendency of the

COVID-19 public health emergency. Such an effort is consistent with our public service obligation as a broadcaster and essential to ensuring the wellbeing of the communities we serve. As the Commission contemplates how to narrow the homework gap laid bare by COVID-19, LPTV broadcasters like ARK encourage the Commission to consider the one-to-many architecture of broadcast internet as a cost-effective and complementary solution that offers distance learning to the greatest number of students for the lowest price, particularly in rural areas.

Respectfully submitted,

_____/s/_____

Josh Weiss
Chief Executive Officer
ARK Multicasting, Inc

John Simpson
Capitol Resources LLC
Consultant to ARK Multicasting, Inc.