

# COVINGTON

BEIJING BRUSSELS DUBAI FRANKFURT JOHANNESBURG  
LONDON LOS ANGELES NEW YORK PALO ALTO  
SAN FRANCISCO SEOUL SHANGHAI WASHINGTON

Covington & Burling LLP  
One CityCenter  
850 Tenth Street, NW  
Washington, DC 20001-4956  
T +1 202 662 6000

June 5, 2019

Ms. Marlene H. Dortch  
Secretary  
Federal Communications Commission  
445 12th Street, S.W.  
Washington, D.C. 20554

## **Re: Written ex parte presentation, WT Docket No. 19-116**

Dear Ms. Dortch:

Ligado Networks LLC (“Ligado”) commends the Commission on issuing the Notice of Proposed Rulemaking (“NPRM”) to reallocate the 1675-1680 MHz band to shared use with Federal and commercial users. Ligado supports the NPRM’s proposal to establish a “content delivery system”<sup>1</sup> to distribute the information to the approximately 100 or fewer non-Government entities that are not licensed to receive the 1675-1680 MHz signal from NOAA but nonetheless have been listening in on the band. Some commercial interests and educational institutions have “expressed significant concern with anticipated reliance on a content delivery network, noting it will not be able to provide the latency and availability required for many federal and non-federal users of GOES DCS and GOES Rebroadcast (GRB) systems.”<sup>2</sup> This letter is being submitted to rebut this dubious charge.

In 2016, Ligado proposed that in addition to establishing protection zones for the NOAA Earth-station receivers in the band, that the NOAA data could be delivered to these recipients who are listening in on the band via a cloud- and fiber-based content delivery system (“CDS”).<sup>3</sup> To prove the efficacy of this proposal, that summer Ligado purchased a GVAR/GRB satellite

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<sup>1</sup> Allocation and Service Rules for the 1675-1680 MHz Band, NPRM and Order, WT Docket No. 119-116, at ¶¶ 19-20 (rel. May 13, 2019) (“1675-1680 NPRM”).

<sup>2</sup> Letter from Users and Stakeholders of Weather and Water Information Technology to Marlene S. Dortch, Secretary, Federal Communications Commission, GN 19-116; RM-11681, at 2 (May 2, 2019) (“Weather Stakeholders *ex parte*”).

<sup>3</sup> See Reply Comments of Ligado Networks LLC, RM-11681 at 23-26 (Aug. 11, 2016). Note that previously Ligado had called such system a content delivery network, or “CDN.” We use “CDS” here as that is the term the Commission used in the 1675-1680 NPRM, but mean the same network.

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receiver and dish system similar to those used by those entities that are listening in on the 1675-1680 MHz band, and developed a CDS, using an established cloud service provider, to deliver NOAA's weather data through the cloud via fiber optic links.<sup>4</sup> The process of obtaining and installing the satellite dish was expensive and time consuming. As Ligado detailed in August 2016, the total cost of equipment and installation, not including construction and related expenses, was \$123,661. The dish itself is 14.8 feet in diameter, and requires 250 square feet of open space.<sup>5</sup>

The CDS launched in early 2017, and has been delivering a substantial amount of data to George Mason University in a timely and highly reliable manner since then. The success of the CDS was such that the University of Oklahoma now accesses this system to obtain weather data. The CDS is highly reliable. Ligado has submitted detailed evidence of this into the record,<sup>6</sup> and has demonstrated the CDS' performance to the American Meteorological Society and others. Despite this evidence, the claims made by the group led by AccuWeather and Microcom Design continue. In their recent submission, this group contended that NOAA's current broadcast has "an availability over 99.988% over a 30-day period, which is not commercially available from cloud and internet providers across the U.S. where existing users rely on the GRB system for real-time information."<sup>7</sup>

That claim is not accurate. As demonstrated in a March 1, 2017 filing, numerous national telecommunications providers offer internet service with comparable or superior availability. These include: AT&T's Dedicated Internet Access, which guarantees its customers with service level agreements ("SLAs") 100 percent service availability; Comcast's Ethernet Dedicated Internet service, which guarantees >99.9 percent availability for SLA customers; and Windstream's Ethernet Internet, which promises 99.99 percent uptime to SLA customers.<sup>8</sup> The market is full of other examples.

The claim on latency is equally groundless. As demonstrated in the March 1, 2017 submission on this issue, a well-designed CDS that picks up the NOAA feed at the uplink facility actually could *save* at least 500 milliseconds in delivering this information to those entities who have been using a satellite dish to listen in on the band.<sup>9</sup> This time advantage is because rather

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<sup>4</sup> *Id.*

<sup>5</sup> *Id.* at Attachment D, Declaration of Maqbool Aliani at ¶¶ 4-5.

<sup>6</sup> See Letter from Gerard J. Waldron, counsel, Ligado Networks, to Marlene S. Dortch, Secretary, Federal Communications Commission, RM-11681; IB Docket No. 11-109; IBFS File Nos. SES-MOD-20151231-00981, SAT-MOD-20151231-00090, SAT-MOD-20151231-00091 (Mar. 1, 2017) ("March 2017 *ex parte*").

<sup>7</sup> Weather Stakeholders *ex parte* at 2.

<sup>8</sup> March 2017 *ex parte* at 6-7. These services all still exist today.

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

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than having to wait for the NOAA data to be uplinked to the space station providing GOES-R and then sent via the downlink to a ground station, a CDS that connects to the NOAA system at the uplink facility could immediately transmit the data directly to a widely distributed set of servers.<sup>10</sup> Consequently, the asserted concerns of latency and availability both lack merit.

In 2019, it is plainly obvious that content delivery systems are widely used in every sector of commercial and government activity to deliver highly valuable information in a timely and reliable manner. They are deeply embedded in a variety of important and vital activities, from governmental entities, to financial institutions, to streaming video providers. Of particular interest to the commercial interests and educational institutions may be the case of the Met Office, based in the UK, which delivers weather services to the public, government, military and businesses throughout the UK and globally. It relies on Akamai's content delivery network to delivery its services to users, including its warnings of extreme weather.<sup>11</sup> The U.S. Army and Air Force are also Akamai customers, both using the company's CDS service to support mission critical systems that need to be accessed by service members in remote locations.<sup>12</sup> NASA used Amazon CloudFront to support a live stream from the International Space Station<sup>13</sup> and Amazon Web Services for its dynamic Image and Video Library.<sup>14</sup>

The ongoing resistance of those entities who have been listening in on this band to a 21st century solution of a CDS lacks a reasonable basis. Ligado looks forward to these interests responding to the Commission's request for "specific comment on the factors that contribute to the lower reliability for an Internet-based or other terrestrial system."<sup>15</sup> The company remains willing to review these issues with any of the entities that have been listening in on this band to demonstrate the CDS' capabilities with the NOAA data, and address their specific concerns.

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

<sup>11</sup> Akamai, Our Customers: Met Office, <https://www.akamai.com/us/en/our-customers/customer-stories-the-met-office.jsp>.

<sup>12</sup> Akamai, Our Customers: U.S. Air Force, <https://www.akamai.com/us/en/our-customers/customer-stories-us-air-force.jsp>; Akamai, Our Customers: U.S. Army, <https://www.akamai.com/us/en/our-customers/customer-stories-us-army.jsp>.

<sup>13</sup> NASA's First-Ever 4K Livestream from Space Recording, <https://live.awsevents.com/nasa4k>.

<sup>14</sup> AWS Case Study: NASA, <https://aws.amazon.com/solutions/case-studies/nasa-image-library/>.

<sup>15</sup> 1675-1680 NPRM at ¶ 20.

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Respectfully submitted,

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Gerard J. Waldron  
Matthew S. DelNero  
Hannah Lepow

*Counsel for Ligado Networks  
LLC*