



December 10, 2020

Ms. Vanessa Countryman  
Secretary  
U.S. Securities and Exchange Commission  
100 F Street NE  
Washington DC 20549-1090

Re: The Nasdaq Carteret Data Center Roof and Concerns of Fair Market Access (File No. 4-729)

Dear Ms. Countryman:

McKay Brothers LLC (“McKay”) and its affiliate Quincy Data LLC (“Quincy”) (collectively, the “Firm”)<sup>1</sup> write to bring your attention to certain anti-competitive and unfairly discriminatory practices relating to wireless connectivity to The Nasdaq Stock Market LLC and its affiliate exchanges (collectively “Nasdaq”) via the roof of the data center in Carteret, NJ, where Nasdaq’s trading engines operate. This rooftop connection can also be used to access the Nasdaq Fixed Income alternative trading system (“ATS”), a key source of liquidity for U.S. Treasury Securities, and is therefore also relevant in the Commission’s consideration of enhanced disclosures and fair access rules for ATSS that trade government securities.<sup>2</sup>

As detailed below, Nasdaq currently offers very similar wireless connectivity (*i.e.*, bandwidth) and market data services (collectively the “Nasdaq Wireless Services”) as those offered by New York Stock Exchange LLC (“NYSE”) that were subject of a recently approved rule filing.<sup>3</sup> Similar to NYSE’s services prior to the rule filing, the Nasdaq Wireless Services enjoy an exclusive geographic latency advantage in connecting to the exchange and raise precisely the same concerns of unfair discrimination and inappropriate burdens on competition under the Securities Exchange Act of 1934 (“Exchange Act”).<sup>4</sup> It also appears that Nasdaq’s service provider, Apsara Networks (“Apsara”) has begun offering its own wireless connectivity service using the rooftop connection, suggesting an undisclosed shift in Nasdaq’s oft-stated policy of exclusive use of the roof for Nasdaq services.

Accordingly, we respectfully urge the Commission to consider requiring Nasdaq to: (i) submit proposed rule changes with respect to Nasdaq’s bandwidth services, (ii) eliminate latency advantages in exchange connectivity arising from Nasdaq’s direct or indirect control of its data center (including with respect to the Nasdaq Wireless Services), and (iii) clarify its policy with respect to access to the roof of its Carteret data center. We believe that merely opening Nasdaq’s roof to other wireless service providers is insufficient to properly address market access regulatory

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<sup>1</sup> Quincy is a market data distributor that provides equal access to low latency US futures, equities, and treasuries market data that help subscribers make tighter markets. McKay is a telecommunications service provider, affiliated with Quincy and using various technologies – often wireless – to offer low-latency data transport services, which likewise allow subscribers to manage risk more effectively and make tighter markets. We offer services on a level-playing field basis—meaning we make our best latencies available to all subscribers. We also provide small firm discounts to support greater diversity of market participants with access to low latency market data.

<sup>2</sup> Securities Exchange Act Release No. [90019](#) (Sept. 28, 2020) (Federal Register citation pending).

<sup>3</sup> Securities Exchange Act Release No. [90209](#), 85 FR 67044 (Oct. 21, 2020).

<sup>4</sup> 15 U.S.C. 78f(b)(5) and (8).

concerns and that transparency and affirmative latency neutralization obligations, such as Rule 603(b) adopted under the Commission’s Market Data Infrastructure rules, are necessary to ensure compliance with the Exchange Act.<sup>5</sup>

The heart of the issue is whether an exchange can use its direct or indirect control over its data center to provide a latency advantage to its services or those of a select vendor(s). In adopting Regulation NMS, the Commission acknowledged that “[o]ne of the primary effects of the Order Protection Rule adopted today will be to promote much greater speed of execution in the market for exchange-listed stocks.”<sup>6</sup> The resulting market structure and advances in technology have placed a premium on the speed of receiving and acting upon market data such that even a decade ago the Commission acknowledged that even a microsecond can be a meaningful advantage.<sup>7</sup> Today, latency differentials can be measured and are meaningful at a scale of 0.01 microseconds (10 nanoseconds).<sup>8</sup> It is therefore critical that connectivity to exchanges be afforded the protections of the Exchange Act that promote competition and prevent unfair discrimination and that market participants have transparency regarding how the inner-workings of an exchange’s data center may be designed to their advantage or disadvantage.

## I. Background

On June 25, 2019, Virtu Financial Inc. (“Virtu”) submitted a letter raising concerns of unfair competition arising from plans by NYSE to install wireless equipment on the roof of its data center in Mahwah, NJ, for use by its wireless connectivity and market data services (the “NYSE wireless services”).<sup>9</sup> Had NYSE installed this equipment on its roof, the NYSE wireless services would have established an insurmountable geographic latency advantage in connecting to NYSE—even greater than the advantage the services already enjoyed through the exclusive use of a private pole on the premises of its data center that is approximately 700 feet closer to NYSE’s systems than the

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<sup>5</sup> Securities Exchange Act Release No. [90610](#) at (Dec. 9, 2020) (Federal Register citation pending) (“Rule 603(b) requires that the exchanges provide their NMS information, including all data necessary to generate consolidated market data, in the same manner and using the same methods as such exchange provides any information to any person . . . Further, Rule 603(a) prohibits an SRO from making NMS information available to any person on a more timely basis (i.e., by any time increment that could be measured by the SRO) than it makes such data available to competing consolidators and self-aggregators.”). We note that Rule 603(b) is not a panacea for selective latency advantages in exchange connectivity, would not address current violations of Exchange Act requirements that may exist with respect to the Nasdaq Wireless Services, and may face legal challenges prior to its final implementation. Therefore, compliance with Rule 603(b) at some future date cannot be relied upon to address these concerns.

<sup>6</sup> Exchange Act Release No. [51808](#), 70 FR 37495, 37519 (June 29, 2005).

<sup>7</sup> Exchange Act Release No. [61358](#), 75 FR 3593, 3610 (Jan. 21, 2010) (“Concept Release on Equity Market Structure”) (“[s]peed matters both in the absolute sense of achieving very small latencies and in the relative sense of being faster than competitors, even if only by a microsecond.”).

<sup>8</sup> For example, data centers cater to market participant or exchange demands for cross-connects to/from different cabinets equalized to within a meter (and for some applications to within one-foot). Information travels through one meter of traditional fiber in approximately 5 nanoseconds, so an added tolerance of one additional meter yields +/- approximately 5 nanoseconds, yielding a range of 10 nanoseconds or 0.01 microseconds.

<sup>9</sup> Letter from Thomas M. Merritt, Deputy General Counsel, Virtu, to Brett Redfearn, Director, Division of Trading and Markets, SEC, re: NYSE Mahwah Roof (June 25, 2019) (“Virtu Letter”), <https://www.sec.gov/comments/4-729/4729-5880550-188760.pdf>.

closest commercial pole (the “NYSE Private Pole”). We write to express essentially the same concerns with respect to Nasdaq as those raised by Virtu concerning NYSE.<sup>10</sup>

Approximately six months after Virtu’s letter, NYSE submitted a proposed rule change to bring the NYSE wireless services under NYSE’s rules based on the Commission’s view that the services constitute facilities of NYSE.<sup>11</sup> In response to concerns raised by commenters, NYSE amended its proposal three times, ultimately committing to equalize the length of the fiber connection of its wireless services to the NYSE Private Pole relative to the closest commercial pole, including adjustments to compensate for any over-the-air latency advantage.<sup>12</sup> On October 15, 2020, the Commission approved the Wireless Services as facilities of NYSE.<sup>13</sup>

## II. The Nasdaq Wireless Services and Recent Enhancements to the Rooftop Connection

As noted, Nasdaq currently offers market data products via its exclusive rooftop connection as well as wireless connectivity (bandwidth) services. Nasdaq wireless market data are offered pursuant to a 2013 approved rule filing.<sup>14</sup> Notwithstanding commenter concerns of potential unfair competition,<sup>15</sup> the Commission approved Nasdaq’s proposal primarily based on Nasdaq’s representations that Nasdaq: (i) did not have exclusive control over the roof of its Carteret datacenter; (ii) would not have enough space on the roof to accommodate all those who sought to place wireless equipment there; and (iii) was subject to significant competition in the provision of

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<sup>10</sup> This is not the first mention of concerns relating to Nasdaq’s exclusive use of its rooftop for wireless services. *See e.g.*, Letter from Ellen Greene, Managing Director, Securities Industry and Financial Markets Association (SIFMA), to Vanessa Countryman, Secretary, Commission, re: SR-NYSE-2020-05 and SR-NYSE-2020-11, at n.11 (Sept. 2, 2020) (asking that the Commission “revisit the decision to allow Nasdaq to be the only wireless provider on its rooftop at its Carteret data center” in SR-NASDAQ-2012-119 and noting that “[a]s market participants have become more familiar with wireless technology, there is a greater understanding of the latency advantages associated with being closer to a matching engine.”). *See also* Virtu Letter at 3-4.

<sup>11</sup> *See e.g.*, Securities Exchange Act Release Nos. [88168](#), 85 FR 8938 (Feb. 18, 2020) (SR-NYSE-2020-05) [88237](#) 85 FR 10752 (Feb. 25, 2020) (SR-NYSE-2020-11). NYSE also appeared to abandon its plans to install equipment on the roof of its data center.

<sup>12</sup> *See* Letters from Jim Considine, Chief Financial Officer, McKay, to Vanessa Countryman, Secretary, Commission re: File No. SR-NYSE-2020-05 dated March 10, 2020 (“[McKay Letter I](#)”), June 12, 2020 (“[McKay Letter II](#)”), August 28, 2020 (“[McKay Letter III](#)”), and September 21, 2020 (“[McKay Letter IV](#)”).

<sup>13</sup> Exchange Act Release No. [90209](#), 85 FR 67044 (Oct. 21, 2020). Despite amending its proposal three times and obtaining Commission approval, NYSE and its affiliates have recently petitioned for judicial review of the Commission’s order. *See Petition of Intercontinental Exchange et al. v. SEC*, Case No. 20-1470 (D.C. Cir.) (Nov. 25, 2020).

<sup>14</sup> Exchange Act Release No. [68735](#), 78 FR 6842 (Jan. 31, 2013) (SR-NASDAQ-2012-119).

<sup>15</sup> *See* Letter from Anthony Nuland, Partner, Seward & Kissel LLP as counsel for Quincy, to Elizabeth M. Murphy, Secretary, Commission, re: SR-NASDAQ-2012-119 (Jan. 17, 2013), <https://www.sec.gov/comments/sr-nasdaq-2012-119/nasdaq2012119-1.pdf>.

wireless market data.<sup>16</sup> As explained in Part V below, these rationales appear to be incorrect or otherwise do not address regulatory concerns under the Exchange Act.<sup>17</sup>

Nasdaq also offers bandwidth services, known as Nasdaq’s “Wireless Express Connect,” without any approved rule filing, including with respect to the fees for such services.<sup>18</sup> In its marketing materials relating to the Wireless Express Connect service, Nasdaq reiterates its policy that the rooftop connection is solely for use by Nasdaq because there is not enough space to accommodate all market participants that might want to place equipment there.<sup>19</sup>

In April 2020, six new wireless radio antennas (“dishes”) were installed on the rooftop connection, quadrupling its capacity from two to eight total dishes. A telecom cabinet was also installed. As there has been no rule filing submitted in connection with these installations, it is unclear what the purpose of this new equipment is.

Finally, the Firm understands from certain market participants that, according to Nasdaq, the roof will be opened to all market participants in the near future. There does not appear to be any public or formal announcement related to this apparent policy shift. As described in Part VI below, merely opening the roof is insufficient to address Exchange Act concerns relating to fair and equal connectivity to Nasdaq without, at a minimum, assurances of equal length fiber routes into the data center from the roof for all service providers and market participants with proprietary connections.

### III. Parallels between NYSE and Nasdaq’s Wireless Services

The Nasdaq Wireless Services closely parallel the NYSE wireless services that were deemed to be a facility of NYSE. Specifically, the wireless services of each exchange share the following characteristics:

- Provide connectivity and market data to/from third party exchange data centers;
- Use another entity or operator to facilitate the services – ICE Data Services and Anova Financial Networks in the case of NYSE and Apsara in the case of Nasdaq;
- Have an exclusive geographic latency advantage, although we presume that NYSE’s advantage has been mitigated pursuant to the recently approved rule filings.<sup>20</sup>

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<sup>16</sup> Letter from Jeffrey S. Davis, Vice President & Deputy General Counsel, Nasdaq, to Elizabeth M. Murphy, Secretary, Commission, re: SR-NYSE-2012-119, at 2-4 (Jan. 24, 2013) (“Nasdaq 2013 Letter”), <https://www.sec.gov/comments/sr-nasdaq-2012-119/nasdaq2012119-2.pdf>.

<sup>17</sup> See *infra* note 26-31 and accompanying text.

<sup>18</sup> Nasdaq, New Jersey Wireless Express Connectivity – Wireless Express Connect Frequently Asked Questions (Apr. 2, 2020), [https://www.nasdaq.com/docs/2020/04/02/0181-Q20%20NJ%20Wireless%20Connectivity\\_GTMS\\_v2\\_0.pdf](https://www.nasdaq.com/docs/2020/04/02/0181-Q20%20NJ%20Wireless%20Connectivity_GTMS_v2_0.pdf) (“Wireless Express Connect FAQ”); Nasdaq, New Jersey Wireless Express Connect (Apr. 3, 2020), [https://www.nasdaq.com/docs/2020/04/03/0181-Q20%20NJ%20Wireless%20Express%20Site%20Updated\\_v2.pdf](https://www.nasdaq.com/docs/2020/04/03/0181-Q20%20NJ%20Wireless%20Express%20Site%20Updated_v2.pdf).

<sup>19</sup> Wireless Express Connect FAQ at 4 (“No, we [Nasdaq] do not have the space, height, and necessary local approvals to satisfy fair and equal treatment for all requested client dishes on the data center roof.”).

<sup>20</sup> See *supra* note 13. The public, however, has no way to verify NYSE’s compliance, underscoring the need for transparency in exchange connectivity.

Nasdaq explicitly markets the Wireless Express Connect as a Nasdaq offering, uses the Nasdaq logo, instructs subscribers to sign up for bandwidth services using Nasdaq’s customer portal, uses Nasdaq’s colocation support team for service issues, and bills fees for the bandwidth services as part of Nasdaq’s monthly co-location services invoice.<sup>21</sup>

Thus, Nasdaq’s Wireless Express Connect bears all the hallmarks of a facility of Nasdaq.<sup>22</sup> Specifically, the bandwidth services use the premises and property of Nasdaq—*i.e.*, Nasdaq’s leasehold interest in the Carteret data center and Nasdaq’s property rights in the services through its agreement with its service provider Apsara—for the purpose of effecting or reporting a transaction. The bandwidth services also use Nasdaq’s intangible property (*i.e.*, the Nasdaq trademark) in marketing and disclosure materials and Nasdaq staff for operational support and billing. Consequently, it is unclear why the Wireless Express Connect service and associated fees have not been the subject of a rule filing by Nasdaq.

#### **IV. Nasdaq’s Service Provider Apsara Is Now Offering Its Own Wireless Services Using the Rooftop Connection**

It has also recently come to the attention of several market participants, including the Firm, that the service provider operating Nasdaq’s Wireless Services, Apsara, is offering its own, independent wireless connectivity services using the rooftop connection with capacity for only a small number (believed to be between three and eight) market participants.<sup>23</sup>

If other market participants and/or service providers are now allowed to connect via the roof of the Carteret data center, this would constitute an unannounced change in Nasdaq’s stated policy that roof access is exclusively for Nasdaq services. Moreover, allowing Apsara to offer proprietary wireless connectivity services via the roof would appear to be *prima facie* unfair discrimination against the Nasdaq members who do not have the opportunity to avail themselves of a high bandwidth connection via the roof (either directly or through their service providers).

#### **V. Exchange Act Concerns Regarding Nasdaq’s Rooftop Connection and Control of the Carteret Data Center**

We believe the Nasdaq Wireless Services raise the same concerns of unfair discrimination and inappropriate burdens on competition as NYSE’s wireless services, should be viewed as facilities of Nasdaq, and the Wireless Express Connect service should be subject to the exchange

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<sup>21</sup> Wireless Express Connect FAQ at 2-3.

<sup>22</sup> Section 3(a)(2) of the Exchange Act defines the term “facility” as follows:

“The term ‘facility’ when used with respect to an exchange includes [1] its premises, [2] tangible or intangible property whether on the premises or not, [3] any right to the use of such premises or property or any service thereof for the purpose of effecting or reporting a transaction on an exchange (including, among other things, any system of communication to or from the exchange, by ticker or otherwise, maintained by or with the consent of the exchange), and [4] any right of the exchange to the use of any property or service.” 15 U.S.C. 78c(a)(2).”

<sup>23</sup> We understand that the Apsara offering has a high bandwidth (*e.g.*, 1000 Mb or 1 Gb) as opposed to the Wireless Express Connect, which only offers 50 Mb connections. This makes the offering attractive as higher bandwidth connections allow more information to travel through them at a given rate of time.

rule filing process.<sup>24</sup> Like NYSE, any latency or other advantage afforded to the Nasdaq Wireless Services, to Apsara, or to any other market participant or service provider that arises from Nasdaq's direct or indirect control over its data center should be either eliminated or justified under the Exchange Act.

The discussion below briefly highlights the Exchange Act concerns raised by Nasdaq's use of the rooftop connection and dispels arguments used by Nasdaq to whitewash its use of the rooftop connection under applicable Exchange Act requirements.

*Unfair Discrimination and Burdens on Competition Not Necessary or Appropriate in Furtherance of the Purposes of the Exchange Act*

Market Participants that choose not to use Nasdaq's service are unfairly discriminated against because they have a slower means of connectivity to Nasdaq for sending orders and receiving market data. That any market participant is free to switch to Nasdaq's service does not render Nasdaq's latency advantage free from unfair discrimination. Where an exchange provides an exchange service to its members that competes with other providers of that service, the question of unfair discrimination has two prongs of application: (i) among users of that exchange service; and (ii) between users of that exchange service and users of other available providers of the service. Thus, while all users of the Nasdaq Wireless Services may be treated equally, the users of competing providers' services are not treated equally relative to users of the Nasdaq Wireless Services regarding the means of access to connect to Nasdaq's systems. Additionally, Apsara's use of the rooftop connection for its high-bandwidth, proprietary service unfairly discriminates against Nasdaq members who cannot obtain such a favored offering because of its limited capacity and the absence of any other service providers allowed to connect via the roof.

With respect to competition, Nasdaq has used its direct or indirect control over its data center to provide its Wireless Services (and those of its vendor Apsara) with an advantage over other wireless service providers (and in turn the customers of such other wireless service providers). If not constrained by the requirements of the Exchange Act, Nasdaq will ultimately win any race to a third party data center because Nasdaq directly or indirectly controls its data center and competitors have no ability to replicate a head start (or shorter finish) provided at Nasdaq's data center.

The anticompetitive concerns at issue are real. As we have previously stated, it took the Firm six years following the 2013 approval of Nasdaq's rooftop connection to create a network capable of competing with Nasdaq's latency advantaged service.<sup>25</sup> Nasdaq's latency subsidy for its service has very likely also chilled competition from other would-be wireless service providers.

*Equal Treatment of Exchanges*

The Commission and the public also have an interest in treating exchanges similarly with respect to similar activity. There is no evident reason why NYSE's wireless services should be

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<sup>24</sup> We note that the market data products offered via the rooftop connection are already considered a facility of Nasdaq per Nasdaq's 2013 rule filing. *See supra* note 14.

<sup>25</sup> *See* McKay Letter II at 5-6.



considered a facility and NYSE's latency advantage neutralized without subjecting the Nasdaq Wireless Services to the same requirements.

*Avoiding Scrutiny under the Exchange Act*

Nasdaq's wireless market data products were approved in 2013 based on representations that have proved incorrect. First, Nasdaq disclaimed having exclusive control over its roof. In 2013, Nasdaq stated that the lessor of the facility (formerly Verizon and now Equinix Inc. ("Equinix")) "retains the rights to the rooftop that would enable it to approve a wireless carrier to place equipment on the Carteret rooftop" and that Nasdaq's approval would only be necessary "for fiber optic connectivity to NASDAQ's telco connectivity room within the Carteret building."<sup>26</sup> In apparent contradiction, Nasdaq has more recently suggested that it, rather than Equinix, controls access to the roof of the Carteret data center.<sup>27</sup>

Several market participants, including the Firm, have tried on multiple occasions to place their own wireless equipment on the roof of the Carteret data center to no avail. Equinix has each time informed the Firm that it would be thrilled to allow others to place equipment on the roof, but is contractually restricted from doing so. Indeed, it would be in Equinix's financial interest to allow as many market participants on the Carteret roof as possible, as it does at the Secaucus, NJ, data center which houses Cboe Global Markets Inc.'s trading engines and at many other financial exchange data centers worldwide.

Second, Nasdaq has claimed that there is not sufficient space on the roof to facilitate all market participants that might want to place equipment there. This apparent lack of space is not an issue with respect to other data centers operated by Equinix where rooftop space is made widely available to market participants and has proven sufficient to meet demand. Further, if Equinix actually controlled access to the roof as Nasdaq previously claimed, it would seem to be within Equinix's purview, rather than Nasdaq's, to determine whether or not there is sufficient space. The reality is simply that it is Nasdaq's policy not to allow others to place wireless equipment on its roof, as Nasdaq has publicly indicated, and exercises sufficient direct or indirect control over the roof to effectuate this policy.

Third, Nasdaq has suggested that the existence of other wireless service vendors that compete with the Nasdaq Wireless Services indicates that no competitive burden is imposed by its rooftop connection.<sup>28</sup> Nasdaq has also sought to distract from the latency advantage arising from its use of the roof by emphasizing that the "largest portion of network latency can be found in the total distance of the network path," suggesting that the initial (final) leg out of (into) the data center should not matter.<sup>29</sup> Evidence of competition is not evidence of fair competition, and it bears explaining why Nasdaq's services merit a head start in an environment where latencies of 10

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<sup>26</sup> Nasdaq 2013 Letter at 2. Additionally, in noting that Nasdaq does not have "exclusive" control over the roof, Nasdaq necessarily acknowledges that it exercises at least *some* control over the roof. The relevant question then is to what extent Nasdaq's control effectively provides it with *de facto* control over access to the roof.

<sup>27</sup> *See supra* note 19.

<sup>28</sup> *See e.g.*, Nasdaq 2013 Letter at 2 ("A competitive network provides the same or similar data, at the same or similar speed, at the same or similar cost, and NASDAQ's proposal does nothing to inhibit or constrain this.").

<sup>29</sup> *Id.* at 3.

nanoseconds (0.01 microseconds) are material (and will be increasingly so as technology continues to improve).<sup>30</sup> Nasdaq’s 2013 estimate of a “.5 to 2 microsecond” latency advantage of its rooftop connection over competing towers outside the Carteret data center warrants reconsideration and justification under the Exchange Act.<sup>31</sup>

Finally, with respect to the Wireless Express Connect service, Nasdaq appears to take the position that a rule filing is not required for such bandwidth services because they do not connect directly to Nasdaq’s systems.<sup>32</sup> NYSE attempted similar faulty arguments regarding its wireless services—essentially arguing that because information sent via the wireless connections from a third party data center must first go through a customer’s cabinet via a cross connect, the low latency service is not actually a connection to the exchange and consequently cannot be considered a facility of the exchange.<sup>33</sup>

This is an untenable position. As a threshold matter, Nasdaq has acknowledged that the use of the rooftop connection for distributing market data (*i.e.*, reporting a transaction) to third party data centers is a facility (per its 2013 rule filing). However, Nasdaq appears to believe that the use of the very same network to transmit orders from third party data centers (*i.e.*, effecting a transaction) is not a facility. Nasdaq possesses contractual rights to the use of Apsara’s equipment on the roof and Apsara’s network to third party data centers for the purpose of allowing Wireless Express Connect subscribers to send orders to Nasdaq (and transmit market data from Nasdaq), which falls squarely within a plain reading of the definition of a facility. Moreover, the border between Nasdaq’s facilities and the outside world cannot reasonably rest at the location of the customer cabinet within its data center, particularly when Nasdaq controls all of the space (and cabling) between customer cabinets and its rooftop connection.

*Nasdaq’s Rooftop Policy Is a “Rule” That Must Be Subject to Exchange Act Rule Filing Requirements*

Nasdaq’s policy with respect to its roof—whatever it may be presently or may soon be—constitutes a material “stated policy, practice, or interpretation” and therefore a rule of Nasdaq, subject to exchange rule filing requirements.<sup>34</sup>

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<sup>30</sup> See *supra* notes 7-8 and accompanying text.

<sup>31</sup> Nasdaq 2013 Letter at 3 (“... a competing vendor’s fiber optic trip from the telco room where data emanates from the execution system to a nearby wireless tower, which range in distance from 100 to 400 meters from the data center, adds .5 to 2 microseconds of latency.”).

<sup>32</sup> Nasdaq states that the Wireless Express Connect “is not a connection to the exchange trading network” and is instead “strictly a connection between our data center in Carteret, NJ and other popular data centers” through which one can “transmit orders, data, and other system messages over this dedicated connection from one location to another” and “with no monitoring of the information by the exchange.” Wireless Express Connect FAQ at 3.

<sup>33</sup> Letter from Elizabeth K. King, Chief Regulatory Officer ICE, General Counsel and Corporate Secretary, NYSE, to Vanessa Countryman, Secretary, Commission re: SR-NYSE-2020-05 and SR-NYSE-2020-11, at 13-14 (May 8, 2020), <https://www.sec.gov/comments/sr-nyse-2020-05/smyse202005-7168807-216593.pdf>.

<sup>34</sup> 17 CFR 242.19b-4(a)(6). Pursuant to Rule 19b-4(a)(6), a “stated policy, practice, or interpretation” includes “[a]ny material aspect of the operation of the facilities” of the exchange and “[a]ny statement made generally available to the membership of, to all participants in, or to persons having or seeking access . . . to facilities of, the [exchange]



Market participants have an interest in knowing Nasdaq’s policy regarding wireless connectivity to the exchange via the roof of the Carteret data center and whether and how it may be changing. Specifically, market participants should be able to know, among other things: (i) whether they can place equipment on the roof; (ii) what they must do to place equipment on the roof; (iii) what the latency of their rooftop connection would be relative to any other market participants on the roof or otherwise; and (iv) the path within the Nasdaq-controlled space in the data center that fiber connections from the roof must take. Access to this information must be uniform and fair without preferred parties learning of material changes in connectivity policies ahead of others.

## **VI. Merely Opening the Data Center Roof to Other Market Participants Is Insufficient to Address Exchange Act Concerns**

Merely opening the roof to more market participants would not fully address the issues and concerns about unfairly discriminatory access to Nasdaq and undue burdens on competition. Specifically, opening the roof to more market participants would not change the opportunity to create latency advantages and disadvantages via the cabling inside the data center. There are additional concerns regarding fair and open access to frequencies for wireless service providers on the roof as well.<sup>35</sup> Nasdaq can, in effect, use its direct and indirect control over its data center and other influence to determine who is able to operate on its roof efficiently. At a minimum, market participants should have transparency regarding the fiber routes within the building and policies regarding the use of any “meet me” rooms (or exemptions for certain providers) or other aspects of the internal routing that may impact their latency.

Ultimately, we believe that no market participant or wireless service provider should be afforded a structural advantage arising from an exchange’s direct or indirect control over its data center. Adopting such a level playing field policy over exchange facilities would reduce or eliminate anti-competitive practices and improve market participants’ choice in wireless services. We applaud the Commission’s adoption of Rule 603(b) as part of its Market Data Infrastructure reforms, which will help promote a level playing field by requiring latency neutralization in respect of the distribution of market data.<sup>36</sup>

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(‘specified persons’), or to a group or category of specified persons, that establishes or changes any standard, limit, or guideline with respect to: the rights, obligations, or privileges of specified persons . . . .” *Id.*

<sup>35</sup> There are at least two such examples. First, no tenant of the on-premises wireless tower at Carteret is allowed to utilize the E-band millimeter wave radio frequency spectrum—an attractive and commonly used high capacity frequency in low latency wireless services—with the singular exception of Apsara, presumably in connection with their status as Nasdaq’s preferred provider. Second, the mere act of allowing Apsara the right to construct millimeter wave radio frequency links from the Nasdaq roof grants Apsara another form of exclusivity by operation of law. Federal Communication Commission (“FCC”) requirements generally provide that once a radio frequency is registered and built, the frequency is *de facto* exclusive for the operating party to help avoid interference from others attempting to use the same frequency in that general location. By allowing only Apsara access to construct such links, Nasdaq has effectively reserved the high capacity frequencies for Apsara—meaning that if Nasdaq opens the roof to other providers and market participants, there is still an effective advantage granted to Nasdaq’s preferred provider by being constructed first in time. Competing wireless services will be unable to leverage these common frequencies otherwise made available through open market competition.

<sup>36</sup> However, we note that latency neutralization should extend to every leg of market data distribution over which an exchange exercises direct or indirect control. See Letter from Jim Considine, Chief Financial Officer, McKay, to



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Thank you for the opportunity to contribute to this important, ongoing discussion of concerns relating to market access and market data. Please contact us with any questions at (312) 948-9188.

Sincerely,

A handwritten signature in black ink, appearing to read 'Jim Considine', is written over a light gray grid background.

Jim Considine  
Chief Financial Officer  
McKay Brothers, LLC

cc: The Hon. Jay Clayton, Chairman  
The Hon. Hester M. Peirce, Commissioner  
The Hon. Elad L. Roisman, Commissioner  
The Hon. Allison Herren Lee, Commissioner  
The Hon. Caroline Crenshaw, Commissioner

Mr. Brett Redfearn, Director, Division of Trading and Markets  
Mr. Christian Sabella, Deputy Director, Division of Trading and Markets  
Mr. David S. Shillman, Associate Director, Division of Trading and Markets  
Mr. John Roeser, Associate Director, Division of Trading and Markets

S.P. Kothari, Director, Division of Economic and Risk Analysis