



June 18, 2024

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

Re: Notice of Filing and Immediate Effectiveness of Proposed Rule Change to Amend the Cabinet Proximity Option Fee to Establish a Reservation Fee for Cabinets with Power Densities Greater Than 10kW (SR-NASDAQ-2024-022; SR-BX-2024-017; SR-ISE-2024-19; SR-GEMX-2024-11; SR-MRX-2024-12)

Dear Ms. Countryman:

McKay Brothers LLC (“**McKay**”) and its affiliate Quincy Data LLC (“**Quincy**”) (collectively, the “**Firm**”)<sup>1</sup> appreciate the opportunity to provide comment on the above referenced rule changes (the “**Rule Changes**”) by The Nasdaq Stock Market LLC (“**Nasdaq**”) and its affiliate exchanges (the “**Exchanges**”).<sup>2</sup> We write to reiterate the need for the Exchanges to file with the Commission proposed rule changes pursuant to Section 19(b) of the Securities Exchange Act of 1934 (the “**Exchange Act**”)<sup>3</sup> and to respond to Nasdaq’s comment letter submitted to the predecessor rule filing (SR-NASDAQ-2024-013), which appears to have been withdrawn.<sup>4</sup> We have included our previous comment letter to the predecessor rule filing as Appendix A.

*A Rule Filing Remains Necessary for NY11-4*

In its comment letter, Nasdaq disputes that NY11-4 is a “new” facility of the Exchanges, and claims that it is instead simply “an expansion of the existing Nasdaq NY11 data center” and that Nasdaq intends to operate NY11-4 “generally in the same manner as existing aspects of NY11.”<sup>5</sup> It is unclear why it matters whether NY11-4 is a new facility of the Exchanges or an

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<sup>1</sup> Quincy is a market data distributor that provides equal access to low latency US equities market data that helps 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> See, e.g., Securities Exchange Act Release No. [100196](#), 89 FR 46199 (May 28, 2024) (SR-NASDAQ-2024-022).

<sup>3</sup> 15 U.S.C. 78s.

<sup>4</sup> See Exchange Act Release No. [99796](#), 89 FR 21088 (March 26, 2024); see also comment file to SR-NASDAQ-2024-013 here: <https://www.sec.gov/comments/sr-nasdaq-2024-013/srnasdaq2024013.htm>. We appreciate the changes by the Exchanges in the Rule Changes as compared to the predecessor rule filings to no longer require that fees be due at the time that a cabinet reservation is made, but rather at such times as cabinets can be converted to powered cabinets.

<sup>5</sup> Letter from Katie Hopkins, Associate General Counsel, Nasdaq, to Vanessa Countryman, Secretary, Commission, dated May 9, 2024, re: SR-NASDAQ-2024-013, at 2, <https://www.sec.gov/comments/sr-nasdaq-2024-013/srnasdaq2024013-470932-1286655.pdf> (the “**Nasdaq Letter**”).

expansion/modification of an existing facility for purposes of determining the Exchanges' statutory obligation to file a proposed rule change with the Commission.

Rather, the question is whether the introduction of NY11-4 represents a change to the Exchanges' rules, which include any stated policies, practices or interpretations (“**SPPI**”) deemed to be a rule by the Commission. An SPPI includes “any material aspect of the operation of the facilities of the self-regulatory organization.”<sup>6</sup> In adopting the definition of an SPPI in Exchange Act Rule 19b-4, the Commission stated that it was “important to make clear to self-regulatory organizations that they must file *all significant regulatory actions* for Commission review” and that “[t]he Commission expects that, in most instances where a self-regulatory organization acts in such a manner as to have a *significant regulatory impact* on persons, the self-regulatory organization will designate the action as a ‘rule.’”<sup>7</sup>

The introduction of NY11-4 is plainly a “material aspect” of the Exchanges' facilities and would have a “significant regulatory impact” on market participants. Specifically, there are at least two forms of differing treatment among market participants with respect to NY11-4: **(i)** Nasdaq has expressly acknowledged that NY11 customers' access to their telecommunications providers (“**telecom providers**”) will be treated differently in NY11-4;<sup>8</sup> and **(ii)** all colocated market participants in NY11 and NY11-4 are treated differently than those connecting to the Exchanges via the rooftop connection exclusively available to Nasdaq's wireless connectivity services (the “**Nasdaq Wireless Services**”).<sup>9</sup> Where an exchange proposes to treat its members differently in connection with the operation of an existing facility, a rule change is necessary to afford market participants a chance to understand such differing treatment, to facilitate Commission oversight, and to ensure the protections of the Exchange Act extend to such modifications to the facility. Five commenters (including a broker-dealer industry group, a non-profit advocacy group, and a market data provider) have also raised concerns and questions regarding how NY11-4 will operate.<sup>10</sup>

It is also unclear why Nasdaq's statement that “it intends to treat telecommunications access to its data center differently in NY11-4 as compared to NY11” does not constitute a SPPI under the second prong of Rule 19b-4(a)(6).<sup>11</sup> Specifically, this is (a) a statement made generally available;

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<sup>6</sup> 17 CFR 240.19b-4(a)(6)(i).

<sup>7</sup> Exchange Act Release No. 17258 (October 30, 1980), 45 FR 73906, 73912 & n.70 (November 7, 1980).

<sup>8</sup> Nasdaq Letter at 2 (“Nasdaq acknowledges that it intends to treat telecommunications access to its data center differently in NY11-4 as compared to NY11.”).

<sup>9</sup> For example, we understand (but cannot be sure in the absence of rule filings) that the rooftop connection for Nasdaq's wireless connectivity is not required to traverse a Nasdaq Intermediate Distribution Frame (“**NIDF**”) for those Nasdaq customers located immediately underneath the antennas inside of NY11. Customers in NY11-4 seeking to connect to those same services available through the rooftop connection must traverse at least 450 meters of additional fiber cabling and go through two additional NIDFs. A NIDF is defined in Nasdaq's NY11-4 technical documentation as “a meshed caged area used for interconnecting Nasdaq co-located clients and approved TNOs [telecommunications network operators].”

<sup>10</sup> See *supra* n.4.

<sup>11</sup> Rule 19b-4(a)(6)(ii) includes as a SPPI “[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 self-regulatory organization (‘specified persons’), or to a group or category of specified persons, that establishes or changes any standard, limit, or guideline with respect to:

(b) to persons having or seeking access to the facilities of the Exchanges (*i.e.*, telecom providers and their clients); (c) that changes a standard, limit, or guideline to; (d) the rights or privileges of such telecom providers and their clients. The Firm is just such a specified person (as are its clients) and seeks to understand how its access to the Exchanges will differ in the new (or this new part of the existing) facility. This circumstance is precisely what the rule filing process is for, meeting both prongs of Rule 19b-4(a)(6).

We are deeply concerned with the ambiguity in Nasdaq’s statement that it intends to operate NY11-4 “generally in the same manner as existing aspects of NY11.” It is unclear what “aspects” of NY11-4 will be “generally” operated in the same manner as NY11. Does this include all aspects, and, if not, to which aspects is Nasdaq referring? The lack of transparency gives many Nasdaq colocation customers, including the Firm, no choice but to replicate their presence (both inside and outside the datacenter) at both NY11 and NY11-4, at considerable cost (including space, power, and connectivity)<sup>12</sup> because it is unclear whether they will have a more or less advantageous connection in NY11-4 as compared to NY11.

All of these concerns can and should be addressed by the Exchanges in rule filings to provide statutorily required transparency. To the extent that the Firm and other commenters’ concerns are unfounded, such rule filings should be straightforward. But, the purpose of the Section 19(b) rule filing process is to provide transparency into these changes and a means by which the Commission and the public can discern whether any such concerns are genuine or unfounded.

#### *Equalization of Nasdaq Space in NY11*

The Firm supports Nasdaq’s representation in the Nasdaq Letter that it is “working on a plan” to equalize connections in its “existing facilities,” referred to by Nasdaq as the “Equalization Project.”<sup>13</sup> Such a project, however, should neither be limited to “connections between client cabinets and telecommunications providers” nor Nasdaq’s “existing” (presumably NY11) facilities. A comprehensive equalization project would strongly support the principles of the Exchange Act.<sup>14</sup>

The Exchanges should set forth a reasonable timeline for implementation of such an equalization project to provide critical information to Nasdaq colocation customers currently considering whether they should reserve space in NY11-4 or remain in NY11. As noted, Nasdaq colocation customers do not have sufficient information to evaluate whether it will be advantageous

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(A) The rights, obligations, or privileges of specified persons . . . ; or

(B) The meaning, administration, or enforcement of an existing rule.” 17 CFR 240.19b-4(a)(6)(ii).

<sup>12</sup> Nasdaq’s NY11-4 technical documentation indicates that reserving a private cage is a *three-year* commitment. Colocation customers should not have to commit to a private cage for three years if they ultimately find that their existing space in NY11 is preferable to NY11-4.

<sup>13</sup> Nasdaq Letter at 2-3 (“While connections between client cabinets and telecommunications providers are not of the same length in our existing facilities, Nasdaq is working on a plan to equalize such connections (‘Equalization Project.’).”).

<sup>14</sup> *E.g.*, 15 U.S.C. 78f(b)(5) and (8).

for them to collocate in NY11-4 relative to their current space in NY11.<sup>15</sup> As a result of this uncertainty, a customer’s incentive is to maintain a presence in both NY11 and NY11-4—at double the cost in fees paid to the Exchanges. If, however, customers could expect the whole campus to be equalized in the near future on a reasonable timeline, they may be assured that the differences between NY11 and NY11-4 are well bounded in time, and can thus more appropriately assess the risk of taking new space (or not).

The New York Stock Exchange LLC (“NYSE”) and its affiliates did not create this issue for market participants when they recently expanded their colocation halls, because they equalized connections throughout their Mahwah datacenter *before* expanding.<sup>16</sup> In contrast, the Exchanges are expanding, thus creating a new tier of access to the Exchanges, *and then* planning to equalize connections at some indeterminate point in the future.

The Exchange should make clear whether they intend to include the rooftop Nasdaq Wireless Services within their equalization efforts (and if not, explain why not). In that regard, we note that the unambiguous conclusion from the D.C. Circuit’s Facility Decision is that wireless services offered or facilitated by an exchange (or an affiliate of an exchange) are facilities of that exchange.<sup>17</sup> Even if the Nasdaq Wireless Services were to have no advantage over other means of accessing the Exchanges, such services would still be facilities of the Exchanges and subject to the Exchanges’ rule filing requirements.<sup>18</sup>

Thank you again for the opportunity to comment on these developments. Please contact us with any questions at (312) 948-9188.

Sincerely,



Jim Considine  
Chief Financial Officer  
McKay Brothers, LLC

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<sup>15</sup> Colocation customers need access to their telecom providers to send messages away from the Exchanges. As a result, a shorter (faster) connection to one’s telecom provider is more advantageous for latency-sensitive customers than a longer (slower) connection. Because connections between customers and their telecom providers are unequal in NY11 (some may be fast and some may be slow), each customer cannot determine whether they would have a more advantageous connection in NY11-4 vs. NY11.

<sup>16</sup> NYSE is planning to add colocation Hall 5 to its Mahwah datacenter in Q4 2024. Ahead of this initiative, NYSE equalized all connections on January 27, 2024—*i.e.*, all connections in its colocation Hall 3 and Hall 4 are already equalized to the furthest point in Hall 5 for both client-to-client and telecom-to-client connections.

<sup>17</sup> See [Intercontinental Exchange, Inc. et al v. SEC](#), No. 20-1470 at 15 (D.C. Cir. 2022) (“**Facility Decision**”) (finding that the statutory definition of a “facility” described NYSE’s wireless bandwidth connection “to a tee”).

<sup>18</sup> Nasdaq states that the Commission conducted an exam in 2020 of Nasdaq’s wireless connectivity services that “concluded in 2021” with no negative findings. See Nasdaq Letter at 3. The D.C. Circuit’s Facility Decision was not decided until January 2022. As a result, it may have been unclear whether such services were facilities of an exchange at the time the Commission concluded its exam. The court has since eliminated such ambiguity.

cc: The Hon. Gary Gensler, Chair  
The Hon. Hester M. Peirce, Commissioner  
The Hon. Caroline A. Crenshaw, Commissioner  
The Hon. Mark T. Uyeda, Commissioner  
The Hon. Jamie Lizárraga, Commissioner

Mr. Haoxiang Zhu, Director, Division of Trading and Markets  
Mr. David Saltiel, Deputy Director, Division of Trading and Markets  
Ms. Andrea Orr, Deputy Director, Division of Trading and Markets  
Mr. David S. Shillman, Associate Director, Division of Trading and Markets  
Mr. Eric Juzenas, Associate Director, Division of Trading and Markets

**APPENDIX A**  
**(Comment Letter to**  
**Predecessor Rule Filing)**



March 22, 2024

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

Re: Notice of Filing and Immediate Effectiveness of Proposed Rule Change to Expand its Cabinet Proximity Option Program (SR-NASDAQ-2024-007; SR-BX-2024-007; SR-ISE-2024-07; SR-GEMX-2024-04; SR-MRX-2024-03; SR-PHLX-2024-06) and Notice of Filing and Immediate Effectiveness of Proposed Rule Change to Amend the Cabinet Proximity Option Fee to Establish a Reservation Fee for Cabinets with Power Densities Greater Than 10kW (SR-NASDAQ-2024-013; SR-BX-2024-010; SR-ISE-2024-13; SR-GEMX-2024-08; SR-MRX-2024-09)

Dear Ms. Countryman:

McKay Brothers LLC (“**McKay**”) and its affiliate Quincy Data LLC (“**Quincy**”) (collectively, the “**Firm**”)<sup>1</sup> appreciate the opportunity to provide comment on the above referenced rule changes (the “**Rule Changes**”) by The Nasdaq Stock Market LLC (“**Nasdaq**”) and its affiliate exchanges (the “**Exchanges**”).<sup>2</sup> The Rule Changes amend the Exchanges’ Cabinet Proximity Option program<sup>3</sup> to offer the program for cabinets with power densities greater than 10 kW and establish fees for such offering.

However, the Exchanges are making a much greater material change to the operations of their facilities than these ostensibly simple changes suggest. The Firm is submitting this letter to provide increased transparency in the public comment file where the Exchanges have not and to request that the Exchanges be required to submit a more comprehensive rule filing subject to a full and transparent process prior to being allowed to proceed with these new commercial offers.

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<sup>1</sup> Quincy is a market data distributor that provides equal access to low latency US equities market data that helps 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> See e.g., Securities Exchange Act Release No. [99633](#), 89 FR 16073 (Mar. 6, 2024) (SR-NASDAQ-2024-007) and Securities Exchange Act Release No. 99796 (Mar. 20, 2024) (Federal Register citation pending) (SR-NASDAQ-2024-013).

<sup>3</sup> As described by the Exchanges, the Cabinet Proximity Option program allows customers to obtain, for a monthly fee, an option for future use on available, unused cabinet space in proximity to the customer’s existing equipment.

Specifically, the Exchanges are constructing a new colocation facility on the north-side of the premises of its datacenter in Carteret, NJ, known as NY11-4.<sup>4</sup> Currently, colocated Exchange members, market data providers (like Quincy), and telecommunications providers (like McKay) are colocated in the Exchanges’ existing colocation facility known as NY11. As the Commission knows—and courts have affirmed—the geographic location of infrastructure on the premises of an exchange’s data center is of critical importance and can give rise to potential unfair discrimination among market participants, burdens on competition, and investor protection concerns, primarily through latency advantages/disadvantages.<sup>5</sup> This is particularly true with respect to the Exchanges, which currently engage in anticompetitive and unfairly discriminatory practices through the provision of wireless connectivity services via the roof of their datacenter that gives such users a geographic latency advantage<sup>6</sup> over other market participants (the “**Nasdaq Wireless Services**”)—as articulated in detail in our previous comment letter and echoed by several other market participants.<sup>7</sup>

As the Commission observed over 14 years ago and reaffirmed on many occasions, “[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> It is for this reason that changes to an exchange’s infrastructure that can impact by many microseconds the relative latencies between and among different market participants need the protections of the Securities Exchange Act of 1934 (“**Exchange Act**”). Consequently, we are deeply concerned that the

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<sup>4</sup> See Appendix A, showing an aerial photograph of Nasdaq’s datacenter and the construction of NY11-4. We note that Nasdaq leases its datacenter from Equinix Inc. (“**Equinix**”), so it is technically Equinix building the new colocation facility on Nasdaq’s behalf to Nasdaq’s specifications.

<sup>5</sup> See, e.g., *Intercontinental Exchange, Inc. et al v. SEC*, No. 20-1470 (D.C. Cir. 2022), [https://www.cadc.uscourts.gov/internet/opinions.nsf/83EBB6E695A3FAE0852587D100546647/\\$file/20-1470-1931643.pdf](https://www.cadc.uscourts.gov/internet/opinions.nsf/83EBB6E695A3FAE0852587D100546647/$file/20-1470-1931643.pdf) (the “**Facility Decision**”); Securities Exchange Act Release No. 90209, 85 FR 67044 (Oct. 21, 2020) (SR-NYSE-2020-05; SR-NYSE-2020-11) (relating to neutralizing the latency advantage of NYSE wireless bandwidth and wireless market data services).

<sup>6</sup> As the Commission has explained, “geographic latency” refers to “the time it takes for data to travel from one physical location to another, which must also take into account that data does not always travel between two locations in a straight line.” Exchange Act Release No. 90610, 86 FR 18596, n.533 (Apr. 9, 2021).

<sup>7</sup> Letters to Vanessa Countryman, Secretary, Commission, from Jim Considine, Chief Financial Officer, McKay Brothers, LLC (Dec. 10, 2020) (“**McKay 2020 Nasdaq Letter**”) <https://www.sec.gov/comments/4-729/4729-8131081-226476.pdf>; Joanna Mallers, Secretary, FIA PTG (Feb. 11, 2021), <https://www.sec.gov/comments/4-729/4729-8369394-229225.pdf>; Gregory Babyak, Global Head of Regulatory Affairs, Bloomberg L.P. (Mar. 1, 2021), <https://www.sec.gov/comments/4-729/4729-8426150-229604.pdf>; and Ari M. Rubenstein, Co-Founder and Chief Executive Officer, GTS Securities LLC (Apr. 27, 2021), <https://www.sec.gov/comments/4-729/4729-8732326-237082.pdf>.

<sup>8</sup> Exchange Act Release No. 61358, 75 FR 3593, 3610 (Jan. 21, 2010). See also, e.g., Securities Exchange Act Release No. 84432, at 42 (Oct. 16, 2018) (noting that today the “largest market participants, typically market makers and large institutional brokers, compete in a market where: (1) competition is largely based upon speed ...”); Facility Decision, *supra* n.5 at 5 (“[M]iniscule fractions of a second — utterly meaningless virtually everywhere else — can make all the difference when it comes to receiving market data and completing a profitable transaction”); Exchange Act Release No. 99679 at 523-524 (March 6, 2024) (Federal Register citation pending) (citing academic study noting that “high frequency trading strategies operate in approximately 5 to 10 microseconds”).

Exchanges have not (and do not intend to) file a proposed rule change with respect to the NY11-4 facility or the Nasdaq Wireless Services, as required under Section 19 of the Exchange Act.<sup>9</sup>

These concerns include:

1. ***Unfair Discrimination and Inappropriate Burdens on Competition*** – Ensuring that there is no unfair discrimination or unnecessary and inappropriate burdens on competition in contravention of Section 6(b)(5) and (8) of the Exchange Act between those choosing to collocate in NY11-4 vs. NY11 or among those who choose to collocate in NY11-4.

In technical materials related to NY11-4, the Exchanges have indicated that there will be latency differences between Exchange member cabinets and telecom provider cabinets relative to similar connections in NY11, which may unfairly discriminate against market participants collocating in NY11. Additionally, the Exchanges have noted that the connectivity and resulting latency between any two customer setups (for example, a service like Quincy attempting to connect with Exchange member cabinets) will be different in the NY11-4 facility relative to the NY11 facility.

2. ***Ensuring Transparency*** – The Exchanges have a statutory obligation to inform market participants through the public rule filing process about the establishment of a material, new component of the Exchanges’ facilities to inform market participant decisions regarding collocation in NY11-4 vs NY11, and provide an opportunity for informed public comment.

As explained below in Part I, the Exchanges have instead given market participants two weeks from price dissemination (until March 15, 2024) to reserve cabinet space in NY11-4 and immediately pay the associated reservation fees (*prior to* any fee filing with the Commission, as explained below) with only limited information about the new collocation facility and insufficient information on latency advantages and disadvantages.

3. ***Assessing Fees Not Yet Filed with the Commission and Inaccurately Describing the Cabinet Proximity Option Program*** – The Exchanges assessed fees for NY11-4 reserved cabinet space due at the time of the reservation—fees that had not yet been filed with the Commission. The Exchanges also inaccurately describe the Cabinet Proximity Option program in the Rule Changes. Specifically, the Rule Changes describe the program as allowing customer to acquire an option on currently “unused cabinets” that can be activated upon customer request. However, the cabinets in NY11-4 will not even be available until at least September 1, 2024.
4. ***Relationship to the Existing Rooftop Connection for Nasdaq Wireless Services*** – It is unclear how the NY11-4 and NY11 connections will operate relative to the Nasdaq Wireless Services, as described in our previous letters and echoed by several commenters. The rooftop connection and Nasdaq’s white-labeled connectivity services (including separate connectivity services offered by the Exchanges’ preferred telecom provider) still have not been filed as facilities of the Exchanges despite an *express* ruling from the D.C. Circuit that the exact same services offered by New York Stock Exchange

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<sup>9</sup> 15 U.S.C. 78s.



LLC (“NYSE”) are facilities of NYSE subject to the rule filing process and Exchange Act protections.

5. **Meet Me Rooms** – Market participants must be provided with the opportunity to understand the functionality of the Exchanges’ new NY11-4 meet-me-room and how it may differ from functionality of meet-me-room(s) supporting NY11. Other exchanges have explained the use of their meet-me-rooms in similar, previous filings.<sup>10</sup>

Accordingly, we ask that the Commission exercise its authority to summarily temporarily suspend the Rule Changes unless and until the Exchanges submit comprehensive rule filings related to NY11-4. We further ask that the Commission require—just as it did with NYSE in 2020<sup>11</sup>—that the Exchanges subject the Nasdaq Wireless Services and their exclusive access to the datacenter roof to the Exchange Act’s requirements, including the rule filing requirements, and either eliminate those services’ unfairly discriminatory and anti competitive latency advantages, or explain to the public why such advantages are consistent with Exchange Act requirements.

In the Rule Changes, the Exchanges draw several comparisons to their offerings as similar to existing NYSE offerings, but cherry-pick for similarities and ignore critical dissimilarities. We believe the Exchanges, the NY11-4 facility, and the Nasdaq Wireless Services should be subject to the same scrutiny brought to bear on NYSE with respect to its colocation facilities and wireless connectivity/market data services. The Exchange Act mandates an open and transparent process for such a significant expansion of the Exchanges’ facilities to ensure compliance with applicable regulatory requirements, facilitate Commission oversight, and promote a level playing field. The D.C. Circuit’s express affirmation of this view in the Facility Decision underscores the need for a comprehensive rule filing on these matters.

## I. The Significance of New NY11-4 as a Facility of the Exchanges

As background, on March 1, 2024, the Exchanges notified members, telecom providers and market data vendors (collectively “clients”) that they would begin accepting reservations for cabinet space in NY11-4, indicating that reservation commitments were due on March 15, 2024, and clients would be billed at the time they submit their reservation requests at fee rates that had not yet been filed with the Commission (discussed further in Part III below). Nasdaq also provided certain preliminary technical specifications along with its invitation to clients to begin reserving space in NY11-4. The Exchanges state that client access to NY11-4 is targeted for August 1, 2024 and client connectivity to NY11-4 is targeted for September 1, 2024.

The introduction of a new colocation facility north of NY11 has a number of direct and indirect implications for market participants that the Exchange Act rule filing process is designed to address. In particular, market participants need to understand whether collocating in NY11-4 will provide any advantage or disadvantage relative to collocating elsewhere in the datacenter and whether all clients collocating in NY11-4 will be treated similarly.

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<sup>10</sup> See, e.g., Exchange Act Release No. [97998](#), 88 FR 50238 (SR-NYSE-2023-27) (discussing the use of meet-me-rooms and certain related fees within NYSE’s datacenter).

<sup>11</sup> See, *supra*, n.5.

*Potential Unfair Discrimination and Inappropriate Burdens on Competition*

In preliminary technical documentation provided by the Exchanges, the Exchanges have indicated that there may be latency advantages between different types of market participants colocating in NY11-4 relative to those colocating in NY11 in at least two respects. First, the Exchanges have indicated that member cabinets within NY11-4 will have equal length cross-connects between each other, but that the length of these member cabinet connections will be different than the length of such connections within NY11. Second, connections from NY11-4 colocated members to their telecom providers will intentionally be of a different length and latency than connections between NY11 colocated members to their telecoms providers.<sup>12</sup>

Today, connections between client cabinets colocated in NY11 are not equalized. The Exchanges have indicated that connections between colocated client cabinets in NY11-4 will be equalized. As a result, it is possible that it may be advantageous for clients colocated in NY11 to remain colocated there to the extent they have favorable length cross-connects in NY11, while those with unfavorable cross-connects in NY11 may find it advantageous to colocate in NY11-4.<sup>13</sup> In addition, the information provided by Nasdaq in its technical documentation provides imprecise, approximate estimates of the lengths of different connections within NY11-4 and notes some of these connection lengths remain “TBD.” Even small differences in the length of these different connections can have a meaningful impact on latency, and in turn, equal market access.<sup>14</sup> It is simply not possible to evaluate the NY11-4 offering with such opacity.

Similarly, to the extent that certain Exchange members have a shorter cross-connect to their telecom providers in NY11 vs NY11-4 (or vice versa), this practice would unfairly discriminate against other market participants (and their customers) and impose an unnecessary and inappropriate burden on competition in contravention of Section 6(b)(5) and (b)(8) of the Exchange Act (absent appropriate justification for such differences by the Exchanges).<sup>15</sup> Slower connections to Exchange-unaffiliated telecom providers would also directly (and unfairly) benefit Nasdaq’s Wireless Services offered through their exclusive rooftop connection.

Nasdaq’s technical documentation for NY11-4 indicates other aspects of the facility for which it is unclear that the Exchanges have existing authority under their approved rules. As just one example, such documentation indicates that the Exchanges have the right to reject any private cage requests in NY11-4, that such cages are subject to a 3-year commitment, and that, in the event a client falls below the minimum power criteria for a cage (100kW) “during or after” its contractual commitment, the Exchanges can reclaim the cage and charge the client a one-time

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<sup>12</sup> In other words, there are two different connection types relevant here: (a) member cabinet to member cabinet, and (b) member cabinet to telecom provider. Each of these two connection types may differ between those in NY11 vs. NY11-4.

<sup>13</sup> For example, today in NY11, if two member cabinets are geographically close to one another, they may have a cross-connect of three feet while member cabinets geographically far from each other may have a cross-connect of 300 feet. In NY11-4, the Exchanges have preliminarily indicated that all cross-connects will be equalized among member cabinet. Thus, colocating in NY11-4 may be disadvantageous for the members with 3 feet cross-connects in NY11 but advantageous for those with 300 foot cross-connects in NY11.

<sup>14</sup> See *supra* n.8 and accompanying text.

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

fee of \$15,000.<sup>16</sup> It is unclear where this \$15,000 fee resides on Nasdaq’s fee schedule or on what basis the Exchanges may determine to reject a request by a client for a private cage in the NY11-4 facility.

*Geographic Advantages of NY11-4 Relative to Other Exchanges*

In addition, NY11-4’s location on the north side of the NY11 datacenter campus is closer to exchange datacenters in Mahwah (NYSE) and Secaucus (Cboe/IEX). As a result, NY11-4’s location has implications for market participants establishing infrastructure adjacent to the datacenter campus to interconnect these markets. For example, a new telecommunications pole placed in the public right of way on the north side of the datacenter campus may be a more attractive point of entry to the Exchanges’ facilities than the existing poles directly east of the campus. Given the Exchanges’ insufficient level of disclosure, neither trading firms nor service providers know if information traveling to/from the other exchanges (located north of the Exchanges) will reach cabinets in NY11-4 faster or slower than cabinets in NY11.<sup>17</sup>

Market participants have an interest in understanding these material aspects of the new colocation facility and the implications for their structure and latency differentials. The introduction of NY11-4 will trigger a new race for real estate adjacent to NY11-4 for telecommunications equipment providing connectivity to these other exchanges. Given this foreseeable impact, it is of even greater importance that the Exchanges subject NY11-4 to the rule filing process.

*Nasdaq’s NY11-4 Information Dissemination Process Risks Bestowing a Long-term Latency Advantage*

The Exchange Act rule filing process can and should reduce information asymmetries from the Exchanges to individual market participants. For example, Nasdaq may have provided greater detail of its NY11-4 plans to certain clients or preferred telecom providers in advance of announcing it to others, allowing such favored parties a head start in obtaining favorable real estate adjacent to the datacenter. If so, this could confer a long-term, potentially insurmountable advantage to those firms and directly disadvantage all other firms not privy to such information—directly contrary to a free and open market and national market system.<sup>18</sup>

*Nasdaq’s Non-Transparent Process in Introducing NY11-4 Is Highly Problematic*

Providing just two weeks for firms to evaluate with pricing information whether they would like to reserve space in the new colocation facility with incomplete information regarding the benefits of doing so—particularly when the information that the Exchanges have provided suggests potential unfair discrimination and competitive burdens—and requiring the payment of fees that had not yet been filed with the Commission raises serious concerns under the Exchange

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<sup>16</sup> We are not sure what the Exchanges even mean in stating that this \$15,000 fee may apply if a client falls below the minimum power criteria for a cage “during or after” its contractual commitment. Specifically, it is unclear how there can be a commitment to use power after a contractual commitment expires.

<sup>17</sup> See Appendix A (showing a map of the New Jersey triangle).

<sup>18</sup> 15 U.S.C. 78f(b)(5).

Act.<sup>19</sup> The Rule Changes to which this letter is submitted are entirely inadequate to address this expansion of Nasdaq’s colocation services and address these concerns.

Even if all clients in NY11-4 will be treated the same relative to each other and relative to all clients in NY11 in every respect (notwithstanding multiple strong indications from the Exchanges to the contrary), this still does not obviate the need for a rule filing to make such representations clear and publicly known, and to provide an opportunity for public comment and Commission oversight to ensure compliance with the Exchange Act.

## II. The Introduction of NY11-4 Must Be Subject to a Proposed Rule Change

Self-regulatory organizations (“SROs”), such as the Exchanges, are required to file changes to their rules as well as any “stated policy, practice, or interpretation,” which is defined to include “[a]ny material aspect of the operation of the facilities of the [SRO].”<sup>20</sup> There can be no question that the introduction of NY11-4 is a material aspect of the operation of the Exchanges’ facilities as it will provide a new, potentially faster, means of accessing the Exchanges relative to existing infrastructure in NY11.

Establishing NY11-4 as a new colocation facility is unlike merely adding additional cabinets to an existing colocation hall—such as by adding additional cabinets within NY11—because of (a) NY11-4’s geographic location and the attendant closer proximity to other exchanges (as explained above), and (b) the use of new exchange infrastructure, such as a dedicated meet-me-room and additional cabinet power options for NY11-4 that may differ from similar infrastructure used in NY11.<sup>21</sup> Other exchanges—deploying far less significant service offerings—have provided details regarding the use of meet-me-rooms in connection with their facilities.<sup>22</sup> Given that a new meet-me-room is contemplated to service NY11-4, an obvious question from market participants is how this meet-me-room relates to existing meet-me-rooms used by the Exchanges for NY11. There may be important latency differentials involved in the use of the new meet-me-room that are material to a client determining where to colocate. And,

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<sup>19</sup> We note that the Exchanges did send certain technical documentation on Feb 9, 2024 provided on an “as is” basis with no pricing information and a note to clients to visit the Nasdaq customer portal to place orders. The Exchanges had sent other emails soliciting potential client interest in the NY11-4 facility as early as Oct 10, 2023 without any technical documentation. However, even if the Exchanges provided market participants with information a year or more in advance of the Exchanges taking reservations, this would neither cure the incompleteness of this information nor obviate the need for a rule filing for the NY11-4 facility as required under the Exchange Act.

<sup>20</sup> 17 CFR 240.19b-4(a)(6)(i).

<sup>21</sup> In particular, Nasdaq will be offering an “Ultra High Density Cabinet” in NY11-4, which does not appear to be described in Nasdaq’s current rules.

<sup>22</sup> For example, NYSE noted in a recent rule filing that it opened up “Hall 4” and would soon open up “Hall 5.” *See* Exchange Act Release No. [98148](#), 99 FR 57150 (Aug. 22, 2023) (SR-NYSE-2023-29) and Exchange Act Release No. [98937](#), 88 FR 80793 (Nov. 20, 2023) (Approval Order). However, Hall 4 and Hall 5 are within the same building as existing colocation halls. While the introduction of new cabinet space should generally be subject to a rule filing wherever located in an exchange facility to ensure the consistency of such offerings with Exchange Act requirements and promote transparency, adding new cabinet space within an existing colocation hall under the same transparent rules on availability and connectivity raises less concern than creating an entirely new building, physically closer to other markets, relying on new opaque infrastructure to house new cabinets. For example, if Nasdaq was merely adding additional cabinets space within its existing NY11 space and clearly represented to clients that such cabinets would be identical in all material respects to existing cabinets in that space, there would be less imperative need for a rule filing than in the instant case.

as previously described, the Exchanges’ technical materials related to NY11-4 raise several concerns of unfair discrimination and inappropriate and unnecessary burdens on competition as they suggest but do not clarify latency differences between and among different market participants, further highlighting the need for a rule filing with appropriate transparency.

The new NY11-4 colocation facility, the cabinets placed within it, the connectivity in and out of it, and the fees assessed for such equipment, connectivity, and installation are all within the Exchanges’ control. To the extent that Equinix (as lessor of the facility) is constructing NY11-4, Equinix is doing so as agent for Nasdaq and to the Exchanges’ specifications. Therefore, there can be no argument that NY11-4 is not a facility of the Exchanges, and subject to the rule filing process, particularly on the grounds that the Exchanges, as a mere lessee, lack control over NY11-4. The D.C. Circuit roundly rejected a similar argument made by NYSE in the Facility Decision when NYSE suggested that wireless connectivity services offered by its affiliate were not a facility of the exchange.<sup>23</sup>

As the Commission has stated, even miniscule latency differentials are extremely important to many market participants.<sup>24</sup> We therefore believe that changes to an exchange’s infrastructure within its facilities that bear on these differences must be subject to a proposed rule change, consistent with statutory requirements.

### **III. The Exchanges Assessed Fees Prior to Filing with the Commission and the Rule Changes Inaccurately Describe the NY11-4 Cabinet Proximity Option Program**

There are at least two concerns with the fees the Exchanges are assessing for the Cabinet Proximity Option Program. First, the Exchanges assessed reservation fees on customers for cabinets with power densities greater than 10kW that had not yet been publicly filed with the Commission.<sup>25</sup> As previously noted, the Exchanges assessed fees at the time a client made its cabinet reservation during the period of March 1 to March 15, 2024. The filings establishing fees for cabinets with power densities greater than 10kW under the Cabinet Proximity Option Program only became immediately effective on March 20, 2024, so the Exchanges assessed reservation fees for such cabinets prior to such fees being effective. Assessing fees in advance of public filings undermines the Exchange Act rule filing process and inappropriately assumes such

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<sup>23</sup> Facility Decision, *supra* n.5, at 19-20 (“Unaffiliated entities engaged in joint ventures or other concerted activity may or may not, depending upon the circumstances, be considered a ‘group of persons’ for the purposes of this statute . . . . Whether two or more persons are or may be acting in concert is likely the key consideration.”). Nasdaq has previously argued regarding its wireless rooftop connection that it does not maintain control over the roof of its datacenter and instead that Equinix does. *See McKay 2020 Letter, supra* n.7, at 7. These arguments do not survive scrutiny as in both the case of the rooftop connection and NY11-4, it is clear that Equinix is acting on behalf of Nasdaq as its agent. To conclude otherwise would, as the D.C. Circuit suggested, “allow a party . . . to elude SEC jurisdiction by making simple changes to its corporate structure, an obviously untenable result.” Facility Decision, *supra* n.5, at 20.

<sup>24</sup> Facility Decision, *supra* n.5 at 5 (“These miniscule fractions of a second — utterly meaningless virtually everywhere else — can make all the difference when it comes to receiving market data and completing a profitable transaction” (citing the Market Data Infrastructure Proposal, 85 FR 16726, 16728)).

<sup>25</sup> The Exchanges have also set forth in their NY11-4 reservation request additional fees for power installation, cabinet installation, cabinet set up fees and other services that all similarly note “subject to SEC approval.”

fees will comply with the Commission’s guidance on fee filings prior to filing with the Commission.<sup>26</sup>

Second, and more importantly, the Rule Changes and associated fees do not accurately describe the fees being assessed to Exchange clients and result in a windfall to the Exchanges. Specifically, the Exchanges state that: “[c]abinets reserved under the Cabinet Proximity Option program are **unused cabinets** that customers reserve for future use and **can be converted to a powered cabinet at the customer’s request**.”<sup>27</sup> The cabinets the Exchanges are making available in NY11-4 are neither unused nor can they be converted to a powered cabinet upon customer request—rather, the cabinets do not yet exist and cannot yet be powered. It is a material misrepresentation to suggest that a client paying \$3,000 a month to reserve a super high density cabinet in NY11-4 is, in fact, reserving an unused cabinet or that a client could request that the reserved cabinet be activated.

Given that the Exchanges *estimate* that they can connect client cabinets in NY11-4 until September 1, 2024, the reservation fees result in a windfall to the Exchanges. For example, a market participant agreeing to pay \$3,000 per month to reserve a single Super High Density Cabinet in NY11-4 must pay such fees for at least six months (for a total of at least \$18,000) before they can even exercise and effect their option to activate such cabinet. If there is delay in the opening of NY11-4, the Exchanges will continue to collect the monthly reservation fees with no ability for a customer to make use of the cabinet. This perversely incentivizes delays in the introduction of NY11-4. Customers of the NY11-4 Cabinet Proximity Option program simply are not receiving the service (as described in the Rule Changes) for which they are paying.

#### **IV. Nasdaq’s Existing Wireless Connectivity Services Available via the Roof of the Datacenter Must Also Be Subject to a Proposed Rule Change**

In the McKay 2020 Nasdaq Letter,<sup>28</sup> we detailed Nasdaq’s anticompetitive structuring of its wireless connectivity services and explained why these services should be subject to Exchange Act requirements—just as NYSE’s wireless connectivity services are.<sup>29</sup> The D.C. Circuit affirmed NYSE’s wireless connectivity services are a facility of NYSE and subject to the Exchange Act, leaving no reason why the Exchanges’ version of precisely the same services should not likewise be subject to the Exchange Act. We therefore urge the Commission to require that the Exchanges subject the Nasdaq Wireless Services to the Exchange Act and either

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<sup>26</sup> See Commission Staff Guidance on SRO Rule Filings Relating to Fees (May 21, 2019), <https://www.sec.gov/tm/staff-guidance-sro-rule-filings-fees>. This should be particularly concerning to the Commission, given its recent precedent for requiring exchanges to provide robust support in connection with any new fees imposed for market data and connectivity offerings. See, e.g., Exchange Act Release No. 84168 (Sept. 17, 2018), 83 FR 47947 (Sept. 21, 2018) (File No. SR-BOX-2018-24) (Suspension of and Order Instituting Proceedings To Determine Whether To Approve or Disapprove a Proposed Rule Change To Amend the Fee Schedule on the BOX Market LLC Options Facility To Establish BOX Connectivity Fees for Participants and Non-Participants Who Connect to the BOX Network).

<sup>27</sup> See e.g., Securities Exchange Act Release No. 99633, 89 FR 16073, 16074 (Mar. 6, 2024) (SR-NASDAQ-2024-007) (emphasis added).

<sup>28</sup> See *supra* n.7.

<sup>29</sup> While the McKay 2020 Nasdaq Letter focused on Nasdaq, the Nasdaq Wireless Services provide connectivity to and market data from all of the Exchanges.

eliminate its unfairly discriminatory and anticompetitive latency advantages or explain why such advantages are consistent with Exchange Act requirements. The relationship of the Nasdaq Wireless Services to other methods of connectivity—such as in NY11 and NY11-4—should also be addressed in such rule filing.

The D.C. Circuit reasoned that “the [NYSE] Wireless Connections are ‘facilities’ of an exchange because they are ‘system[s] of communication to or from the exchange . . . maintained by or with the consent of the exchange’ that is offered ‘for the purpose of effecting or reporting transactions on the exchange.’” The court found that the statutory definition of facility described NYSE’s wireless bandwidth connection “to a tee” as it “allows a market participant to transmit data, including price quotes and orders, between the participant’s co-located equipment at the Mahwah data center and the participant’s co-located equipment at a third-party data center, and thus to effect or report transactions on the Exchanges.”<sup>30</sup>

The Exchanges have operated some form of its wireless connectivity service via an exclusive rooftop connection since 2013, providing the Exchanges’ service with a significant latency advantage over its competitors.<sup>31</sup> The Nasdaq Wireless Services continue in operation today. As described in our previous letter, in 2020, the Exchanges expanded the Nasdaq Wireless Services with the addition of six wireless dishes (quadrupling its capacity from two to eight dishes) and installing a new telecom cabinet. We understand that the Nasdaq Wireless Services are operated by the Exchanges’ preferred telecom provider Apsara Networks (“Apsara”). We further understand that Apsara also operates, for a small group of Exchange clients, a separate wireless connectivity service via the rooftop connection that is distinct from the Nasdaq Wireless Services.

There are no material differences between NYSE’s wireless services and the Nasdaq Wireless Services other than that the former is subject to Exchange Act requirements while the latter has not been. Both the NYSE wireless services (prior to the Facility Decision and subsequent modifications by NYSE) and the Nasdaq Wireless Services:

- 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 the Exchanges; and
- Have an exclusive geographic latency advantage.

The Exchanges have also explicitly marketed the Wireless Express Connect as a Nasdaq offering, using the Nasdaq logo, instructing subscribers to sign up for bandwidth services using Nasdaq’s customer portal, using Nasdaq’s colocation support team for service issues, and billing fees for the bandwidth services as part of the Exchanges’ monthly co-location services invoice.<sup>32</sup>

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<sup>30</sup> Facility Decision, *supra* n.5, at 15.

<sup>31</sup> See McKay 2020 Letter, *supra* n.7, at 7.

<sup>32</sup> We have included evidence of such marketing materials from 2023 and earlier versions (cited in n.18 of the 2020 McKay Letter) as Appendix B.

The Facility Decision makes it even more clear that the Exchanges’ parallel wireless bandwidth service should be subject to the Exchange Act.<sup>33</sup> The D.C. Circuit noted that not concluding that the Wireless Connections are facilities of NYSE would have the effect of “evad[ing] SEC oversight” as that exchange could “then use its control over access to exchange facilities to gain a competitive advantage for its subsidiary, which would be directly at odds with one purpose of the Exchange Act, viz., to prevent the imposition of unnecessary burdens upon competition.”<sup>34</sup>

The Exchanges have used their control over the datacenter to install exclusive access points via the roof, giving rise to the competitive burdens noted by the D.C. Circuit. The use of a third-party to operate the Exchanges’ wireless services does not change this analysis, nor does the fact that the Exchanges lease their datacenter from Equinix.<sup>35</sup> The Facility Decision is again instructive in this regard where the D.C. Circuit acknowledged that “[w]hether two or more persons are or may be acting in concert is likely the key consideration” in determining whether a group of persons may be performing the functions of an “exchange.”<sup>36</sup>

Here, the Nasdaq Wireless Services are white-labeled as Nasdaq offerings and bear Nasdaq’s trademark and logo – there can be no clearer demonstration of “acting in concert” or a “unity of interest.”<sup>37</sup> Nasdaq is openly and notoriously offering this service and has merely contracted a service provider to facilitate the offering. The service presents an even more direct interest by the Exchange than in the case of NYSE as the NYSE Wireless Connections were at least ostensibly offered by IDS.

Moreover, the D.C. Circuit found relevant the fact that, although not operated by NYSE directly, the NYSE wireless services “could not exist without the consent of the Exchanges — in other words, they clearly are ‘system[s] of communication . . . maintained by or with the consent of the exchange.’”<sup>38</sup> Any connection to the Exchanges via the roof of the Carteret datacenter—including Apsara’s seemingly separate wireless connectivity services—could not and cannot exist without the consent of the Exchanges.

In sum, the Facility Decision simply affirmed the Commission’s view from the very start. The Commission should extend this same reasoning to Nasdaq’s Wireless Services to treat it the same as its competitor NYSE.

\* \* \*

We see no reason why the introduction of NY11-4 (or Nasdaq Wireless Services) should be exempt from Commission oversight and investor protections afforded by the Exchange Act.

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<sup>33</sup> Nasdaq has already conceded in its 2013 filing that its corresponding service for market data operating via the rooftop connection is a facility. This service is also supported by Apsara as a third-party vendor.

<sup>34</sup> Facility Decision, *supra* n.5, at 20.

<sup>35</sup> As detailed in our previous letter, Equinix has made clear to the Firm and others on multiple occasions that it would like to lease space on the roof of the datacenter to additional market participants but is contractually prevented from doing so. See 2020 McKay Letter, *supra* n.7, at 7. This again demonstrates Nasdaq’s effective control over the roof of the datacenter with Equinix acting as its agent.

<sup>36</sup> Facility Decision, *supra* n. 5, at 20.

<sup>37</sup> The D.C. Circuit noted that “[e]ven putting aside that one of the three companies [IDS] . . . is a subsidiary of an exchange [NYSE], the record reveals a unity of interests between IDS and the Exchanges.” *Id.* We submit that there is plainly a similar unity of interest between Apsara and Nasdaq in the provision of the Nasdaq Wireless Services.

<sup>38</sup> *Id.* at 18.



The new NY11-4 facility and the Nasdaq Wireless Services directly raise concerns of unfair discrimination, unnecessary and inappropriate burdens on competition, and the assessment of fees not filed with the Commission. To the extent that such concerns ultimately prove unfounded—which we strongly doubt that they will be—the Exchanges’ path to approval must be through a substantial and transparent filing subject to the rule filing process, which is statutorily required for these offerings.

Other exchanges have not found it difficult to offer colocation and connectivity services on a fair and equal basis.<sup>39</sup> The repeated and sustained efforts to provide unequal and unfair advantages to select market participants by the Exchanges—and obscure such advantages—further stress the need for heightened Commission oversight.

Thank you again for the opportunity to comment on these developments. Please contact us with any questions at (312) 948-9188.

Sincerely,



Jim Considine  
Chief Financial Officer  
McKay Brothers, LLC

cc: The Hon. Gary Gensler, Chair  
The Hon. Hester M. Peirce, Commissioner  
The Hon. Caroline A. Crenshaw, Commissioner  
The Hon. Mark T. Uyeda, Commissioner  
The Hon. Jamie Lizárraga, Commissioner

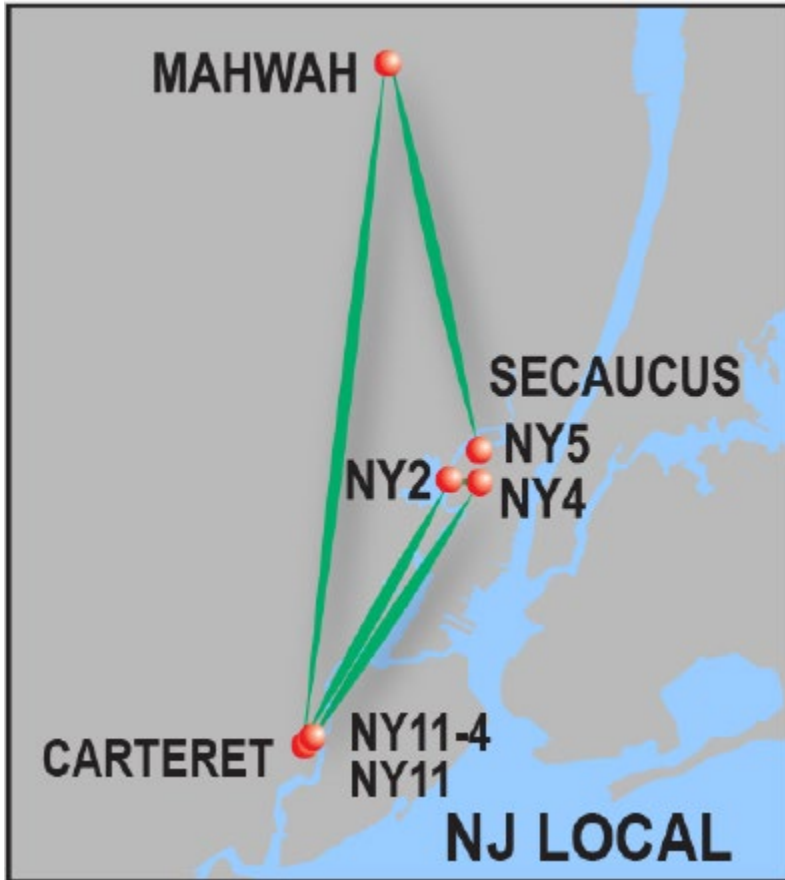
Mr. Haoxiang Zhu, Director, Division of Trading and Markets  
Mr. David Saltiel, Deputy Director, Division of Trading and Markets  
Ms. Andrea Orr, Deputy Director, Division of Trading and Markets  
Mr. David S. Shillman, Associate Director, Division of Trading and Markets  
Mr. Eric Juzenas, Associate Director, Division of Trading and Markets

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<sup>39</sup> See e.g., Cboe Trader E-News (Jan. 19, 2024) at 1 (noting Cboe announcing connectivity to the NY6 datacenter and “will serve as a latency equalized point of presence” for Cboe exchanges), [https://cdn.cboe.com/resources/trader\\_news/2024/Trader-E-News-1-19-24.pdf](https://cdn.cboe.com/resources/trader_news/2024/Trader-E-News-1-19-24.pdf).

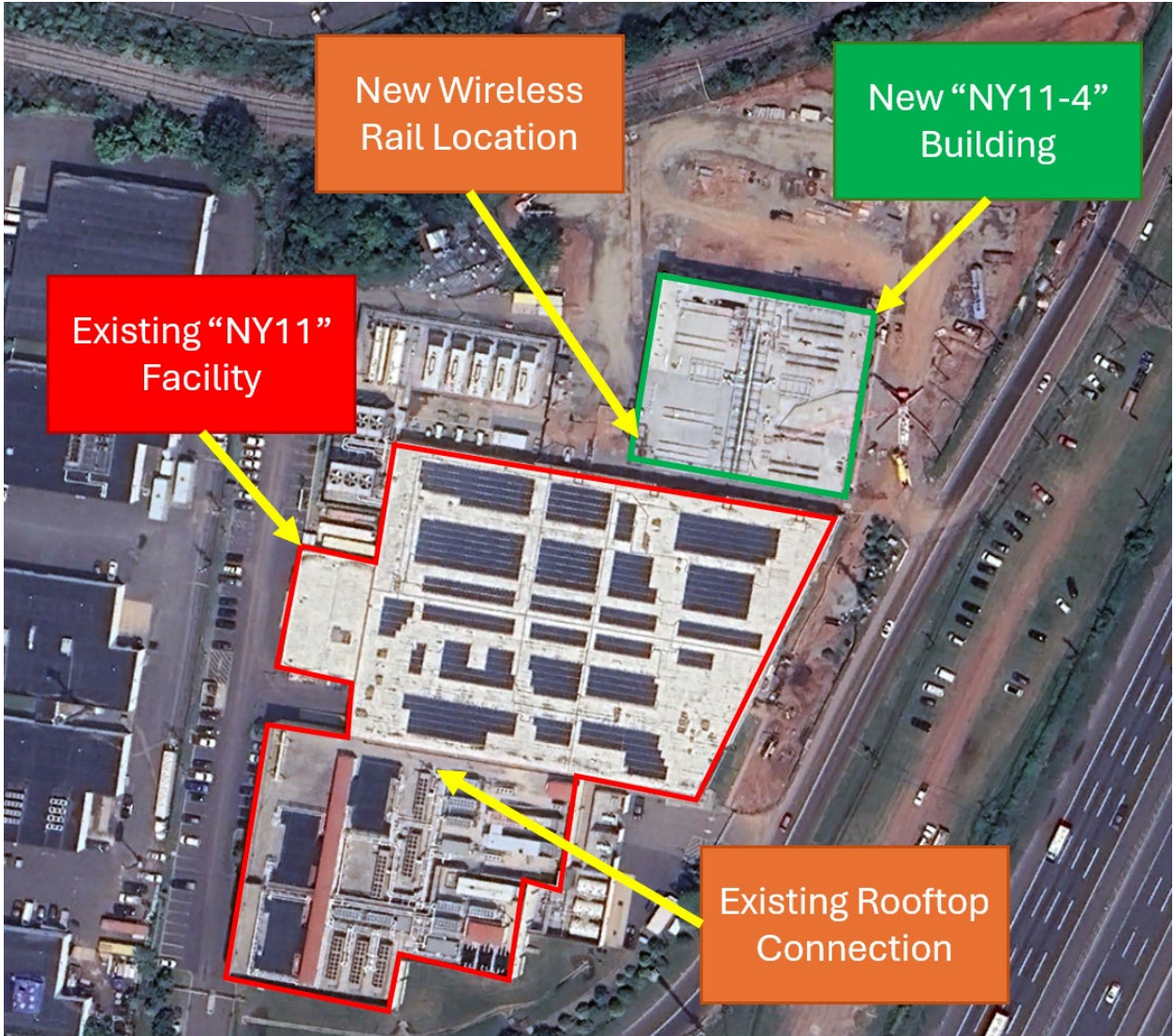
APPENDIX A

Map of NJ Triangle



APPENDIX A (cont'd)

Photo of Nasdaq datacenter campus with NY11-4 construction



# New Jersey Wireless Connectivity

## New Jersey Metro Millimeter Wave Offering

The Metro Millimeter Wave (MMW) offering utilizes millimeter wave networks to deliver ultra-low latency market data to Nasdaq customers in the Nasdaq Data Center as well as many of the major New Jersey metro trading hubs. Utilizing innovative wireless network technology, MMW delivers critical data 40% to 50% faster than any other fiber-based network.

### Key Benefits

#### Unparalleled Speed

MMW provides customers the quickest market data delivery option, enabling faster consumption of data for more effective decision-making.

#### Flexibility

Receive one, two, or all of the low latency market data feeds at any of the remote data centers or at your co-located cabinet in Carteret.

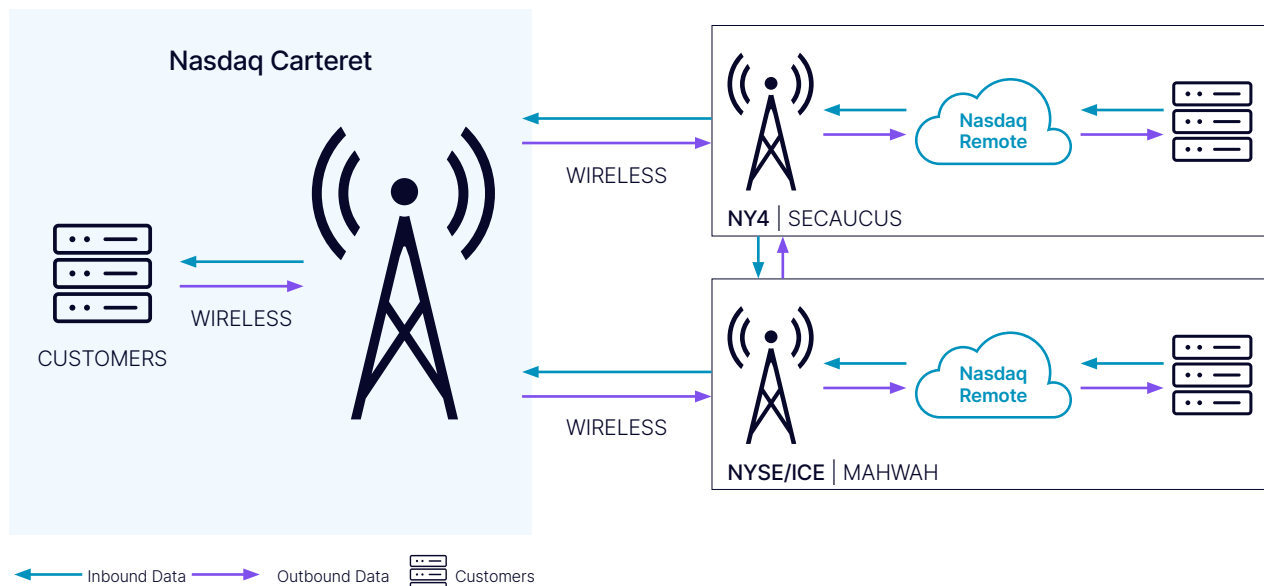
#### Minimal Infrastructure

Nasdaq delivers market data feeds to co-located cabinets in Carteret using your third-party hand-offs, requiring no additional connectivity costs or new connection implementation.

#### Quick Turn-Up

New orders can be completed within 48 hours of client request.

### New Jersey Metro Trading Centers



## Key Features

### Raw Equities Feeds In Carteret

Available raw multicast equities feeds include:

CBOE/BATS PITCH (BZX and BYX)	CBOE/DIRECT EDGE DEPTH OF BOOK (EDGA and EDGX)	NYSE ARCA INTEGRATED	NYSE INTEGRATED
Expected latency of <b>89</b> microseconds*	Expected latency of <b>89</b> microseconds*	Expected latency of <b>186</b> microseconds*	Expected latency of <b>186</b> microseconds*

These market data feeds, in addition to others, are currently available via a fiber optic network for redundancy or primary use. MMW is expected to support additional market data feeds in the future based upon customer feedback.

### Remote Wave Ports

Available raw multicast feeds include:

#### SECAUCUS, NJ

755 SECAUCUS ROAD (NY4 – EQUINIX)

NASDAQ TOTALVIEW ITCH (SW)	NASDAQ TOTALVIEW ITCH (FPGA)	BX TOTALVIEW ITCH	NYSE ARCA INTEGRATED	NYSE INTEGRATED
<b>89</b> microseconds*	<b>89</b> microseconds*	<b>89</b> microseconds*	<b>117</b> microseconds*	<b>117</b> microseconds*

#### MAHWAH, NJ

1700 MacArthur Blvd. (NYSE/ICE)

NASDAQ TOTALVIEW ITCH (SW)	NASDAQ TOTALVIEW ITCH (FPGA)	BX TOTALVIEW ITCH	CBOE/BATS (BZX AND BYX)	CBDE/DIRECT EDGE (EDGA AND EDGX)
<b>186</b> microseconds*	<b>186</b> microseconds*	<b>186</b> microseconds*	<b>117</b> microseconds*	<b>117</b> microseconds*

\* This is the one-way latency of the wireless network

## More Information

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# New Jersey Wireless Express Connect

A true point-to-point connection linking customers in the Nasdaq Data Center and New Jersey metro trading hubs. Utilizing millimeter wave technology between Carteret and other metro data centers, Wireless Express Connect seamlessly delivers client orders, data, and other system messages with ultra-low latency.

## KEY BENEFITS

### Ultra-Low Latency

Our millimeter wave networks are 40-50% faster than available low latency fiber connections.

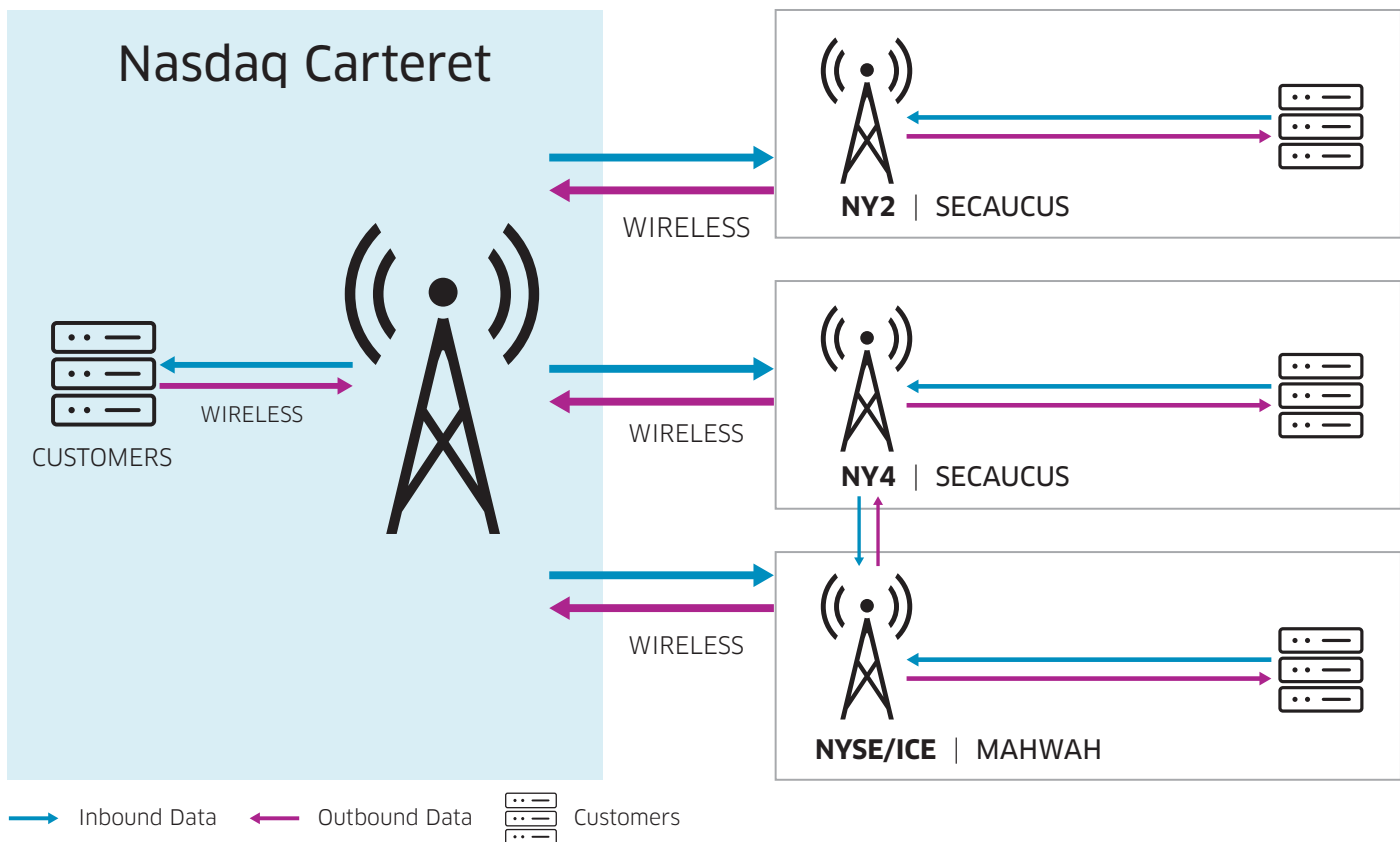
### Fair Bandwidth

Our bandwidth monitoring solutions ensure that each client receives their secure, allocated bandwidth.

### Lower Costs & Resources

Clients reap the benefits of a low latency wireless network without the capital expenditure of building and maintaining their own network.

## NEW JERSEY METRO TRADING CENTERS



## KEY FEATURES

The Wireless Express Connect offering connects clients to the most popular U.S. financial trading hubs with the expected latencies below:

**CARTERET TO SECAUCUS, NJ**

755 Secaucus Road (NY4-Equinix)

**175**

microseconds\*

**CARTERET TO MAHWAH, NJ**

1700 MacArthur Blvd. (NYSE)

**373**

microseconds\*

**SECAUCUS TO MAHWAH, NJ**

NY4 - Equinix to NYSE

**234**

microseconds\*

**CARTERET TO SECAUCUS, NJ**

275 Hartz Way (NY2 - Equinix)

**176**

microseconds\*

\* This is the round-trip latency of the wireless network

## More Information

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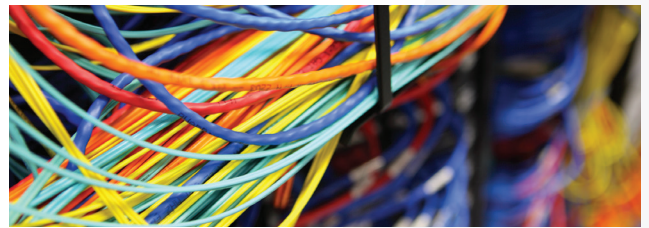
[NASDAQ.COM/SOLUTIONS/NASDAQ-CO-LOCATION](https://NASDAQ.COM/SOLUTIONS/NASDAQ-CO-LOCATION)

# Nasdaq Express Connect

Nasdaq Express Connect is a low latency point-to-point network solution offering connectivity from the Nasdaq Data Center located in Carteret, NJ to major financial trading and co-location venues in New York, New Jersey, Chicago and Canada. By partnering with leading telecommunications providers, Nasdaq can provide significantly lower communications latency through a secure and competitively-priced network. All customers receive a guaranteed Service Level Agreement (SLA) and future latency improvement as routes and technology improve during the course of the contract.

## BENEFITS /

- Low cost, high bandwidth connections
- Fast turn-up times
- Trusted telecommunications providers
- Low latency available for primary or redundant integral routes



## CUTTING-EDGE TECHNOLOGY /

Express Connect network technology delivers dedicated bandwidth for point-to-point configurations that are effective in high-bandwidth, extreme performance and low latency scenarios, particularly trading and market data delivery.

The 1G and 10G service is based on Ethernet over Dense Wavelength Division Multiplexing (EoDWDM) technology, providing the lowest latency solution next to dark fiber. Customers simply select from the options below and we provide the service and associated latency-based SLAs aligned to the venue and carrier chosen. Turnaround time is estimated to be 10 business days.

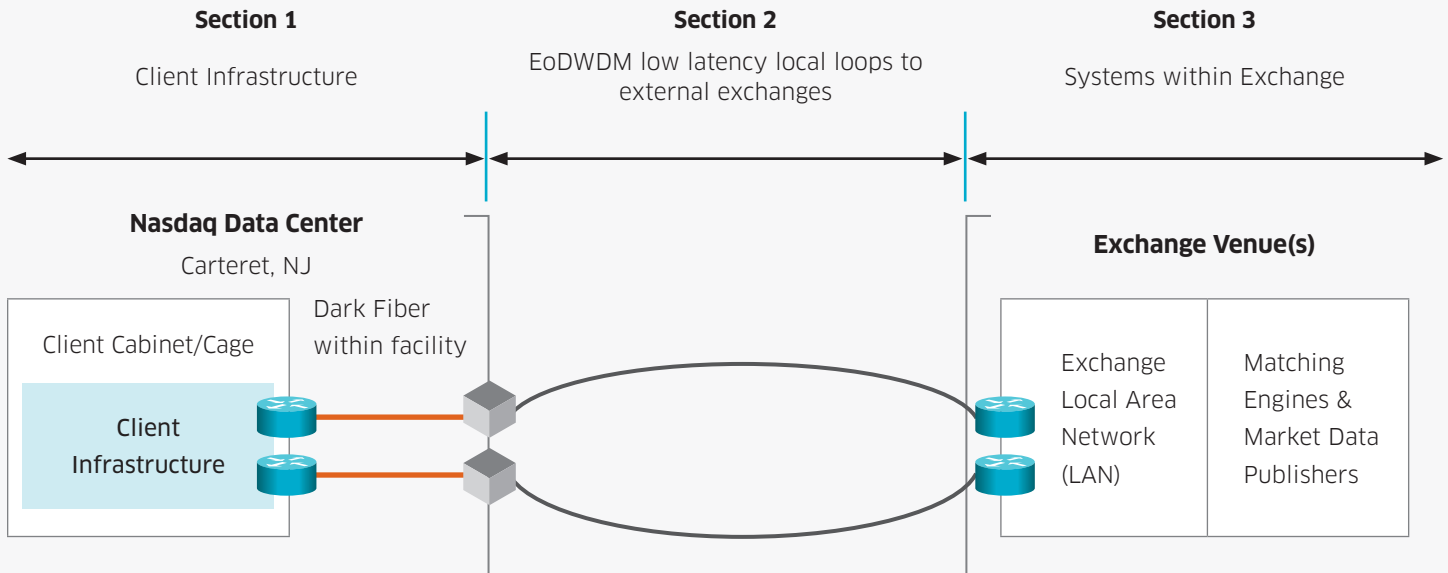
### Connection Speeds





## LATENCY /

Latency numbers within the SLAs are limited to Section 2 of the illustration below. The estimated latency of Section 2 below includes all equipment from the carrier demark within the Carteret facility to the carrier demark at the external financial venue.



## VENUES /

### New York Metro

- 755 Secaucus Road, Secaucus, NJ (BATS, Direct Edge, BOX, ISE, CBSX, C2)
- 275 Hartz Way, Secaucus, NJ (ICE POP and others)
- 300 Boulevard East, Weehawken, NJ (BATS)
- 165 Halsey Street, Newark, NJ (SFTI POP for access to NYSE, NYSE Arca, NYSE Amex and NMS in Mahwah)
- 777 Central Boulevard, Carlstadt, NJ (NSX, Pink Sheets)
- 100 Delawanna Avenue, Clifton, NJ (Direct Edge DR, ISE DR)
- 492 River Road, Nutley, NJ (BATS DR)
- 545 Washington Boulevard, Jersey City, NJ (Knight, HotSpot)
- 111 Eighth Avenue, New York, NY (SFTI POP for access to NYSE, NYSE Arca, NYSE Amex and NMS in Mahwah)

### Chicago Metro

- 350 East Cermak Road, Chicago, IL (CME,ICE)
- 400 S. LaSalle Street, Chicago, IL (CHX)
- 440 S. LaSalle Street, Chicago, IL (CBOE,CFE)
- 2905 Diehl Road, Aurora, IL (CME)

### Canada

- 3500 Steeles Avenue East, Markham, ON (TMX, TSX, TSVX)
- 151 Front Street, Toronto, ON (Omega ATS, Nasdaq CX)
- 130 King Street West, Toronto, ON (DR for TMX, TSX, TSVX)

Existing co-location customers may place orders using the colo console. Refer to the rate sheet for fees and latencies.

### More Information

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**NASDAQTRADER.COM/COLO**

# Wireless Connectivity - Metro Millimeter Wave

## Frequently Asked Questions

### What is Nasdaq's Metro Millimeter Wave (MMW) offering?

The MMW offering utilizes millimeter wave technology to deliver ultra-low latent market data to customers in the Nasdaq Data Center as well as many of the major New Jersey metro trading hubs. Utilizing innovative wireless network technology, MMW delivers critical data 40% to 50% faster than any other fiber-based network.

### What wireless third party data will be available and at what latencies?

The following equities feeds will be available in their native/raw multicast form in Carteret:

Data Feed	Expected Latency (µsec)*
CBOE/BATS Multicast PITCH (BZX, BYX) in Carteret	89
CBOE/Direct Edge Depth of Book (EDGA, EDGX) in Carteret	89
NYSE Arca Integrated in Carteret	186
NYSE Integrated in Carteret	190

\*The wireless network latency stated is the one-way latency which is measured using RFC 2544 tests from the wireless radio end points. The RFC test reports are available upon request.

### What data is available in the other NJ metro data centers and at what latencies?

The table below provides the list of data feeds that are available in the remote data centers via MMW:

Remote Site	Nasdaq Data Feeds Available	Expected Latency (µsec)*
Secaucus, NJ: 755 Secaucus Road (NY4-Equinix)	✓ BX TotalView ITCH	89
	✓ Nasdaq Fixed Income ITCH	89
	✓ Nasdaq TotalView ITCH (SW)	89
	✓ Nasdaq TotalView ITCH (FPGA)	89
	✓ NYSE ARCA Integrated	117
	✓ NYSE Integrated	117
Secaucus, NJ: 275 Hartz Way (NY2 - Equinix)	✓ Nasdaq Fixed Income ITCH	88
Mahwah, NJ: 1700 MacArthur Blvd (ICE/NYSE)	✓ Nasdaq TotalView ITCH (SW)	190
	✓ Nasdaq TotalView ITCH (FPGA)	186
	✓ BX TotalView ITCH	190
	✓ CBOE/ BATS (BZX, BYX)	117
	✓ CBOE/Direct EDGE (EDGA, EDGX)	117

\*The wireless network latency stated is the one-way latency which is measured using RFC 2544 tests from the wireless radio end points. The RFC test reports are available upon request.

**What is the availability of these services?**

Availability is expected to be 99.5% for the calendar month during the trading day (6:30am - 6:30pm, ET each day that U.S. stock markets are operational). Since wireless networks are more sensitive to weather issues than fiber, the availability is slightly lower than fiber optic networks. The most common cause of outage is a heavy rain storm passing through the network path which can cause data packets to drop. This can cause the resiliency of the wireless network to be less than a typical fiber optic network. As a result, we require clients to also take this data via existing fiber routes from Nasdaq or from other vendors.

In the event of chronic outages, a customer may cancel the affected service without incurring early termination penalties. A chronic outage is defined as five (5) or more separate, unique events in which service is not available for 15 consecutive minutes or greater in any calendar month. This is exclusive of any planned maintenance or weather related effects including rain fade.

Clients must report any service issues (including instances where availability does meet applicable service level targets) to Nasdaq [CoLo Support Team](#).

**Who are your vendors for this metro offering? How were they chosen?**

The vendor for the metro wireless offerings is BSO. BSO is an award-winning network, cloud and hosting provider for financial institutions and high-frequency trading firms that require superior infrastructure and connectivity to the world's most liquid trading venues. BSO's team has many years of experience building and maintaining low-latency fiber and wireless networks across emerging and established markets.

This vendor was chosen through a rigorous due diligence process, in which more than 16 vendors were ranked by technical experience, "live" networks, ultra-low latency metro routes, strong service level agreements (including latency, availability, and service), and flexibility in designing new and improved routes. We continue to perform due diligence on this and other vendors and will add vendors as updates in routes and criteria occur.

**What are the fees for these services?**

Third party market data delivered within Carteret Data Center	Wireless Carrier	Installation Fee	Monthly Recurring Fee MRC*
CBOE/BATS Multicast PITCH (BZX, BYX) (from NY4 to Carteret)	BSO	\$2,500	\$7,500
CBOE/Direct EDGE Depth of Book (EDGA, EDGX) (from NY4 to Carteret)	BSO	\$2,500	\$7,500
NYSE Arca Integrated (from Mahwah to Carteret)	BSO	\$5,000	\$10,000
NYSE Integrated (from Mahwah to Carteret)	BSO	\$5,000	\$10,000

Remote Multicast ITCH Wave Ports	Wireless Carrier	Installation Fee	MRC*
Multicast ITCH Wave Port at Secaucus, NJ (NY4)	BSO	\$2,500	\$7,500
Multicast ITCH Wave Port at Mahwah, NJ (NYSE)	BSO	\$5,000	\$10,000
Multicast BX ITCH Wave Port at Secaucus, NJ (NY4)	BSO	\$2,500	\$5,000
Multicast BX ITCH Wave Port at Mahwah, NJ	BSO	\$5,000	\$7,500

Remote Multicast Nasdaq Fixed Income ITCH Wave Ports	Wireless Carrier	Installation Fee	MRC*
Multicast Nasdaq NFI ITCH Wave Port at Secaucus, NJ (NY2)	BSO	\$2,500	\$5,000
Multicast Nasdaq NFI ITCH Wave Port at Secaucus, NJ (NY4)	BSO	\$2,500	\$5,000

Remote Multicast 3rd Party Wave Ports	Wireless Carrier	Installation Fee	MRC*
Multicast ARCA Wave Port at Secaucus, NJ (NY4)	BSO	\$5,000	\$7,500
Multicast NYSE Integrated Wave Port at Secaucus, NJ (NY4)	BSO	\$5,000	\$7,500
Multicast CBOE/BATS (BZX, BYX) Wave Port at Mahwah, NJ (NYSE/ICE)	BSO	\$5,000	\$7,500
Multicast CBOE/ Direct Edge (EDGX, EDGA) Wave Port at Mahwah, NJ (NYSE/ICE)	BSO	\$5,000	\$7,500

\*The MRC will be waived for the first 30 days from the order completion date (the Trial Period). Discounts will be calculated and applied only to monthly recurring fees based on the following tiers:

Quantity of Wireless Services / Discount Tier	Fee Discount Applied**
Less than 3 services / Discount Tier 0	0%
3 to 5 services / Discount Tier 1	5%
6 to 10 services / Discount Tier 2	10%
11 to 14 services / Discount Tier 3	15%
15 and more services / Discount Tier 4	20%

\*\*Only billable wireless connectivity services will count toward the discount tier (excludes services in Trial Period).

**When will these services be available?**

All services listed above are currently available.

**How can I order these services?**

You may place orders for these services using the CoLo Console. On the top of the screen you can select "Market Data" and then "Via Wireless Network" to get the third party market data in Carteret and/or "Via Remote Port" to get the wireless data in the other data centers.

**Do I need to be approved to receive market data from the necessary exchange(s)?**

Yes, you need to be approved to receive the requested market data in the requested data center. We will confirm with the exchange(s) prior to entitling you for the requested feed and will assist you, if needed, to get the necessary approvals. Please contact the [CoLo Support Team](#) for further assistance.

**Will these market data feeds have the same UDP/IP protocol and Group/Source IP addresses as the current market data feeds provided over fully fiber optic networks?**

The UDP/IP Protocol will be the same as the raw feeds received currently via fully fiber networks. The Group IP and the Source IP addresses assigned will be different, so that your network and our networks can receive both fiber-based and wireless-based feeds without network conflicts. The ITCH wireless addresses are available on our site. The Group IP and the Source IP addresses for the other exchange feeds will be supplied upon ordering of the service or by contacting our [CoLo Support Team](#).

**Will this service support data re-requests?**

No, market data re-requests should be performed on existing fiber-based connectivity.

**Can this service replace my existing fiber-based feeds?**

This service should be a supplement to any other feeds you currently receive via fiber optic networks. The wireless network can experience outages due to weather-related events or mechanical events. The customer is solely responsible for establishing and maintaining any redundant or complementary market data services (e.g., by obtaining its desired market data feeds through fiber optic networks, other wireless networks, or other means) it considers appropriate.

We may add an optional fiber-arbitration service in the near future - please contact Mickael Avedissian at + 1 212 231 5189 for more information.

**How long is the contract term for the Metro Services?**

The contract term is 12 months from the date of completion of the trial period (30 days after order completion on the CoLo Console); afterwards it is month to month. If cancelled during the initial 12 month period, you will be charged the remaining portion of the initial period fees.

**For the remote multicast wave port service, do I need to order a cross connect for the end destination?**

Yes, after your order is placed in the CoLo Console, you will be provided with an LOA, which can be used to help you place the order for the cross connect at the remote destination. If you need help contacting anyone from the destination site, please contact our [CoLo Support Team](#). Please note that these remote multicast wave ports are dedicated 10G ports (separate from any other connectivity you may already have to Nasdaq in these remote locations) that will be entitled to receive the requested wireless feed only.

**To receive the third party market data in Carteret, do I need to order a cross connect (hand-off) in Carteret?**

When you order the new market data connectivity service in the CoLo Console you will specify the current Third Party hand-off for you wish to receive this market data. Our Networking team will entitle that specified hand-off with the requested data (assuming you are approved to receive that market data from that exchange). If you wish or need to receive this market data over a new Third Party hand-off, you will need to order that first using the CoLo Console.

**Who do I contact for support?**

For questions regarding any connectivity order, please contact [Nasdaq CoLo Support](#) at + 1 212 231 5180, Option #1 or [coloadmin@nasdaq.com](mailto:coloadmin@nasdaq.com).

**When and how will I be billed for this service?**

Similar to other CoLo services, you will be billed in your monthly Nasdaq colocation invoice. The implementation fee will be billed in the month in which the connectivity installation is completed. The monthly recurring fee will begin at the end of the trial period (30 days after order completion on the CoLo Console), prorated for the time remaining in that month and then the full amount for each month thereafter.

**Will other feeds be available via this wireless connectivity offering?**

Based on client feedback and bandwidth requirements, we will look to potentially add additional equities feeds, options feeds, fixed income feeds, and possibly some data feeds for other asset classes.

**Will equities orders be able to be sent via this wireless connectivity offering?**

We offer dedicated bandwidth over wireless networks (Wireless Express Connect) that enable clients to transmit their own data (which can include orders, systems messages, etc.). This is not a connection to the exchange trading network. This is strictly a connection between our data center in Carteret, NJ, and other popular data centers in the metro NY and metro Chicago areas with no monitoring of the information by the exchange. Clients can transmit orders, data, and any

other system messages over this dedicated connection from one location to the other, but the exchange will not be responsible for any data or orders transmitted over these connections and not received due to weather or other network issues. Please see the [FAQs](#) for this offering, which is also available on the CoLo Console or by contacting Mickael Avedissian at + 1 212 231 5189.

**Why Is Nasdaq Offering This Service?**

Nasdaq is offering this service for a number of key reasons:

- Nasdaq continues to look for innovative services that our clients will find valuable, continuing to build our data center into a hub for their trading needs.
- We want to provide a service that will be fair and equal for all clients. If we were to offer roof space to clients to place dishes on our data center, we would not have enough physical space to satisfy all clients' needs. This offering enables us to provide valuable market data to all clients at the same low latency using the latest wireless technology.
- Many of our clients do not have the resources (financial or employee base) to build and maintain their own wireless network, so this enables them to gain the benefits without the large costs of a dedicated network.

**Can I put my own microwave or millimeter dishes on the Nasdaq Data Center roof?**

No, we 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. Each route would require its own dish, which can vary in size depending on the intended distance. This could result in hundreds of requested dishes. In addition, these dishes must be properly spaced apart to prevent interference, which provides favoritism to those dishes installed first. As a result, clients are not able to place their own or their vendor's dishes on the data center roof.

**Who should I contact for more information?**

Contact Mickael Avedissian at + 1 212 231 5189, [coloadmin@nasdaq.com](mailto:coloadmin@nasdaq.com) or visit [www.nasdaqtrader.com/colo](http://www.nasdaqtrader.com/colo)