TRADING TECHNOLOGIES®

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August 12, 2011

Mr. Werner Bijkerk
market-integrity@iosco.org

Re: Public Comment on Consultation Report: Regulatory Issues Raised by the Impact of Technological Changes on Market Integrity and Efficiency

Dear Mr. Bijkerk,

On behalf of Trading Technologies International, Inc. ("TT"), I am submitting this letter to comment on the Technical Committee of the International Organization of Securities Commissions ("IOSCO") Consultation Report entitled "Regulatory Issues Raised by the Impact of Technological Changes on Market Integrity and Efficiency," specifically with respect to Section 2(d) Co-location. TT believes that the IOSCO is correct to address the manner by which exchanges provide co-location services to assure that access to their markets are provided in a manner that does not "…unduly favor some market users over others"[1] and that the "…costs [do not] undermine fair access to trading venues."[2] Unfortunately, TT has compiled data suggesting that this goal is not being achieved currently and without more pro-active regulation, it is unlikely to be achieved in the future. If left unchecked, the barrier to effective market access created by unwarranted exchange provided co-location service fees will grow uncontrolled. In order to maintain "fair, efficient and transparent"[3] markets that utilize exchange provided co-location facilities, fees for co-location services ought to be reasonably related to the cost of providing such services, taking into account the co-location industry as a whole and not just exchange provided co-location facilities. Unfortunately, the current practices of at least two exchanges that provide co-location services raise barriers because fees appear to be based on proximity to the unilaterally controlled matching engine rather than cost and without further proactive regulation, such barriers will continue and will harm the markets as a whole.

I. Background of TT

TT is an independent software vendor ("ISV") that provides software trading solutions enabling TT's customers to trade the world's major electronic futures exchanges and other related marketplaces. TT also provides a fully managed service called TTNET, where TT hosts its customers' electronic trading infrastructure and procures and oversees all data line connections between each TTNET facility, the exchanges and TT's customers' facilities. TT's customer base includes the largest banks, commercial firms, hedge funds, proprietary trading firms and professional traders throughout the world. TT currently has seven interconnected TTNET facilities in Chicago, New Jersey, London, Frankfurt, Tokyo, Singapore, and

[1] IOSCO Objectives and Principles of Securities Regulation, Section 4.2.2 ("OPSR")
[2] IOSCO Regulatory Issues Raised by the Impact of Technological Changes on Market Integrity and Efficiency Consultation Report ("Tech Changes Report"), Chapter 2, Section 2(d)
[3] OPSR, Section 4.2.2

Sydney and is in the process of adding a TTNET facility in Sao Paulo. Each TTNET facility is either co-located or, where co-location is not offered, proximity hosted with the local exchange matching engine. TT's view of the co-location marketplace is based on its 10+ year history as a major consumer of co-location and proximity hosting services worldwide. Up until recently, these services had been provided only by third party service providers such as Equinix, Interxion, Level 3, AT&T and Verizon. These third party providers are still providing such services, but now the exchanges are moving into the co-location services business. TT has shared its objections regarding the costs of such exchange provided services with one futures exchange in the United States and another futures exchange in Europe.

II. Comments on Chapter 2, Section 2(d)

A. Existing third party co-location facilities' fees are determined by market competition

TT's concerns relate to fees charged for exchange provided co-location facilities services. To address this issue, it is important to highlight the distinct difference between the fees charged for exchange provided co-location services and fees charged by third party co-location providers. TT often negotiates fees for co-location services with third party providers and although TT often feels that it needs to negotiate for better rates than are initially offered, TT ultimately believes that the fees in those situations are driven by a competitive market. Conversely, where an exchange controls not only the location of the matching engine but also the co-location services where the matching engine is located, a competitive market would seem to be in serious jeopardy and, thus, related fees would be vulnerable to unilateral dictates by an exchange. In other words, exchanges are not subject to the same competitive market as third party co-location providers because only the exchange can offer co-location with its own matching engine.

B. Traders seek technological advantages, but exchanges should continue to provide only impartial access

Since the inception of electronic trading some market participants have gained an advantage over other participants by enhancing their technological capabilities. For example, some market participants have found an advantage by purchasing more and more powerful computers and servers, more efficient software and larger data lines to speed the transfer of data. In the United States, the futures market regulator, the Commodity Futures Trading Commission ("CFTC") noted in its supplementary information relating to a proposed rule regarding exchange provided co-location fees, "…the continual evolution of technologies for generating and executing orders" has been "…a primary driver of…drastic changes in futures and option trading."[4] The CFTC further notes the importance of speed or latency on trades: "[m]any trading firms have trading strategies that are highly dependent upon speed in a number of areas: Speed of market data delivery from exchange servers to the firms' servers; speed of processing of firms' trading engines; speed of access to exchange servers by firms' servers; and, speed of order execution and response by exchanges."[5] Latency is measured down to the microsecond for some firms and a microsecond loss could mean orders are not filled and result in untold amounts of profit or loss. In an effort to cut microseconds, the technological advancements are supplemented by the physical location of trading firms' trading systems. The closer a trading system is to an exchange matching engine, the less time is expended for market data, orders and order acknowledgements to travel between the trading system and the matching engine. Distances measured in feet and time periods measured in microseconds may be inconsequential in many industries, but they mean the difference between profits and losses to

[4] Co-Location/Proximity Hosting Services; Proposed Rule, 75 FR 33198, 33200 (June 11, 2010).
[5] Id.

trading firms. IOSCO has also recognized exchanges' commercial interest in providing co-location facilitates to address traders' low latency needs.[6]

Exchange participants, exchanges and ISVs like TT have all utilized third party co-location service providers for years. Exchange participants would house their trading infrastructure at the co-location facilities or retain a company like TT to host such infrastructure through service offerings like TTNET. TT would contract with the co-location facility service provider so that it could provide its TTNET services at the co-location facility. Exchanges would often house their matching engines at a data center where the co-location facility resides, thereby minimizing latency for trading participants whose infrastructure was also housed there. Alternatively, at least one exchange houses the matching engine in its own facility, with no co-location facilities available in the same building. This exchange placed a "point of presence" ("POP") on a floor in a building that is commonly used as a co-location facility. Trading groups and vendors that co-locate their equipment in the same building as the POP are able to purchase a cross connect data line from their infrastructure to the POP and have the fastest access to the matching engine with the lowest available latency. In either situation no trading participant could have faster access than any other and the co-location fees were charged by the third party co-location provider who had plenty of competition in the marketplace. While trading participants still found technological advantages by maximizing robust and efficient equipment, software and data lines, exchanges remained neutral technology venues where all comers could have orders matched in an equitable manner.

In stark contrast to the aforementioned approach, exchanges that offer co-location services have proposed fee structures that create at least two tiers of hosting and connectivity at vastly different prices, which results in an uneven playing field.

C. *IOSCO should call for regulations that explicitly tie fees charged to reasonable costs incurred so that exchanges offering co-location services are not able to impose an anti-competitive burden on the market by pricing the services based on proximity to the matching engine that each exchange controls unilaterally.*

It is apparent that exchanges are not basing their fee structure primarily on cost, but rather what the market will bear to co-locate with an exchange matching engine where the exchange controls both the matching engine and the facility in which it is housed. TT has compiled data of current costs associated with housing TT's network equipment in third party co-location facilities either co-locating with exchange matching engines or, where not available, proximity hosting near the exchange matching engine. The difference in pricing between the third party co-location providers and the exchange co-location providers is striking and alarming. The exchanges are charging more than double what the third party providers charge and cost does not justify the disparity. In fact, it seems to TT that an exchange, hosting its own co-location facility, could reap savings from the economies of scale derived from becoming a major consumer of power, cooling and data lines that its co-location facility would require. Also, depending on the location of the facility, real estate costs could be significantly less than comparable third party co-location facilities (e.g., real estate in a suburb of a major city, typically is significantly less expensive than real estate within the major city). These decreased costs should actually result in lower fees for customers of the exchange co-location facilities, but at a minimum they do not justify increased fees (especially not double the fees).

TT believes some customers' willingness to pay the high price tag for the "premier" hosting and "high end" connectivity has more to do with them wanting to take advantage of an uneven playing field than any "value-added" services. While some users and firms can afford to pay the hefty price for the "premium" services, the users and firms using the "regular," more accessible services are blocked from entering the

[6] IOSCO Regulatory Issues Raised by the Impact of Technological Changes on Market Integrity and Efficiency Consultation Report, Section 2.2 (d)

market. TT estimates that the vast majority of market makers install their trading strategy algorithms on servers, which have to be housed close to the matching engine to take advantage of microsecond speed differences. Because of this technological reality, new market makers in particular are vulnerable to unjustified price hikes for co-location services. Exchanges already put some barriers in front of these new market makers. For example, new market makers may have to pay higher exchange transaction fees based on relatively lower volumes traded, but that is a small barrier compared to greatly inflated co-location fees because the market makers' total number of trades is relatively low as they ramp up their trading operations, so the total trading cost is low. In contrast, the exchanges block the entrance for new market makers when they charge co-location fees with no correlation to cost. This pricing belies IOSCO's stated goals of avoiding "…unduly favor[ing] some market users over others"[7] and making sure that the "…costs [do not] undermine fair access to trading venues"[8] because the fees are being used as a means to deny access to some market participants by 'pricing them out of the market.' While these newer market makers in theory could utilize third party co-location facilities or host their own infrastructure to access the exchange matching engine, trades originating from those locations would be so slow that they would be ineffective. If the exchange operated co-location price was reasonably related to the costs, as they are with third party operated co-location services, it seems that all trading participants would choose the best, lowest latency access.

The nature of an exchange as the sole provider of the market it hosts is also relevant to this issue because, unlike the fees charged by third party co-location providers, when an exchange becomes a co-location provider, there is no market competition. Exchange actions that amount to restraints on trade or otherwise impose any material anticompetitive burden on the market without a regulatory justification ought to be banned in all jurisdictions. Exorbitant fees for co-location services that are not reasonably related to cost would tend to restrict access and restrain trade or otherwise burden the market because not all participants can afford such fees. Those market participants would be excluded from the market or reduce their technology footprint at the co-location facility, thereby diminishing their market presence. Those market participants that can afford the fees will take advantage of lower latencies to further box out the competition.

TT's analysis of four of the world's largest exchanges reveals the numbers set forth in the table below comparing (i) actual negotiated fees available to TT by the current exchange co-location or proximity offerings using third party co-location providers (Exchanges 1 through 4 "co-lo or proximity hosting, operated by 3rd party") with (ii) the proposed fees for two exchange operated co-location facilities ("Exchange 3" and "Exchange 4" "co-lo hosting, operated by exchange"). The proposed exchanges fees are not negotiable because the exchanges are trying to be transparent in their pricing for all customers, which is laudable, but it also highlights a difference between the competitive third party co-location service provider market and the exchange co-location market—the third party providers' list prices are negotiable in part because their competitors bid for the same business and negotiation is necessary to compete. The exchanges in the table below are located either in Europe or the United States, but regardless of their locations the current and proposed fees are nonetheless relevant to show the pricing trend.

For comparison the table below shows the recurring co-location cost for each exchange for the same amount of usable power (in kilowatts) with sufficient secure space and cooling made available. The number of cabinets used varies because different datacenter designs allow for different amounts of kilowatts to be available in each cabinet, but the total number of available kilowatts in each scenario is almost identical. In the case of Exchange 4, restrictions exist on the minimum amount of power one must purchase in order to secure their hosting space with a private cage, which inflates this exchange's overall costs unnecessarily. Exchange 3 would require TT to purchase two cages to house seven cabinets at a cost of approximately $6,350 per month for the extra rack even though at other third party provider facilities

[7] OPSR, Section 4.2.2

[8] Tech Changes Report, Chapter 2, Section 2(d)

TT houses as many as 40 cabinets in a single private cage. Additional implied restrictions exist in that one must purchase a certain type of server to be able to utilize the power configuration efficiently and if one does not wish to incur the cost of procuring this type of server, the exchange still charges for the unusable portion of power. While the chosen amount of power is representative of TT's current needs and different requisite amounts of power by different customers will result in somewhat different comparative analysis, the below clearly shows a significant disparity in pricing between exchange operated co-location or proximity offerings and those operated by a third party.

Costs for 46kw of usable power with sufficient space, cooling, and cabinets in a private cage (normalized to USD currency)	Exchange 1 (Co-lo hosting, operated by 3rd party)	Exchange 2 (Co-lo hosting, operated by 3rd party)	Exchange 3 (Proximity hosting, operated by 3rd party)	Exchange 3 (Co-lo hosting, operated by exchange)	Exchange 4 (Proximity hosting, operated by 3rd party)	Exchange 4 (Co-lo hosting, operated by exchange)
Available lowest cost cabinet configuration to deliver requisite power	11.5 x 4kw	11.5 x 4kw	9.25 x 5kw	3 x 4kw + 4 x 9kw	11.5 x 4kw	7 x 8.5kw
Monthly recurring charges (MRC)	$25,300.00	$28,013.78	$31,270.99	$88,987.92	$25,300.00	$59,500.00
Annual total	**$303,600.00**	**$336,165.35**	**$375,251.89**	**$1,067,855.04**	**$303,600.00**	**$714,000.00**

TT understands that some exchanges may offer additional components and/or services (e.g., basic Remote Hands, higher levels of physical security, more robust back-up power capabilities, etc.) as part of co-location or proximity hosting services. However, TT believes that these factors have only an incremental effect on the overall cost to the provider and the subsequent monthly recurring charges for hosting and connectivity related products and services. Regulators must ensure that the fees charged by the exchanges are reasonably related to the costs incurred and if they fail to do so then fees like those proposed by the exchanges that are more than double the market rate are likely to continue.

In addition, as indicated in the table above, when comparing the proposed exchange provided co-location fees only with other exchange's proposals, they may seem reasonable. But, such a comparison is unfair since each exchange enjoys an exclusive offering of co-location with its matching engine. Increased fees based on reasonable costs incurred makes sense, but increased fees based on co-location with the matching engine ought to violate the applicable regulations.

In addition to the inflated costs depicted in the chart above, exchanges pile on even more charges for bundled services that are not required by third party co-location providers, causing an even greater barrier to entry for market participants. For example, at least one European exchange listed in the above chart does not allow direct telecommunication data line connectivity into its co-location facility. Utilizing directly connected data lines is, of course, one of the most common attributes of co-location facilities because such lines enable co-located tenants to conduct business by connecting co-location facilities to other datacenters, corporate offices, customer sites or the Internet. Instead, this exchange requires market participants to lease dark-fiber connectivity owned and operated by the exchange, at double the

market price of comparable service[9], between the exchange operated co-location facility and one of two 3rd party facilities designated by the exchange as "connectivity hubs." Additionally, in order to house network equipment for the connectivity into the exchange, market participants are now required to maintain a presence at these connectivity hubs. Meaning they must also purchase co-location services (space, power, cooling, etc.) at these locations from third party providers which adds significantly more costs for market participation.[10]

This exchange also charges a "per member hosting fee." No third party co-location service provider levies similar charges, because co-location services (whether provided by a third party provider or an exchange) do not incur any additional per member costs nor are they affected by how many members such services are divided between. This is a cost that is particularly sensitive to TT because it would provide connectivity to the exchange to many of its customers through the co-location facilities and, therefore, incur the cost of several per member hosting fees.

Without the appropriate regulatory requirement that exchanges offering co-location services must relate fees to actual reasonable and necessary costs, the barrier to market entry will continue to rise because of the uneven playing field manufactured by the exchanges.

III. Proposed Rule Language

Based on TT's assessment of the intention of IOSCO as well as the fees that are actually being demanded by exchanges for co-location services, TT suggests that the IOSCO encourage rules that specifically require that the fees be directly related to the reasonable costs of operating and providing co-location services and that they be priced competitively compared with the actual negotiated rates of the broader non-exchange owned or operated co-location service provider market.

Thank you for your consideration. I and others at TT would welcome an opportunity to meet with you to discuss these issues in the near future. If you have any comments or questions, please contact me at my direct phone number of (312) 476-1081 or via e-mail at mike.ryan@tradingtechnologies.com.

Regards,

Michael G. Ryan
Executive Vice President and General Counsel
Trading Technologies International, Inc.

[9] This exchange charges €3,000/month for a 1 Gigabit per second ("Gbps") unprotected line. TT procured similar lines in 2010 for approximately €1,500/month. This inflated cost only goes up if the market participant wants or needs different services, such as a 1Gbps protected line, 10Gbps unprotected line, and 10Gbps protected line, all of which are priced similarly about twice as much as comparable services procured from telecommunications vendors.

[10] These costs would probably equal the costs listed in the chart above for third party co-location provider services.