February 20, 2015

Via Electronic Mail (pubcom@finra.org)

Marcia E. Asquith
Office of the Corporate Secretary
FINRA
1735 K Street, NW
Washington, DC 20006-1506

RE: ***Regulatory Notice 14-47 – Equity Trading Initiatives: Synchronization of Business Clocks***

Dear Ms. Asquith:

KOR Group LLC[1] "KOR" submits this letter in connection with the above release request for comments to Tighten Business Clock Synchronization Requirements. FINRA proposes to reduce the synchronization tolerance for computer clocks from a current standard of one second to 50 milliseconds. KOR applauds FINRA for seeking to tighten business clocks.

As we discussed in our testimony before the Senate Committee on Banking, Housing and urban Affairs on July 8, 2014[2], synchronization of server clocks plays a vital role in a regulators attempt to reconstruct events, study the market and to perform proper surveillance. In fact, recently, Thomas Gira, executive vice president of market regulation of FINRA noted[3] that "making syncs extremely accurate is needed because of the proliferation of algorithmic trading" and "inaccuracies in time could make it difficult to determine whether a fast trader was engaging in layering". KOR agrees with Mr. Gira and in an age of electronic trading there is no substitute for high-resolution microsecond-level clock synchronization.

[1] KOR Group LLC is a research analysis and consulting firm that works with industry participants on market-structure related issues. Our client base includes US exchanges, algorithmic trading firms, buy-side institutions, investment banks and broker/dealers. KOR Group's founders operate Healthy Markets (healthymarkets.org) which is a non-profit 506(c) advocacy organization that promotes a platform of data freedom, increased transparency, competition and encouraging displayed price discovery. Healthy Markets brings together a diverse set of industry constituents to help foster positive market-structure change.

[2] See: Testimony of Dave Lauer
http://www.banking.senate.gov/public/index.cfm?FuseAction=Files.View&FileStore_id=220da02a-8dd6-4976-8172-b00e1d2ac120

[3] See comments of Thomas Gira to the Wall Street Journal http://www.wsj.com/articles/regulators-traders-are-out-of-sync-1405295799

Today timestamps are universally ignored because they are not synchronizing to a common clock source and therefore cannot be sequenced with each other across market centers. However, the technology to perform such high-resolution synchronization is low-cost and has been available for years. Furthermore, a reduction to 50 milliseconds would represent a first and long over-due first step but will not fully achieve the intended benefits sought for proper reconstruction of market events. A 50 millisecond resolution is only appropriate for servers communicating over the public internet. KOR believes that FINRA has the opportunity to take into account advances in technology combined with the fact that nearly all major broker/dealers have servers co-located in datacenters with exchange systems.

Therefore, KOR recommends that FINRA change their requirements to ensure that all firms are synchronizing their clocks to the greatest extent possible given their function in the market and technological capabilities. KOR recommends FINRA establish two tiers of clock synchronization requirements:

- Non-Co-Located Broker/Dealer
    - Description: This requirement would be for broker/dealers that do not have co-located equipment, or for any broker/dealer equipment that is not located in a datacenter with modern clock synchronization technology.
    - Requirement: 50 milliseconds, as per current FINRA proposal
    - Implementation: This can be accomplished with standard NTP, with little to no cost to the participant.
- Co-Located Broker/Dealer
    - Description: This requirement would be for any broker/dealers that have co-located equipment, either at an exchange datacenter or in a datacenter with modern clock synchronization technology.
    - Requirement: 1 millisecond
    - Implementation: This can be accomplished with standard NTP, with little to no cost to the participant, provided it is occurring within the same datacenter. Clock sources would have to be established (or simply designated from existing sources) in each datacenter, and those sources would have to be synchronized with each other at the SRO synchronization level.

Fundamentally, KOR disagrees with FINRA's justification for a blanket 50 millisecond synchronization based on the statement "that since the NIST itself uses a 50 millisecond advance to account for network delays that a tolerance of less than 50 milliseconds is neither necessary nor appropriate". NIST is not using a 50 millisecond advance to account, rather stating that users who authenticate via NTP may realize a timing accuracy of 50 milliseconds or better when using NIST authenticated NTP service over the public internet. NIST also supports applications that require millisecond-level accuracies and stability through NIST digital services. KOR therefore believes that reducing the tolerance to a 1 millisecond requirement overall would not impose significant additional costs to market participants over a 50 millisecond requirement.

Meeting a 50 millisecond standard would not represent a serious burden for industry participants and is a critical and long overdue move forward. However, it will not fully achieve the intended benefit. As part of FINRA's proposal, KOR recommends that FINRA seek to realize the incredible benefits of the industry synchronizing their clocks by modifying the requirements to segment participants by type and capability. This can provide a low-cost approach that fully realizes the possibilities that many participants currently utilize.

KOR thanks FINRA for the consideration of our comments. Should you have any questions please feel free to contact us.

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CEO KOR Group LLC

Dave Lauer
President KOR Group LLC