



January 21, 2017

Mr. Brent J. Fields  
Secretary  
Securities and Exchange Commission  
100 F Street NE  
Washington, DC 20549-1090

Re: **File No. SR-NYSE-2016-45 (Amendment No. 3)**

Dear Mr. Fields,

R2G Services, LLC ("R2G") appreciates the opportunity to comment on the above referenced item. We agree with the Commission, Citadel Securities, SIFMA, Clearpool, IEX, Wolverine, and countless silent others that the original NYSE Proposal and the first two Amendments raise serious concerns under the Securities Exchange Act of 1934 ("Exchange Act"). We do however feel that Amendment No. 3 adequately addresses the original concerns and we generally do not object to NYSE's establishment of fees as updated in the Amendment. We do however take issue with many of the misleading comments in these proceedings and in countless others before them. We feel an obligation to voice our concerns and hopefully provide much needed clarity to the discourse. We will address specific points made in NYSE's Amendment No. 3 as well as in their response letter dated January 17, 2017. Similar to IEX, we will also comment more generally on the impact of all exchange policies – not just those of the NYSE group of exchanges. We will also direct many comments toward the laissez-faire approach of the Commission that allows these policies and fee levels to exist. We appreciate the Commission's willingness to critically examine these issues. We also encourage the Commission to turn its gaze inward to critically examine its own role in having cultivated the current environment.

R2G is a colocation, connectivity, and content provider focusing on providing low latency technology solutions to a myriad of financial institutions. We are a large distributor for a plethora of U.S. based equity, equity option, and futures market data products. Each day, approximately 15% of all U.S. equity options volume flows through our network. Similar to Wolverine's WTT division, our clients expect us to subscribe to the lowest latency market data products and services. Like Clearpool, we too have a significant interest in ensuring that the fees exchanges charge for access, connectivity services, and market data are fair and equitable.

Our comments are presented in the numbered list below:

1. **NYSE Amendment No. 3:** *"The Exchange provides access to the Third Party Systems ("Access") and connectivity to Third Party Data Feeds, third party testing and certification feeds, and DTCC (collectively, "Connectivity") as conveniences to Users. Use of Access or Connectivity is completely voluntary, and several other access and connectivity options are available to a User. As alternatives to using the Access and Connectivity provided by the Exchange, a User may access or connect to such services and products through another User or through a connection to an Exchange access center outside the data center, third party access center, or third party vendor."*



**R2G Response:** We agree with NYSE on this point since it specifically addresses various Third Party Systems. R2G directly competes with NYSE for these services and does so at prices significantly lower than the fees NYSE has proposed. As such, we gladly welcome the Commission's approval of these proposed fees.

It should be noted that we would disagree vehemently with NYSE's comments if NYSE were to apply similar logic to any NYSE Proprietary Product. We also find it odd that NYSE later references "SFTI" as an option amongst other third party options. It is difficult to envision an exchange owned entity as somehow being presented as a third party. It is also worth mentioning that one of the third party vendors, formerly known as both 7-Ticks and Interactive Data Corporation ("IDC") is wholly owned by NYSE. What this means is that the exclusive manufacturer (NYSE) owns the exclusive warehouse (Mahwah Data Center), the exclusive distributor ("SFTI" aka "NYSE Tech"), and the largest or second largest "third party" vendor ("7-Ticks" aka "IDC" aka ICE Data Services"). When viewed in this light, it is easy to see why some may have anti-competitive concerns.

2. **NYSE Amendment No. 3:** *"Exchange has no affiliation with the sellers of the Third Party Data Feeds. It has no right to use the Third Party Data Feeds other than as a redistributor of the data. The Third Party Data Feeds do not provide access or order entry to the Exchange's execution system. With the exception of the ICE feeds, the Third Party Data Feeds do not provide access or order entry to the execution systems of the third party generating the feed.<sup>14</sup> The Exchange receives Third Party Data Feeds via arms-length agreements and it has no inherent advantage over any other distributor of such data."*

**R2G Response:** These statements do not appear to be factual. NYSE surely has rights to use the Third Party Data Feeds from competing US equity and equity option exchanges for its order routing and trade thru protections required by the Commission. The strong possibility exists that NYSE does in fact have an inherent advantage over other groups looking to bring external market data into the Mahwah facility. If Wolverine or R2G were to bring their own Nasdaq data into the Mahwah facility, we would have to connect our colo space to our telco providers over a series of cross connects and Mahwah fiber within the Mahwah facility. It is possible, and highly likely, that the NYSE Third Party Nasdaq offering traverses a separate network that provides for a slightly better latency profile. Lastly, NYSE is required to subscribe to the away market feeds. They are required to bring those away feeds into Mahwah. For NYSE to offer these third party feeds as a value add services requires only a marginal incremental investment. Vendors such as R2G willingly choose to make the investments in the away market data feeds and the corresponding fiber runs. But both those fiber runs incur \$500/month cross connect fees within the Mahwah facility. This ensures that NYSE and any NYSE owned vendor of these services has a minimum \$1000/month advantage over a non-NYSE owned vendor providing redundant market data services. NYSE can further increase their advantage by simply submitting a rule filing increasing the cost of a cross connect within the Mahwah facility. History has shown that such a filing has a high level of being approved.

3. **NYSE Amendment No. 3:** *"If a particular exchange charges excessive fees for co- location services, affected market participants will opt to terminate their co- location arrangements with that*



*exchange, and adopt a possible range of alternative strategies, including placing their servers in a physically proximate location outside the exchange's data center (which could be a competing exchange), or pursuing strategies less dependent upon the lower exchange-to participant latency associated with co-location. Accordingly, the exchange charging excessive fees would stand to lose not only co-location revenues but also the liquidity of the formerly co-located trading firms, which could have additional follow-on effects on the market share and revenue of the affected exchange."*

**R2G Response:** When framed in the limited context of the fees proposed in Amendment #3, we agree with NYSE. Though factually accurate, these comments are disingenuous in the context of other co-location services, connectivity, and market data. Reg NMS, customer demand, broker-dealer obligations, and the ever increasing "need for speed" have raised the standard of what is expected in the "base model." To borrow NYSE's use of analogies, NYSE is arguing if you don't want intermittent wipers, you can always grab an old cloth and reach out the driver side window to wipe the rain off the windshield. Alternatively, drop the car altogether and get yourself a horse and buggy.

NYSE has created a bifurcated revenue stream that further divides the haves from the have nots. It is our opinion that regulated exchanges are utility company-like, quasi governmental agencies. We wouldn't want our water works departments offering two types of water, purified and not-so-purified. We should expect the same from our exchanges. A public company like NYSE, or a private one like R2G, should not be blamed for trying to make a profit. R2G feels that some blame belongs to the Commission for fostering an environment that has allowed profits to shift egregiously towards a select few.

NYSE argues that they would stand to lose multiple revenue streams if they were to charge excessive fees. The Wolverine comment letter dated December 23, 2016 makes a compelling case that the fee structure is "beyond any possible interpretation of 'reasonable'" yet the NYSE (ICE) annual shareholder reports do not appear to show the supposed follow-on effects NYSE warns of. The only conclusion one can draw from these contradictory views is that NYSE has a monopoly on all services inside the Mahwah colocation facility.

4. **NYSE Response Letter Dated January 17, 2017:** *"Though the comments in respect to the previously proposed Premium Connectivity Fee are no longer relevant, the Exchange nonetheless believes it important to correct this mistake. Simply put, the Premium Connectivity Fee and proposed fees for connectivity to Third Party Data Feeds would be connectivity fees applicable when a User opts to utilize connectivity services within co-location. These connectivity fees would not be market data fees any more than the proposed fee for connectivity to DTCC would be a DTCC fee, and such connectivity fees would not generate market data revenue for the Exchange, for the provider of a Third Party Data Product, or for anyone else."*

**R2G Response:** Though we agree with NYSE that previous comments to date are no longer relevant, R2G nonetheless believes it important to comment on NYSE's comments. NYSE makes the argument that the cost of connectivity should not be converted or reclassified into market data fees. When that fee specifically applies to a market data product, it is hard to disassociate



that fee from the market data product. To paraphrase Shakespeare, "A market data fee by any other name would smell just like a market data fee."

Expanding on NYSE's HBO and "Game of Thrones" analogy, let's start with the fact that there is only one cable company in the town of Mahwah. This cable company offers two different cable boxes: LCN and LCN LX. "Game of Thrones" will be in black and white on the LCN box and you'll have to wait an extra week to find out who was slaughtered this week. The regular LCN box costs \$14,000/month whereas the LCN LX box costs \$22,000/month. If you want to have cable on two televisions (your "A" set and your "B" set) you'll have to pay for two cable boxes. If you have a disaster recovery TV in another room, you'll have to pay for three boxes.

If you watch "Game of Thrones", you'll have to pay a \$7,500/month Access Fee to "internally distribute" that show within your household. If you set your DVR, you'll have to claim a "non-display device" and pay an extra \$20,000/month in non-display fees. If you don't have a DVR, you'll have to file an annual attestation that you do not have a non-display device. If you fail to file that attestation on time, you will pay a \$1000/month late fee for each month you are late. If you invite a friend over to watch the show, you'll have to upgrade to becoming an external distributor of "Game of Thrones" at an additional cost to you of \$4000/month. Your friend will pay their own set of internal distribution and non-display fees. Each household member that watches the show will be subject to a \$16/month subscriber fee. Unless of course that person is deemed to be a professional "Game of Thrones" watcher, then his/her subscriber fees jump to \$70/month.

Lastly, the cable company originally proposed a Premium Service Fee that distinctly identified itself as being associated with "Game of Thrones" but not to "Westworld" or "Veep." It is difficult to believe that any reasonable person would not view that Premium Service Fee as being directly associated to the "Game of Thrones" "feed" (a market data fee) as opposed to being associated to the connectivity.

The enormity of the problem is that much more evident if the Commission stops to consider that the analogy used real world numbers in the context of one TV show, "Game of Thrones" (NYSE Integrated Feed) from one cable company (NYSE). If one wanted to watch the entire market, they'd need to pay fees to almost every exchange operator.

5. **Other Exchanges:** To be fair to NYSE, there are other Commission approved fees out there that are essentially market data fees masquerading as connectivity fees. Nasdaq, C2, CBOE, and CBOE Market Data Indices have similar fees (often referred to as "logical port fees" or "multicast port fees") that lie somewhere in between the physical connectivity fees and the market data fees.

**R2G Response:** On the surface, NYSE deserves credit for removing the Premium Connectivity Fee in Amendment No. 3. One example of the net affect of this is that any User that receives the 3 Integrated Feeds will no longer have to pay the additional \$3300 month in Premium Service Fees. Given the steep price tag for these Integrated Feeds, there are relatively few users of these feeds which means there are relatively few Users paying this previously imposed Premium Connectivity



Fee of \$3300. These fees were called "NYSE Non-Core Application Services" in the SFTI & Colocation US: Products and Services List which is attached here as **Exhibit A**.

There are many more Users out there paying the standard LCN, LCN LX, or SFTI IP connectivity fees. NYSE released a letter on January 20, 2017, announcing retroactive connectivity fee increases of approximately 10% across all connections. This letter is attached here as **Exhibit B**. Presented differently, a few "wealthy" users subscribing to all 3 Integrated Feeds just received a \$3300 discount on their connectivity (or market data) fee. All users just got hit with an average \$2000/month price increase retroactively effective January 1, 2017. The rich just received a net \$1300/month tax break whereas the masses just got hit with a \$2000/month tax increase.

So while we're all mired in a discussion on the technicalities and wording in a rule filing and its three subsequent amendments, NYSE just hit all Users with a significant retroactive fee increase that will likely go unnoticed and unchallenged.

R2G encourages the Commission to continue fostering these discussions, to keep a watchful and critical eye on all exchange rule filings, to put away the rubber stamp, and to reassess the current state of the US markets it is charged with regulating. Paraphrasing the words of Citadel Securities, many proposed rule filings coming not just from NYSE but from many other exchanges, are emblematic of a persistent and destructive trend of exchanges significantly increasing connectivity, market data, and other fees with little justification or benefit, as well as failing to provide market participants with adequate notice regarding all of the various fees being charged.

Anyone that has taken an advanced Economics course is likely familiar with the concept of the "Tragedy of the Commons." The term is used to describe a scenario where individuals, acting independently and rationally according to each one's self-interest, behave contrary to the whole group's long-term best interests by depleting some common resource. The example most economists use when describing this term is that of an international body of water where nation-states send their fishermen. No one nation-state can be blamed for trying to feed their citizens and contributing to their local economy. But collectively, the ocean suffers as a result of the actions of the individuals. Soon, the waters (the "commons") are depleted of their fish and every nation-state suffers the tragedy.

Where the Tragedy of the Commons analogy fails is that the financial marketplace is not a "commons." It is not an international body of water that nobody is looking out for. The Commission is supposed to be safeguarding our waters. The equity and equity option exchanges cannot raise the prices of their market data products without Commission approval which is almost always granted without discussion or debate. The Commission needs to stop looking at this from the perspective of each nation-state exchange and instead begin looking at the entire ecosystem. The fish supply is declining and it's up to the Commission to save it. If the Commission really cared about the commons, they'd find some creative ways to prevent the tragedy from continuing. Profit minded exchanges will continue to prey on the fish till there are none left. By preventing the tragedy, the fish will thrive and perhaps the exchanges could go back to generating revenues from more traditional sources.



Benjamin Franklin famously said “*Any fool can criticize, condemn and complain - and most fools do.*” Though we find the current system to be broken, the intent of these comments is not to criticize, condemn, nor complain. Our intent is to bring all current and proposed policies into the light where they belong. We respectfully urge the Commission to view all proposals in a much more critical light. We also humbly submit the following suggestions for the Commission to consider:

1. Perform an historical fee structure audit across all exchanges and exchange market data products over the past 5-10 years. Compare these fee increases to the rate of inflation, the cost of network switches, servers, fiber, and tech personnel payrolls. We posit that the exchange fees and the associated costs have moved in opposite directions. R2G is willing to assist in these efforts.
2. An immediate two-year moratorium on any price increases related to co-location, physical ports, logical ports, market data fees, market data administration fees, and any other fee not related to the core function of the markets - matching buy and sell orders.
3. A review of previous price feed increases and exchange policies with a roll back of egregious, esoteric, nebulous, and/or redundant fees.
4. Impose caps on market data fees, overt or hidden, that each exchange can charge. Create a per feed, per exchange, per asset class, and/or per industry cap. The industry cap could work as follows: If a firm is paying to receive feeds from NYSE and feeds from NASDAQ, they should get a pro-rated multi-feed discount that both exchanges would have to honor - keeping the combined fee below the industry cap. This is the best way for us to keep the oceans stocked with fish while NYSE fishes for salmon and Nasdaq fishes for tuna.

We hope that the Commission, NYSE, and every other exchange operator appreciate the honest feedback even if many may dislike or disagree with some or all of the points raised. Our desire is to continue to evolve both our business and the industry in which we serve. Our use of colorful analogies is not meant to make light of the seriousness of our concerns; but rather to highlight the often preposterous claims made, false logic applied, and exorbitant fees charged in our industry. On behalf of R2G, I am happy to answer any questions you may have or provide any additional information you may need.

Sincerely,

A handwritten signature in black ink, appearing to read 'Stefano Durdic', written in a cursive style.

Stefano Durdic  
Managing Director  
**R2G**

# EXHIBIT A

## SFTI & Colocation US: Product and Services List



Order Type [Description of the Order]		MRC	NRC
Change Fee		n/a	\$950
Expedited Order Processing Fee		n/a	\$4,000
<b>1 US Liquidity Center Services (MAHWAH)</b>			
<b>1.1 Colocation Services</b>			
<b>1.1.1 Kilowatts and Cabinets ( Colocation Services - Mahwah)*</b>		<b>MRC/kW</b>	<b>NRC</b>
Kilowatts & Cabinets	kW Tier (4-8)	\$1,200	\$5,000 per cabinet
Kilowatts & Cabinets	kW Tier (9-20)	\$1,050	
Kilowatts & Cabinets	kW Tier (21-40)	\$950	
Kilowatts & Cabinets	kW Tier (41+)	\$900	
Kilowatts Only	kW added to an existing cabinet	TBD	
Install Service (Equipment, internal cabinet cabling)	up to 4 hrs	n/a	\$800
<b>1.1.2 Partial Cabinets</b>		<b>MRC</b>	<b>NRC</b>
Partial Cabinet	8 RU / 1 kW	\$1,500	\$2,500
Additional Power	1 kW	\$1,200	n/a
Install Service	up to 2 hrs	n/a	\$400
<b>1.1.3 Vendor Program</b>		<b>MRC</b>	<b>NRC</b>
Vendor Program - MRC per Hosted User		\$500	N/A
<b>1.1.4 Additional Colocation Services</b>		<b>MRC</b>	<b>NRC</b>
NTP		\$100	\$300
PTP		\$250	\$1,000
GPS		\$400	\$3,000
Remote Hands Service (hourly rate)		n/a	\$200
Colocation Cage from 2 to 14 cabinets		\$2,700	\$5,000
Colocation Cage 15 to 28 cabinets		\$4,100	\$10,000
Colocation Cage 29 cabinets or greater		\$5,500	\$15,000
<b>1.2 Network Connectivity Options (MAHWAH)</b>			
<b>1.2.1 SFTI LCN Services</b>		<b>MRC</b>	<b>NRC</b>
SFTI LCN	1 Gbps port	\$5,000	\$6,000
SFTI LCN	10 Gbps port	\$12,000	\$10,000
SFTI LCN	10 Gbps LX port	\$20,000	\$15,000
SFTI LCN	40 Gbps port	\$20,000	\$15,000
<b>1.2.2 SFTI IP Liquidity Center (SLC)</b>		<b>MRC</b>	<b>NRC</b>
SFTI IP Liquidity Center	1 Gbps port	\$2,500	\$2,500
SFTI IP Liquidity Center	10 Gbps port	\$10,000	\$10,000
<b>1.2.3 SFTI Optic (includes Cross Connect)</b>		<b>MRC</b>	<b>NRC</b>
SFTI Optic (Secaucus - NY 2, 4 or 5)	1 Gbps port	\$2,800	\$2,750
SFTI Optic (Secaucus - NY 2, 4 or 5)	10 Gbps port	\$6,750	\$8,250
SFTI Optic	1 Gbps port	\$2,000	\$2,750
SFTI Optic	10 Gbps port	\$4,250	\$8,250
SFTI Optic (111 8th, 165H, Carteret & SCS)	40 Gbps port	\$7,500	\$7,500
SFTI Optic Intra Building Cross Connect	1, 10, 40Gbps	tdb	tdb
SFTI Optic (Chicago)	1 Gbps	\$13,000	\$5,500
SFTI Optic (Chicago)	10 Gbps	\$32,500	\$10,500
<b>1.2.4 SFTI 6 Pack (includes Cross Connect)</b>		<b>MRC</b>	<b>NRC</b>
SFTI - 6 Pack - Option 1	1Gbps - (2) SFTI LCN, (2) SFTI IP, (2) SFTI Optic AC	\$14,500	\$26,500
SFTI - 6 Pack - Option 1	10Gbps - (2) SFTI LCN, (2) SFTI IP, (2) SFTI Optic AC	\$48,500	\$51,500
SFTI - 6 Pack - Option 2	10Gbps - (2) SFTI LCN, (2) SFTI IP, (2) SFTI Optic DC	\$61,500	\$51,500

# EXHIBIT A

## SFTI & Colocation US: Product and Services List



1.2.5 SFTI Optic - Connect		MRC	NRC
SFTI Optic - Connect	100 Mbps, 1, 10, 40 & 100Gbps	\$750 + Cct	\$750 + Cct
SFTI Optic - Connect	Dark Fiber	\$750 + Cct	\$750 + Cct

  

1.2.6 Liquidity Center Cross Connects (LCX)		MRC	NRC
LCX Single		\$500	\$500
LCX 6 Pack		\$1,500	\$500
LCX 12 Pack		\$2,500	\$500
LCX 18 Pack		\$3,200	\$500
LCX 24 Pack		\$3,900	\$500

  

1.2.7 SFTI Wireless (Market Data)		MRC	NRC
Available in Secaucus and Carteret			
ARCA Integrated Feed		\$10,000	\$5,750
NYSE Integrated Feed		\$10,000	\$5,750
<b>NYSE &amp; Arca Integrated Feeds Bundle</b>		<b>\$17,500</b>	<b>\$5,750</b>
<i>* Price includes cross-connect at remote site</i>			
Available in USLC (Mahwah)			
BATS - PITCH BZX Gig Shaped Feeds		\$6,000	\$5,000
BATS - EDGEX Gig Shaped Feeds		\$6,000	\$5,000
Nasdaq - Totalview ITCH 5.0		\$8,500	\$5,000
Nasdaq - BX Totalview ITCH 5.0		\$5,000	\$5,000
<b>Nasdaq Bundle - Totalview and BX Totalview ITCH 5.0</b>		<b>\$12,000</b>	<b>\$5,000</b>
Nasdaq Totalview ITCH 5.0 FPGA *		\$11,000	\$5,000
<i>* Nasdaq TotalView Itch 5.0 FPGA is subject to regulatory approval (targeted Q1 2016)</i>			

  

1.2.7 SFTI Wireless (Circuit)		MRC	NRC
10 Mbps		\$15,500	\$10,500
20 Mbps		\$20,500	\$10,500

  

2 Network Connectivity Options (NON-MAHWAH)			
<b>2.1 SFTI IP Service</b>			
<b>2.1.1 SFTI IP Direct Connection (SDC) (includes Cross Connect)</b>		MRC	NRC
SFTI SDC	100 Mbps port	\$2,600	\$5,000
SFTI SDC	1 Gbps port	\$5,250	\$6,000
SFTI SDC	5 Gbps port	\$9,750	\$6,750
SFTI SDC	10 Gbps port	\$16,000	\$10,000
SFTI SDC (Avail at SCS, 111 8th, Carteret & 350C)	40 Gbps port	\$20,500	\$15,000
SFTI 40G SDC Bundle (SCS-111 8th or Carteret-111 8th)	2 x 40Gbps ports + 1 x 40Gbps circuit	\$44,000	\$15,000
<b>2.1.2 SFTI Limited Service Port (LSP) (includes Cross Connect)</b>		MRC	NRC
SFTI IP LSP - US	1Gb	\$1,750	\$1,000

  

3. Additional Connectivity Options			
<b>3.1 SFTI Americas VPN Access</b>		MRC	NRC
SFTI Americas VPN Access	1Mb	\$400	\$1,000
SFTI Americas VPN Access	2Mb	\$750	\$1,000
SFTI Americas VPN Access	5Mb	\$1,000	\$1,000
SFTI Americas VPN Access	10 Mb	\$1,200	\$1,000
<b>3.2 SFTI Virtual Control Circuit (VCC)</b>		MRC	NRC
<b>3.2.1 SFTI Virtual Control Circuit (VCC) - US Access</b>		MRC	NRC
SFTI IP VCC - US	1Mb	\$300	N/A
SFTI IP VCC - US	3Mb	\$500	N/A
SFTI IP VCC - US	5Mb	\$700	N/A
SFTI IP VCC - US	10Mb	\$900	N/A
SFTI IP VCC - US	25Mb	\$1,500	N/A
SFTI IP VCC - US	50Mb	\$2,000	N/A
SFTI IP VCC - US	100Mb	\$2,600	N/A
SFTI IP VCC - US	200Mb	\$4,900	N/A

# EXHIBIT A

## SFTI & Colocation US: Product and Services List



3.2.2 SFTI Virtual Control Circuit (VCC) - EU Access		MRC	NRC
SFTI IP VCC - EU Access	1 Mb	\$400	N/A
SFTI IP VCC - EU Access	3Mb	\$600	N/A
SFTI IP VCC - EU Access	5 Mb	\$800	N/A
SFTI IP VCC - EU Access	10Mb	\$1,000	N/A
SFTI IP VCC - EU Access	25Mb	\$1,900	N/A
SFTI IP VCC - EU Access	50Mb	\$3,800	N/A
SFTI IP VCC - EU Access	100Mb	\$4,800	N/A
SFTI IP VCC - EU Access	200Mb	\$6,400	N/A

### 4. Application Services

4.1 Core Application Services (no charge with SFTI port)		MRC	NRC
NYSE		n/a	n/a
NYSE Arca Equities		n/a	n/a
NYSE Arca Options		n/a	n/a
NYSE MKT Equities (previously NYSE AMEX)		n/a	n/a
NYSE AMEX Options		n/a	n/a
Global OTC		n/a	n/a
NMS (OPRA & CTS)		n/a	n/a

4.2 NYSE Non-Core Application Services		MRC	NRC
NYSE ARCA Europe			
Market Data		\$250	n/a
Arca Integrated Feed			
Arca IF: Resilient Feed ('A' & 'B') - Available on SFTI LCN 10Gb, 10Gb LX or 40Gb		\$1,500	n/a
Arca IF: 'A' Feed only - Available on SFTI IP 1Gb (dedicated), 5Gb, 10Gb or 40Gb		\$1,500	n/a
Arca IF: 'B' Feed only - Available on SFTI IP 1Gb (dedicated), 5Gb, 10Gb, 40Gb		\$1,500	n/a
Arca IF: Resilient Feed ('A' & 'B') - Available on SFTI IP 5Gb, 10Gb or 40Gb		\$3,000	n/a
ICE Futures			
ICE CCX Futures, ICE Endex, ICE Futures Canada, ICE Futures Europe, ICE Futures US		Custom	Custom
NYSE Best Quote and Trades (NYSE BQT)			
NYSE BQT Individual Feed ('A' or 'B') - Available on SFTI IP 1Gb (dedicated), 5Gb, 10Gb, 40Gb		\$1,500	n/a
NYSE BQT Resilient ('A' and 'B') - SFTI LCN 10Gb, 10Gb LX, 40Gb		\$1,500	n/a
NYSE BQT Resilient ('A' and 'B') - SFTI IP 5Gb, 10Gb, 40Gb		\$3,000	n/a
NYSE Integrated Feed			
NYSE IF: 'A' Feed only - Available on SFTI IP 1Gb (dedicated), 5Gb, 10Gb or 40Gb		\$1,500	n/a
NYSE IF: 'B' Feed only - Available on SFTI IP 1Gb (dedicated), 5Gb, 10Gb or 40Gb		\$1,500	n/a
NYSE IF: Resilient Feed ('A' & 'B') - Available on SFTI LCN 10Gb, 10Gb LX or 40Gb		\$1,500	n/a
NYSE IF: Resilient Feed ('A' & 'B') - Available on SFTI IP 10Gb, 10Gb LX or 40Gb		\$3,000	n/a
NYSE MKT Integrated Feed			
NYSE MKT IF: 'A' Feed only - Available on SFTI IP 1Gb (dedicated), 5Gb, 10Gb or 40Gb		\$1,500	n/a
NYSE MKT IF: 'B' Feed only - Available on SFTI IP 1Gb (dedicated), 5Gb, 10Gb or 40Gb		\$1,500	n/a
NYSE MKT IF: Resilient Feed ('A' & 'B') - Available on SFTI LCN 10Gb, 10Gb LX or 40Gb		\$300	n/a
NYSE MKT IF: Resilient Feed ('A' & 'B') - Available on SFTI LCN 10Gb, 10Gb LX or 40Gb		\$500	n/a
Options Analytics			
Options Analytics: A feed only		\$500	n/a
Options Analytics: B feed only		\$500	n/a
Options Analytics: Resilient Feed (A & B)		\$1,000	n/a

### 5. Content Service Providers (CSPs)

#### 5.1 Unicast & Multicast Market Center Application Services - TBD per bandwidth requirements

See SFTI Americas Market Connectivity Factsheet - [www.nyxdata.com/docs/connectivity](http://www.nyxdata.com/docs/connectivity)



# NYSE Technologies Connectivity

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January 20, 2017

## Mahwah – Market Data Connectivity

Dear Client,

Effective **January 1, 2017**, NYSE Technologies Connectivity, Inc. will be implementing changes to the colocation pricing schedule to amend some of the fees applicable to customers and add information regarding the connectivity that customers can receive over their Mahwah data center ports. The changes will be applicable to the following services:

- Access to IP Network
- Access to LCN Network
- Connectivity to Included Data Products
- Connectivity to Third Party Systems
- Connectivity to Third Party Data Feeds
- Connectivity to Third Party Testing and Certification Feeds
- Connectivity to DTCC
- Virtual Control Circuits

Many of such changes were announced in a July 7, 2016, letter, but the effective date is now January 1, 2017. Please see the attached Appendix A for additional details and the fee changes.

Please reach out to [ConnectivityReporting@theice.com](mailto:ConnectivityReporting@theice.com) if you have any questions. We value your business and thank you in advance for your cooperation in this matter.

Best Regards,

A handwritten signature in blue ink that reads "Margaret Niche".

**Margaret Niche**, Global Head of Operational Management  
SFTI & Colocation Services



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## Appendix A - Changes to the Colocation Pricing Schedule

### Access to IP and LCN Network

The IP network and LCN provide Users with access to the trading and execution systems and proprietary market data products of the NYSE Group markets NYSE, NYSE MKT and NYSE Arca.

The IP network also provides Users with access to third party trading and execution systems and connectivity to third party data products, testing and certification feeds, and DTCC. Such access and connectivity is subject to any technical provisioning requirements and authorization from the relevant third party. Any applicable fees are charged independently by the relevant third party.

Effective January 1, 2017, the pricing for the following IP and LCN connections is as follows:

Type of Service	Monthly Recurring Fee	Installation Charge
LCN Access - 10 Gb*	\$14,000	\$10,000
LCN Access - 10 Gb LX	\$22,000	\$15,000
LCN Access - 40 Gb	\$22,000	\$15,000
IP Network Access - 10 Gb	\$11,000	\$10,000
IP Network Access - 40 Gb	\$18,000	\$10,000
Bundled Network Access (2 LCN connections, 2 IP network connections, and 2 optic connections to outside access center): 10 Gb Bundle	\$53,000	\$50,000

\* A User that purchases 5 10 Gb LCN Circuits will receive the 6th 10 Gb LCN Circuit without an additional monthly charge.

### Connectivity to Exchange Systems and Included Data Products

When a User purchases access to the LCN or IP network, it receives the ability to access the trading and execution systems of the NYSE Group markets, subject, in each case, to authorization by the applicable NYSE Group market.

When a User purchases access to the LCN or IP network, it receives connectivity to any of the Included Data Products that it selects, subject to any technical provisioning requirements and authorization from the provider of the data feed. Market data fees for the Included Data Products are charged by the provider of the data feed.



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The Included Data Products are as follows:

Included Data Products
<b>NMS feeds</b>
<b>NYSE:</b>
NYSE Alerts
NYSE BBO
NYSE Integrated Feed
NYSE OpenBook
NYSE Order Imbalances
NYSE Trades
<b>NYSE Amex Options</b>
<b>NYSE Arca:</b>
NYSE ArcaBook
NYSE Arca BBO
NYSE Arca Integrated Feed
NYSE Arca Order Imbalances
NYSE Arca Trades

Included Data Products
<b>NYSE Arca Options</b>
<b>NYSE Best Quote and Trades (BQT)</b>
<b>NYSE Bonds</b>
<b>NYSE MKT:</b>
NYSE MKT Alerts
NYSE MKT BBO
NYSE MKT Integrated Feed
NYSE MKT OpenBook
NYSE MKT Order Imbalances
NYSE MKT Trades

## Connectivity to Third Party Data Feeds

Pricing for data feeds from third party markets and other content service providers (Third Party Data Feeds) is for connectivity only. Connectivity to Third Party Data Fees is over the IP network, with the exception that Users can connect to Global OTC and NYSE Global Index over the IP network or LCN.

The Third Party Data Feeds available to customers, and related connectivity pricing, are as follows

Third Party Data Feed	MRC per Third Party Data
Bats BZX Exchange (BZX) and Bats BYX Exchange (BYX)	\$2,000
Bats EDGX Exchange (EDGX) and Bats EDGA Exchange (EDGA)	\$2,000
Boston Options Exchange (BOX)	\$1,000
Chicago Board Options Exchange (CBOE)	\$2,000
Chicago Stock Exchange (CHX)	\$400
Euronext	\$600
Financial Industry Regulatory Authority (FINRA)	\$500
Global OTC	\$100
Intercontinental Exchange (ICE)	\$1,500
Montréal Exchange (MX)	\$1,000
MSCI 5 Mb	\$500



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MSCI 25 Mb	\$1,200
NASDAQ Stock Market	\$2,000
NASDAQ OMX Global Index Data Service	\$100
NASDAQ OMDF	\$100
NASDAQ UQDF & UTDF	\$500
NYSE Global Index	\$100
OTC Markets Group	\$1,000
SR Labs - SuperFeed <500 Mb	\$250
SR Labs – SuperFeed >500 Mb to <1.25 Gb	\$800
SR Labs – SuperFeed >1.25 Gb	\$1,000
TMX Group	\$2,500

## Connectivity to Third Party Testing and Certification Feeds

The Exchange provides connectivity to third party testing and certification feeds provided by third party markets and other content service providers. The connectivity pricing is as follows.

Connectivity to third party certification and testing feeds	\$100 MRC per feed
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## Connectivity to Third Party Systems

Pricing for access to the execution systems of third party markets and other service providers (Third Party Systems) is for connectivity only.

The Third Party Systems available to customers, and related connectivity pricing, are as follows:

Third Party Systems	Bandwidth of connection to Third Party System	MRC per connection
Americas Trading Group (ATG)	1Mb	\$200
BATS	3Mb	\$400
Boston Options Exchange (BOX)	5Mb	\$500
Chicago Board Options Exchange (CBOE)	10Mb	\$800
Credit Suisse	25Mb	\$1,200
International Securities Exchange (ISE)	50Mb	\$1,800
Nasdaq	100Mb	\$2,500
National Stock Exchange	200 Mb	\$3,000
NYFIX Marketplace	1 Gb	\$3,500

## Connectivity to DTCC

Pricing for connectivity to DTCC feeds is for connectivity only. The connectivity pricing is as follows.

5 Mb connection to DTCC	\$500 monthly recurring fee
50 Mb connection to DTCC	\$2,500 monthly recurring fee



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## Virtual Control Circuits

Pricing for VCC between two co-location Users will be as follows:

MB	Fee
1Mb	\$200 monthly charge
3Mb	\$400 monthly charge
5Mb	\$500 monthly charge
10Mb	\$800 monthly charge
25Mb	\$1,200 monthly charge
50Mb	\$1,800 monthly charge
100Mb	\$2,500 monthly charge