

August 11, 2015

Dear OPRA Market Data Recipients:

The OPRA Participants have updated their traffic projections based on messages per 100-millisecond (MPHM) intervals. The use of the 10-millisecond interval reflects system utilization during bursts of traffic. These figures include the 12 active Exchanges, the new EDGX Options Exchange (scheduled activation November 2nd), and the new ISE Mercury Exchange (anticipated activation Q4, 2015).

OPRA plans to support the updated traffic rates beginning in October 2015. The bandwidth required to receive data via your SFTI connection is reflected in Gigabits.

Please note that the traffic projections are for one stream only. For fault tolerance purposes, two redundant streams of data are available from SIAC. For those Data Recipients who elect to take in both streams of data, the Bandwidth requirements would be double.

The maximum output traffic rates for OPRA data services will be as follows:

Capacity Projections

Effective Date	100-Milliseconds			10-Milliseconds			Total Messages Per Day (billions)
	Maximum Output Traffic Rates (millions)	Bandwidth Gigabits	Peak Packets (thousands)	Maximum Output Traffic Rates (millions)	Bandwidth Gigabits	Peak Packets (thousands)	
10/5/2015	4.842	1.58	325	0.547	0.177	32.5	29.8
11/2/2015	4.842	1.58	400	0.547	0.177	40	29.8
1/7/2016	5.319	1.73	500	0.601	0.195	50	30.1
7/2016	5.629	1.83	540	0.636	0.206	54	33.0
1/2017	6.019	1.95	570	0.680	0.220	57	34.0
7/2017	6.289	2.04	600	0.711	0.231	60	35.0

Retransmissions

The required bandwidth should be increased by 10% to account for retransmissions.

Current Output Rate:

The maximum output rate on an individual Multicast Line for OPRA is 300,000 MPHM.

Latency

The average latency for OPRA is under 0.4 milliseconds. Message latency is measured beginning with the time-stamp taken as an inbound Participant message arrives at the network entrance to the OPRA environment, through processing by the system into a consolidated message for Data Recipients, to the time-stamp taken as the outbound message arrives at the network exit from the environment. These time-stamps are taken and correlated by a process external to the data processing applications. If the external process cannot correlate an inbound message to its corresponding outbound message or measures negative latency for a message, the message is excluded from broader latency calculations such as average message latency.