



Financial Information Forum Market Data Capacity Charts June 2013 Data

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Appendix 1: Additional FIF Capacity Statistics Available		

Monthly Highlights

Exchange Messages per Second

Feed	June 13	Monthly % Change	(MPS)	Date of Time of Peak (Local Peak Time)	All Time/Previous Record Peaks
BATS Options MCASTPITCH AGG	1 Sec Peak	▲▲ 26%	2,068,217	Jun 28 3:59:00 PM	2,068,217 mps on Jun 28, 2013 at 15:59:00
NASDAQ UQDF	1 Sec Peak	▲▲ 16%	217,486	-	217,486 mps in June 2013
BATS CHI-X Europe CXE PITCH	1 Sec Peak	▲ 30%	92,546	Jun 03 12:21:50 PM	113,890 mps on Apr 05, 2013 at 10:52:00
SIAC CTS	1 Sec Peak	▲ 29%	68,688	Jun 28 3:45:00 PM	80,747 mps on Jun 22, 2012 at 15:45:00
NASDAQ UTDF	1 Sec Peak	▲ 29%	52,971	-	66,883 mps in June 2012
BATS BZX TOP	1 Sec Peak	▲ 28%	133,201	Jun 20 2:21:00 PM	145,285 mps on Sep 13, 2011 at 14:57:00
BATS BYX TOP	1 Sec Peak	▲ 26%	50,828	Jun 28 3:59:00 PM	108,395 mps on Nov 01, 2011 at 15:46:00
SIAC CQS	1 Sec Peak	▲ 22%	539,065	Jun 20 2:21:00 PM	580,870 mps on Nov 02, 2011 at 13:01:00
BATS CHI-X Europe BXE PITCH	1 Sec Peak	▲ 16%	39,136	Jun 03 12:21:50 PM	128,742 mps on Nov 14, 2011 at 12:48:45
BATS BZX PITCH	1 Sec Peak	▲ 15%	288,493	Jun 20 2:21:00 PM	837,359 mps on Mar 23, 2012 at 11:58:00
SIAC OPRA	1 Sec Peak	▲ 14%	6,640,102	Jun 20 2:21:00 PM	6,846,223 mps on Mar 28, 2013 at 09:42:00
BATS BYX PITCH	1 Sec Peak	▲ 14%	102,224	Jun 21 3:59:00 PM	257,021 mps on Nov 01, 2011 at 15:46:00
Deutsche Börse CEF Ultra + Eurex	1 Sec Peak	▲ 11%	22,935	-	43,306 mps on Aug 25, 2011 at 15:10:16
NYSE AMEX Options	1 Sec Peak	▲ 9%	1,591,285	Jun 19 9:30:12 AM	1,618,370 mps on Jan 11, 2013 at 09:30:00
Deutsche Börse CEF Ultra + Xetra	1 Sec Peak	▲ 7%	13,348	Jun 03 1:21:50 PM	16,176 mps on Jan 24, 2013 at 09:28:00
NYSE ArcaBook Options	1 Sec Peak	▲ 5%	1,559,048	Jun 11 9:30:08 AM	1,597,438 mps on Sep 04, 2012 at 09:30:09
Deutsche Börse CEF Core Scoach	1 Sec Peak	▲ 4%	110,104	Jun 28 8:03:29 AM	112,562 mps on Dec 04, 2012 at 14:30:07
Direct Edge EDGA	1 Sec Peak	▲ 3%	87,201	Jun 21 3:59:59 PM	159,544 mps on Nov 01, 2011 at 15:46:01
NASDAQ BX TotalView ITCH	1 Sec Peak	▲ 2%	51,988	Jun 18 10:47:00 AM	126,146 mps on Aug 24, 2010 at 10:00:00
NASDAQ Level 2	5 Sec Peak	▲ 1%	27,732	Jun 28 3:59:00 PM	71,738 mps on May 16, 2013 at 09:47:11
CME MDP FIX/FAST	1 Sec Peak	▲ 0.03%	33,503	Jun 20 1:21:30 PM	78,376 mps in November 2006
NASDAQ PSX TotalView - ITCH	1 Sec Peak	▼ -2%	26,540	Jun 24 11:03:00 AM	79,419 mps on Sep 13, 2011 at 14:57:00
NASDAQ TotalView - Aggregated	5 Sec Peak	▼ -4%	56,514	Jun 25 9:29:00 AM	151,902 mps on Dec 03, 2012 at 09:32:00
NYSE ArcaBook Equities	1 Sec Peak	▼ -6%	263,678	Jun 27 9:30:00 AM	373,529 mps in October 2008
NASDAQ TotalView - ITCH	1 Sec Peak	▼ -9%	640,583	Jun 26 3:59:00 PM	934,182 mps on Oct 26, 2012 at 15:59:00
Direct Edge EDGX	1 Sec Peak	▼ -12%	202,213	Jun 10 3:59:59 PM	264,298 mps on Apr 15, 2013 at 15:59:59
Deutsche Börse CEF Core Total	1 Sec Peak	▼ -20%	169,096	Jun 03 11:23:35 AM	235,586 mps on Dec 10, 2012 at 09:03:59
Deutsche Börse CEF Core Eurex	1 Sec Peak	▼ -25%	181,141	Jun 12 7:30:00 AM	243,128 mps on May 03, 2013 at 19:59:00

Monthly Highlights

Daily Peak Messages

Feed	Monthly % Change		June 2013 (MSGs)	Messages	All Time/Previous Record Peaks
NYSE AMEX Options	▲	64%	8,534,367,414	Jun 06	9,831,004,887 Messages in Aug 2011
Deutsche Börse CEF Ultra + Eurex	▲	24%	65,062,508	Jun 20	261,159,456 Messages in Sep 2011
NASDAQ PSX TotalView - ITCH	▲	16%	66,950,805	Jun 24	226,246,648 Messages in Oct 2011
SIAC CTS	▲	15%	27,869,100	Jun 20	67,451,801 Messages in Oct 2008
Deutsche Börse CEF Core Eurex	▲	14%	147,430,520	Jun 20	477,507,916 Messages in Sep 2011
Deutsche Börse CEF Core Total	▲	12%	1,945,047,832	Jun 24	2,053,373,879 Messages in Aug 2011
Deutsche Börse CEF Core Scoach	▲	8%	19,002,403	Jun 24	1,474,449,265 Messages in Aug 2011
Deutsche Börse CEF Ultra + Xetra	▲	7%	45,171,265	Jun 20	88,984,367 Messages in Aug 2011
NASDAQ TotalView - Aggregated	▲	7%	355,435,911	Jun 24	663,870,521 Messages in Oct 2008
BATS CHI-X Europe CXE PITCH	▲	6%	86,882,088	Jun 24	91,345,673 Messages in Jun 2012
SIAC OPRA	▲	6%	11,114,236,776	Jun 24	14,571,768,041 Messages in Aug 2011
NYSE ArcaBook Options	▲	5%	4,051,398,384	Jun 06	5,308,975,224 Messages in Aug 2011
NASDAQ TotalView - ITCH	▲	4%	481,266,094	Jun 24	999,814,794 Messages in Oct 2008
NASDAQ UQDF	▲	4%	173,388,550	Jun 24	453,955,258 Messages in Aug 2011
Direct Edge EDGX	▲	4%	135,352,327	Jun 24	326,284,023 Messages in Jan 2012
NASDAQ Level 2	▲	2%	141,585,136	Jun 24	458,922,971 Messages in Oct 2008
NASDAQ UTDF	▲	1%	9,134,588	Jun 21	22,014,987 Messages in Jul 2007
SIAC CQS	▲	1%	743,703,845	Jun 24	1,919,132,028 Messages in Aug 2011
CME MDP FIX/FAST	▲	1%	108,160,935	Jun 06	259,617,459 Messages in Jul 2008
BATS BZX TOP	▼	-1%	124,872,816	Jun 24	450,787,513 Messages in Oct 2008
BATS BZX PITCH	▼	-2%	308,698,963	Jun 24	1,323,659,430 Messages in Oct 2008
BATS CHI-X Europe BXE PITCH	▼	-2%	38,200,834	Jun 20	117,118,540 Messages in May 2010
NASDAQ BX TotalView ITCH	▼	-3%	123,461,035	Jun 24	211,139,020 Messages in May 2010
Direct Edge EDGA	▼	-3%	112,933,291	Jun 24	346,308,673 Messages in Aug 2011
BATS BYX PITCH	▼	-5%	97,327,176	Jun 24	438,152,802 Messages in Aug 2011
BATS BYX TOP	▼	-8%	55,419,675	Jun 06	206,986,900 Messages in Aug 2011
NYSE ArcaBook Equities	▼	-11%	284,734,922	Jun 06	1,256,392,506 Messages in Nov 2008

Monthly Highlights

Millisecond Analysis

Feed	10 millisecond Peak (messages per second)	10 millisecond Peak (messages per millisecond)	10 Millisecond Peak (megabits/second)	Monthly MPS % Change	10 millisecond Peak Date/Time	10 millisecond as % of 1 second
BATS Options MCAST PITCH Aggregate	16,615,200	166,152	1,861	4%	Jun 28 @ 4:00:00 PM	803%
SIAC OPRA	9,162,550	91,626	N/A	-1%	Jun 20 @ 2:21:00 PM	138%
SIAC CQS	1,664,565	16,646	N/A	11%	Jun 21 @ 3:10:00 PM	309%
BATS BZX PITCH	1,129,000	11,290	524	1%	Jun 19 @ 9:45:00 AM	391%
BATS CHI-X Europe BXE PITCH	973,400	9,734	382	-4%	Jun 24 @ 4:30:00 PM	2487%
BATS BYX PITCH	876,600	8,766	344	-20%	Jun 10 @ 4:00:00 PM	858%
Direct Edge EDGX	725,400	7,254	N/A	-45%	Jun 19 @ 9:45:00 AM	359%
Direct Edge EDGA	532,700	5,327	N/A	-62%	Jun 24 @ 2:42:38 PM	611%
BATS BZX TOP	475,600	4,756	130	-4%	Jun 03 @ 9:59:00 AM	357%
BATS BYX TOP	393,200	3,932	125	-2%	Jun 20 @ 9:13:00 AM	774%
SIAC CTS	341,732	3,417	N/A	-12%	Jun 17 @ 9:59:00 AM	498%
NYSE AMEX Options	N/A	N/A	1,335	N/A	N/A	N/A
NYSE Arcabook Options	N/A	N/A	3,085	N/A	N/A	N/A
NYSE Arcabook Equities	N/A	N/A	3,085	N/A	N/A	N/A

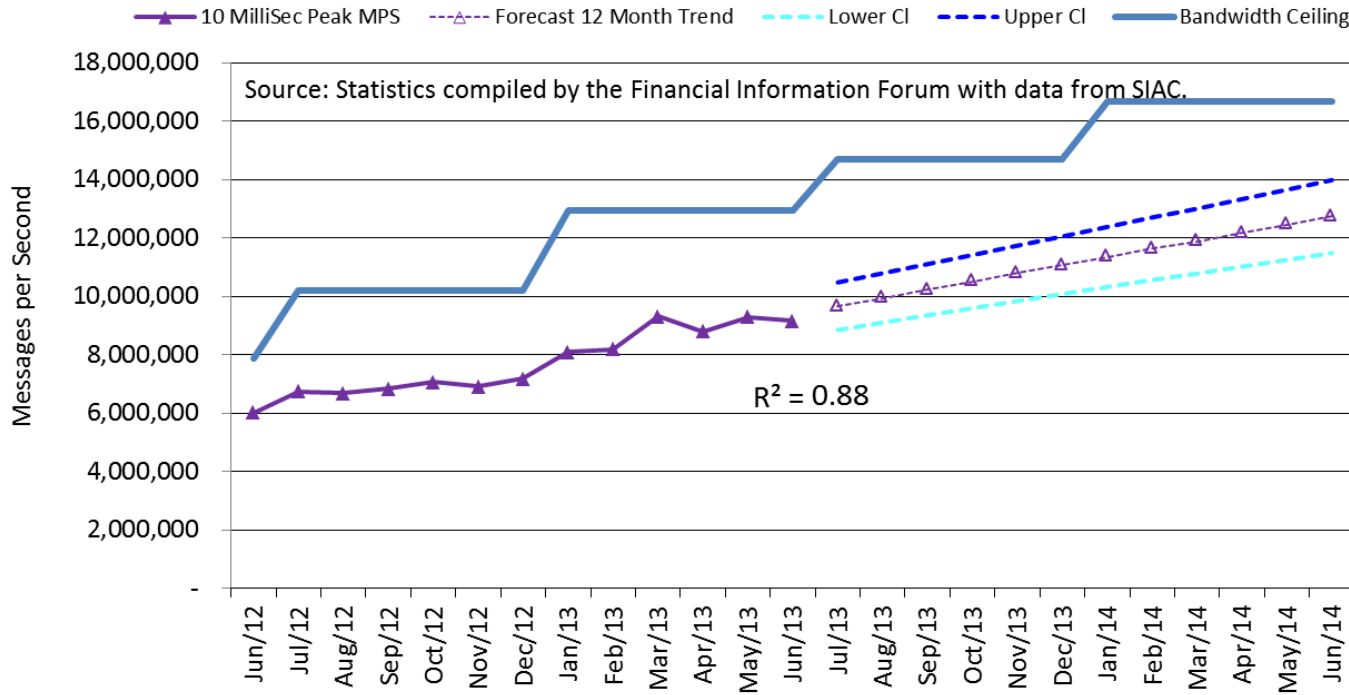
Note: 10 Millisecond statistics in messages per second are calculated above by multiplying the highest number of messages flowing in the busiest 10 millisecond with 100. Statistics also shown in raw format (messages per 10 millisecond)

OPRA Capacity Statistics

Slide Name
FIF Projection Based on OPRA 10 Millisecond Peak Rates
FIF Projection Based on OPRA 1 Second Peak Rates
OPRA Breakdown by Line
Accuracy of FIF OPRA 1 Second Peak Rate Projection
OPRA Daily Peak Messages Rates
OPRA Quote to Trade Ratio

OPRA Capacity Statistics

FIF Projection Based on OPRA 10 Millisecond Peak Rates

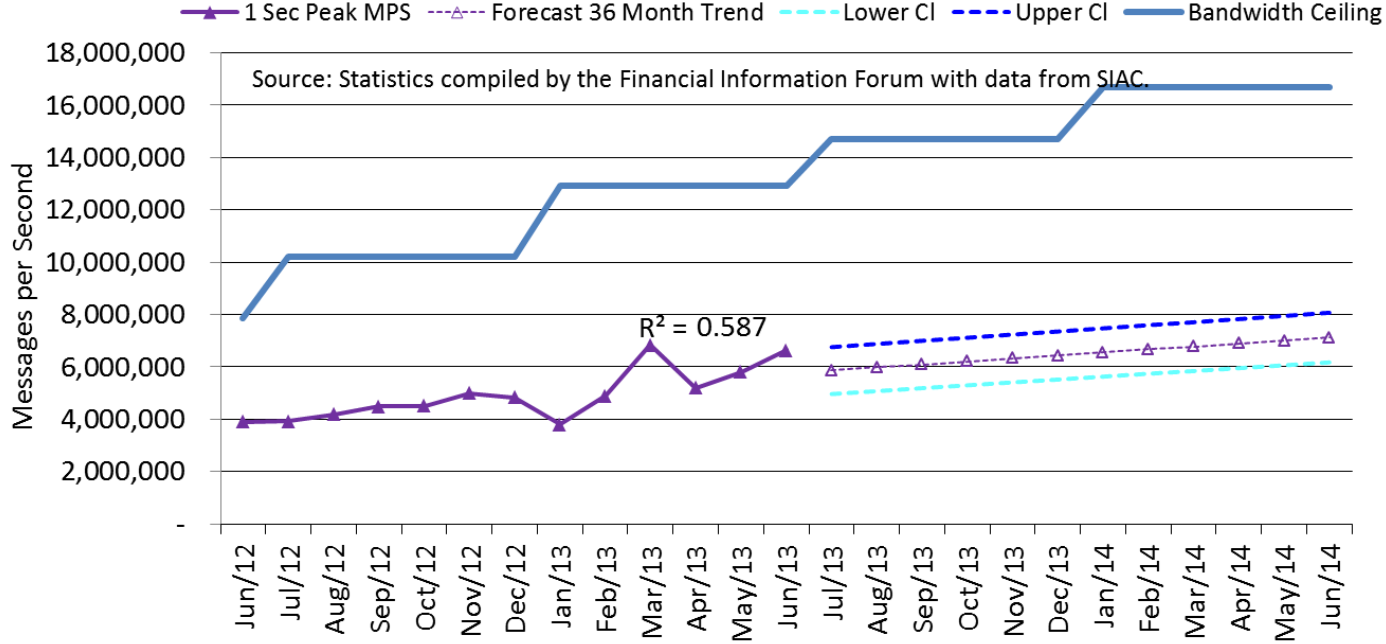


- Record Peak: 9,310,600 mps (3/28/2013 at 9:41 AM)
- OPRA ceilings exceed actual peaks by 41%.
- OPRA 10 Millisecond Peak Annual Growth rate: 52%; Six Month Forecast: 21%
- OPRA Ceiling: 14,692,600 mps (3.53 Gbps); Jan 7, 2014: 16,666,000 mps (4.00 Gbps); Jul 8, 2014: 17,686,500 mps (4.24 Gbps); Jan 6, 2015: 19,064,500 mps (4.58 Gbps) ([OPRA Jan 18, 2013 Notice](#))

	Actual 10 MSec Peak	Monthly % Change
Jun-12	6,015,000	4%
Jul-12	6,738,800	12%
Aug-12	6,684,650	-1%
Sep-12	6,837,150	2%
Oct-12	7,054,850	3%
Nov-12	6,907,700	-2%
Dec-12	7,173,300	4%
Jan-13	8,084,850	13%
Feb-13	8,190,650	1%
Mar-13	9,310,600	14%
Apr-13	8,798,850	-5%
May-13	9,280,700	5%
Jun-13	9,162,550	-1%
	Predicted 10 MSec Peak	Monthly % Change
Jul-13	9,662,106	5%
Aug-13	9,947,137	3%
Sep-13	10,232,168	3%
Oct-13	10,508,004	3%
Nov-13	10,793,035	3%
Dec-13	11,068,871	3%
Jan-14	11,353,902	3%
Feb-14	11,638,932	3%
Mar-14	11,896,379	2%
Apr-14	12,181,410	2%
May-14	12,457,246	2%
Jun-14	12,742,277	2%

OPRA Capacity Statistics

FIF Projection Based on OPRA 1 Second Peak Rates



- Record Peak: 6,846,223 mps (3/28/2013 at 9:42 AM)
- OPRA ceilings exceed actual peaks by over 95%.
- FIF 1 Second Peak projections have consistently under predicted the peak by a minimum of 18%.
- OPRA 1 Second Peak Annual Growth rate: 70%; Six Month Forecast: -3%
- OPRA Ceiling: 14,692,600 mps (3.53 Gbps); Jan 7, 2014: 16,666,000 mps (4.00 Gbps); Jul 8, 2014: 117,686,500 mps (4.24 Gbps); Jan 6, 2015: 19,064,500 mps (4.58 Gbps) ([OPRA Jan 18, 2013 Notice](#))

Note: Forecast based on 36 months of historic data.

	Actual 1 Sec Peak	Monthly % Change
Jun-12	3,897,864	-5%
Jul-12	3,924,558	1%
Aug-12	4,191,031	7%
Sep-12	4,494,735	7%
Oct-12	4,518,988	1%
Nov-12	4,999,610	11%
Dec-12	4,829,988	-3%
Jan-13	3,810,896	-21%
Feb-13	4,888,772	28%
Mar-13	6,846,223	40%
Apr-13	5,202,445	-24%
May-13	5,808,999	12%
Jun-13	6,640,102	14%
	Predicted 1 Sec Peak	Monthly % Change
Jul-13	5,863,015	-12%
Aug-13	5,979,752	2%
Sep-13	6,096,488	2%
Oct-13	6,209,459	2%
Nov-13	6,326,196	2%
Dec-13	6,439,166	2%
Jan-14	6,555,903	2%
Feb-14	6,672,640	2%
Mar-14	6,778,079	2%
Apr-14	6,894,816	2%
May-14	7,007,787	2%
Jun-14	7,124,523	2%

June 2013 – OPRA Peak Messages 1 Second Peak Breakdown by Line

Multicast Line Peak as a % of Average 1 Second Peak			Actual 1 Second Peak MPS
Average 1 Second Peak per Multicast Line	159,346		
Line	Symbol	Jun-13	Jun-13
IP1	A - AAPL	28%	203,638
IP2	AAPL - AEMZZ	42%	225,818
IP3	AEN - AMTZZ	0.3%	159,782
IP4	AMU - ATZZZ	27%	201,806
IP5	AU - BGTZZ	-11%	141,750
IP6	BGU - BTZZZ	-12%	140,814
IP7	BU - CDMZZ	-5%	151,565
IP8	CDN - CMHZZ	6%	168,721
IP9	CMI - CSMZZ	-6%	149,123
IP10	CSN - DHZZZ	-11%	141,588
IP11	DI - DIRZZ	-26%	117,521
IP12	DIS - EDMZZ	2%	161,821
IP13	EDN - ESMZZ	-19%	128,809
IP14	ESN - FAS	-22%	124,701
IP15	FAS - FFMZZ	-22%	124,433
IP16	FFN - FXIZZ	-25%	119,486
IP17	FXJ - GLD	73%	275,420
IP18	GLD - GOOG	69%	269,274
IP19	GOOG - HCZZZ	53%	244,248
IP20	HD - HTZZZ	-22%	123,833
IP21	HU - INVZZ	-26%	117,858
IP22	INW - IWM	22%	194,690
IP23	IWN - JNJZZ	0.1%	159,518
IP24	JNK - KQZZZ	-8%	146,010

Multicast Line Peak as a % of Average 1 Second Peak			Actual 1 Second Peak MPS
Average 1 Second Peak per Multicast Line	159,346		
Line	Symbol	Jun-13	Jun-13
IP25	KR - LWZZZ	9%	172,943
IP26	LX - MDY	-9%	145,199
IP27	MDY - MOSZZ	-29%	113,126
IP28	MOT - NCZZZ	-6%	149,283
IP29	ND - NOMZZ	14%	182,411
IP30	NON - OIHZZ	-30%	112,228
IP31	OII - PCLN	13%	180,313
IP32	PCLN - POZZZ	-3%	153,876
IP33	PP - QQQ	-15%	135,941
IP34	QQQ - RMZZZ	-24%	121,726
IP35	RN - SCZZZ	-34%	104,738
IP36	SD - SLMZZ	-24%	121,158
IP37	SLN - SPXZZ	-16%	134,636
IP38	SPY - SPY	55%	247,592
IP39	SPY - SSO	66%	264,904
IP40	SSO - TBTZZ	6%	168,635
IP41	TBU - TMMZZ	-28%	113,974
IP42	TMN - UAZZZ	4%	164,926
IP43	UB - USO	-29%	113,784
IP44	USO - VMZZZ	-4%	153,246
IP45	VN - WFMZZ	15%	183,725
IP46	WFN - XLDZZ	-21%	126,465
IP47	XLE - XLZZZ	13%	180,447
IP48	XM - ZZZZZ	-30%	111,112

- Effective July 30, 2012, OPRA employed new [symbol distribution](#).
- On Apr 22, 2013, OPRA revised the [binary output format](#) change effective date to July 22, 2013.

OPRA Capacity Statistics

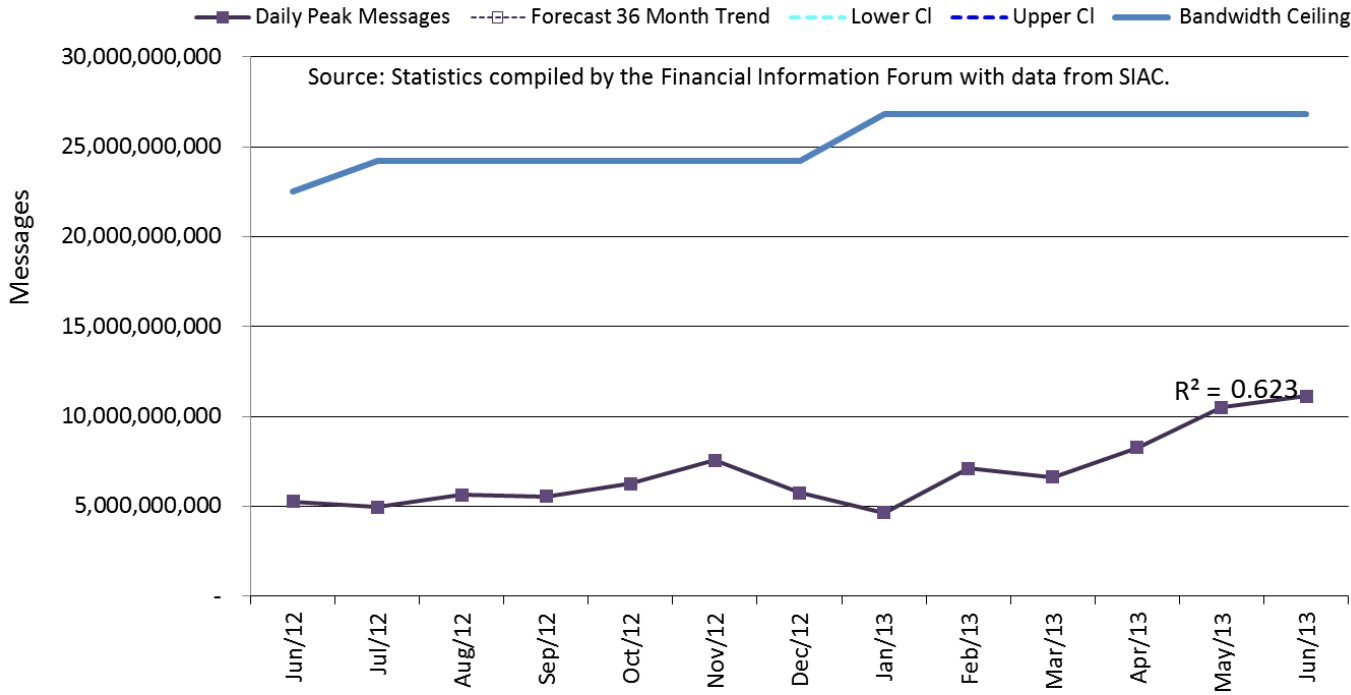
Accuracy of FIF OPRA 1 Second Peak Rate Projection

Month	OPRA - 1 Second Peak MPS Accuracy													
	Actual	May-12	Jun-12	Jul-12	Aug-12	Sep-12	Oct-12	Nov-12	Dec-12	Jan-13	Feb-13	Mar-13	Apr-13	May-13
Jun-12	3,897,864	112%												
Jul-12	3,924,558	114%	113%											
Aug-12	4,191,031	109%	108%	108%										
Sep-12	4,494,735	104%	103%	103%	102%									
Oct-12	4,518,988	106%	105%	104%	104%	104%								
Nov-12	4,999,610	98%	97%	96.5%	96%	96%	97%							
Dec-12	4,829,988	103%	103%	102%	102%	102%	102%	103%						
Jan-13	3,810,896	134%	133%	132%	132%	132%	132%	133%	133%					
Feb-13	4,888,772	106%	106%	105%	105%	105%	105%	106%	106%	104%				
Mar-13	6,846,223	77%	77%	76.4%	76%	76%	77%	77%	77%	75%	75%			
Apr-13	5,202,445	104%	103%	103%	102%	103%	103%	104%	104%	101%	101%	104%		
May-13	5,808,999	95%	94%	94%	93%	94%	94%	95%	95%	92%	92%	95%	95%	
Jun-13	6,640,102	85%	84%	83%	83%	84%	84%	84%	85%	82%	82%	85%	84%	85%

- Percentages indicate how close the predicted value was to the actual 1 Second peak. For example, the prediction made based on May 2013 data for June 2013 was 85% of the actual value of 6,649,102 mps
- Projections from the past twelve months (May 2012 to May 2013) have consistently under predicted the peak by a minimum of 18%.
- Projections are based on a linear regression of twelve months historical data

OPRA Capacity Statistics

OPRA Daily Peak Messages Rates



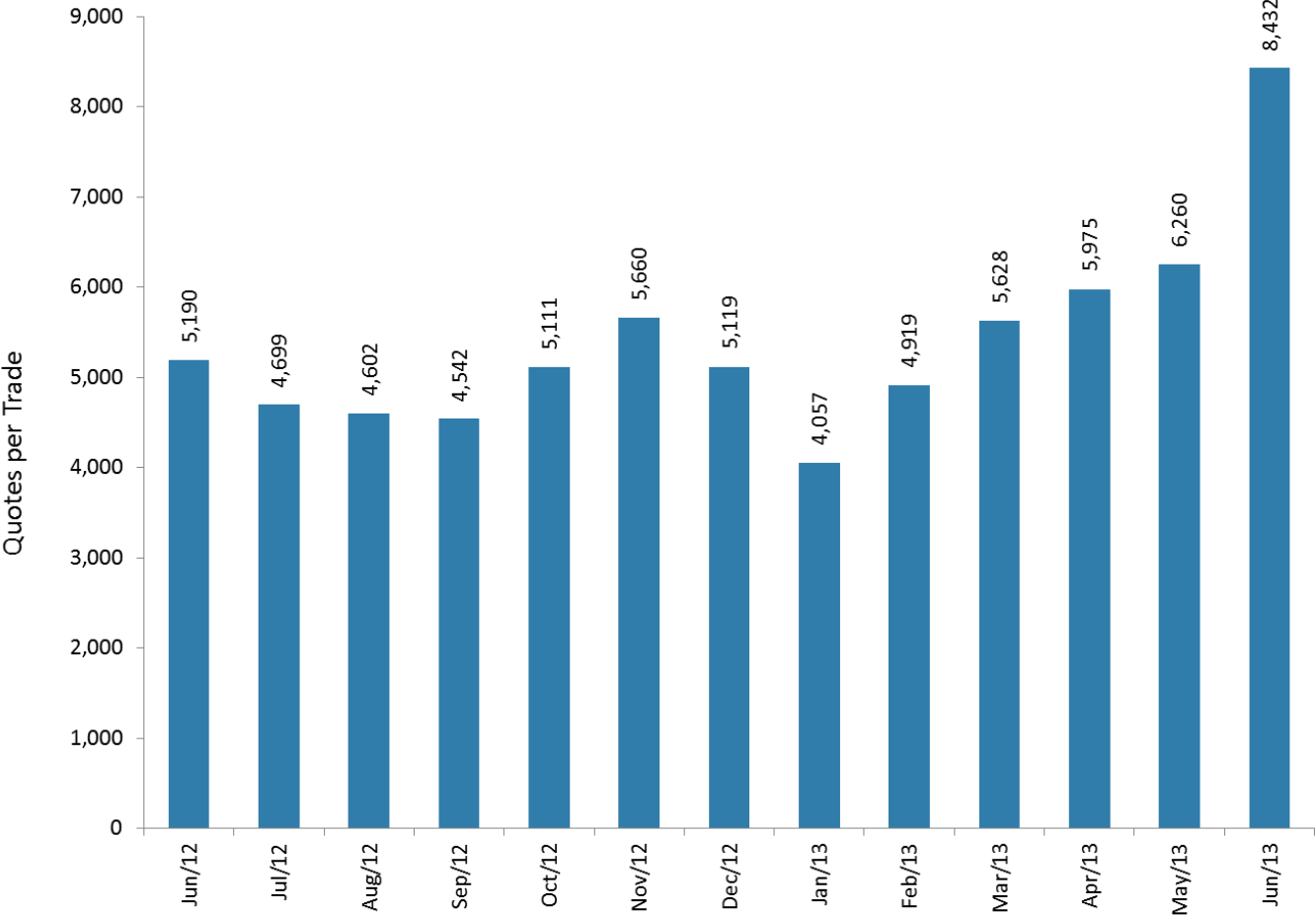
	Actual Daily Peak Messages	Monthly % Change
Jun-12	5,273,565,967	-15%
Jul-12	4,964,096,358	-6%
Aug-12	5,631,737,711	13%
Sep-12	5,554,331,629	-1%
Oct-12	6,266,316,157	13%
Nov-12	7,555,340,804	21%
Dec-12	5,734,454,755	-24%
Jan-13	4,632,390,468	-19%
Feb-13	7,105,841,340	53%
Mar-13	6,610,376,633	-7%
Apr-13	8,255,732,304	25%
May-13	10,491,452,914	27%
Jun-13	11,114,236,776	6%

- Record Peak: 14,571,768,041 messages (August 10, 2011)
- OPRA Ceiling: 26,800,000,000 messages; Jul 9, 2013: 24,600,000,000 messages; Jan 7, 2014: 26,100,000,000 messages; Jul 8, 2014: 26,900,000,000 messages; Jan 6, 2015: 28,700,000,000 messages ([OPRA Jan 18, 2013 Notice](#))
- OPRA Daily Peak Messages Annual Growth rate: 111%

OPRA Capacity Statistics

OPRA Quote to Trade Ratio

Source: Statistics compiled by the Financial Information Forum with data from SIAC.



Month	Ratio	Monthly % Change
Jun-12	5,190	3%
Jul-12	4,699	-9%
Aug-12	4,602	-2%
Sep-12	4,542	-1%
Oct-12	5,111	13%
Nov-12	5,660	11%
Dec-12	5,119	-10%
Jan-13	4,057	-21%
Feb-13	4,919	21%
Mar-13	5,628	14%
Apr-13	5,975	6%
May-13	6,260	5%
Jun-13	8,432	35%

- Current OPRA Peak Quote to trade Ratio reached an all time peak of 8,432: 1. This is a **9%** increase from the previous peak of peak of 7,745: 1.

Consolidated Equity Feeds and OPRA Capacity Statistics

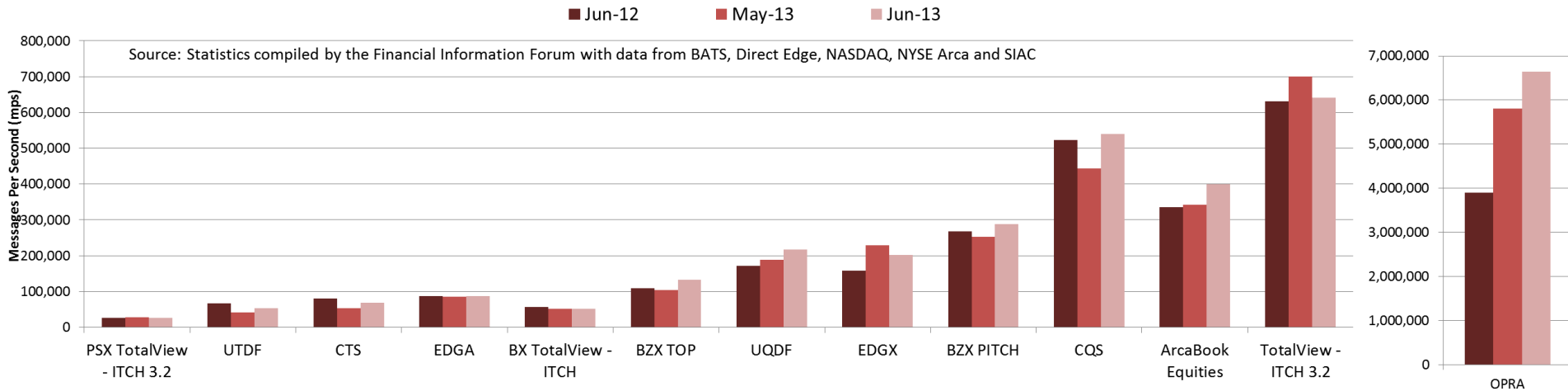
Slide Name
Comparative 1 Second Peak Rates (Annual and Monthly Increase)
Comparative 1 Minute Peak Rates (Annual and Monthly Increase)
OPRA & Consolidated Equities 10 Millisecond Peak Rates
OPRA & Consolidated Equities 1 Second Peak Rates
OPRA & Consolidated Equities 1 Minute Peak Rates

Consolidated Equity Feeds and OPRA Capacity Statistics

Comparative 1 Second Peak Rates (Annual and Monthly Increase)

Feed	Jun-12	May-13	Jun-13	Monthly % Change	Annual % Change
PSX TotalView - ITCH 3.2	25,878	26,962	26,540	-2%	3%
UTDF	66,883	41,073	52,971	29%	-21%
CTS	80,747	53,125	68,688	29%	-15%
EDGA	86,698	84,801	87,201	3%	1%
BX TotalView - ITCH	55,905	50,861	51,988	2%	-7%
BZX TOP	109,059	104,054	133,201	28%	22%
UQDF	171,732	187,897	217,486	16%	27%
EDGX	158,232	229,593	202,213	-12%	28%
BZX PITCH	266,883	251,897	288,493	15%	8%
CQS	522,087	443,554	539,065	22%	3%
ArcaBook Equities	335,662	342,642	400,024	17%	19%
TotalView - ITCH 3.2	631,252	700,412	640,583	-9%	2%
OPRA	3,897,864	5,808,999	6,640,102	14%	70%
Totals	6,408,882	8,325,870	9,348,555	12%	46%

Annual Traffic Ratio	1.5
Annual Traffic Percent Change	46%
Monthly Traffic Percent Change	12%

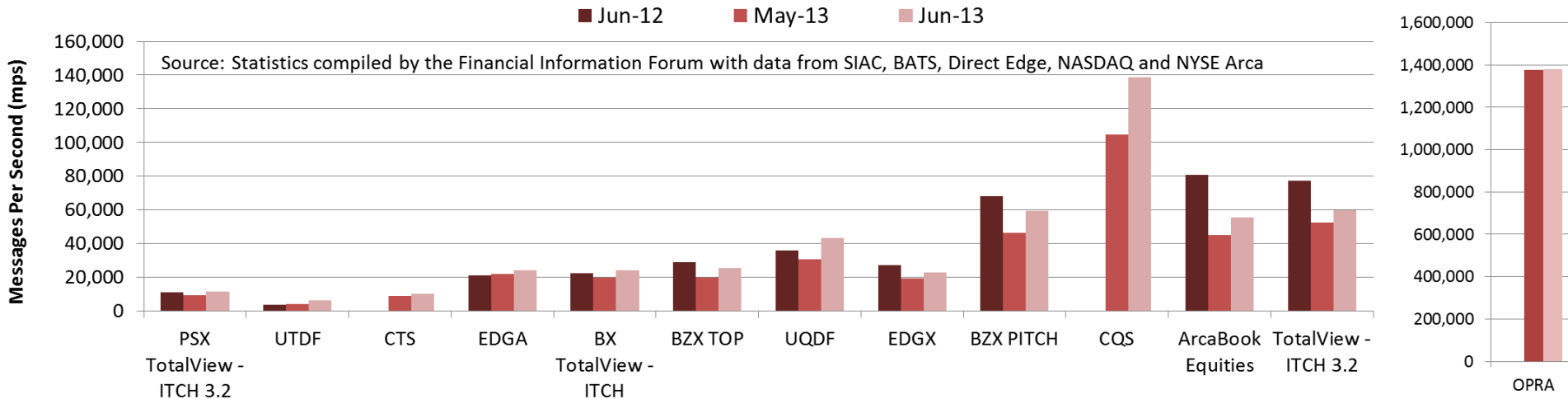


Consolidated Equity Feeds and OPRA Capacity Statistics

Comparative 1 Minute Peak Rates (Annual and Monthly Increase)

Feed	Jun-12	May-13	Jun-13	Monthly % Change	Annual % Change
PSX TotalView - ITCH 3.2	11,147	9,009	11,576	28%	4%
UTDF	3,689	4,148	6,014	45%	63%
CTS	N/A	8,826	9,991	13%	N/A
EDGA	20,840	21,646	24,144	12%	16%
BX TotalView - ITCH	22,205	19,745	23,826	21%	7%
BZX TOP	28,937	19,844	25,110	27%	-13%
UQDF	35,608	30,633	43,157	41%	21%
EDGX	26,950	19,090	22,882	20%	-15%
BZX PITCH	68,076	46,201	59,459	29%	-13%
CQS	N/A	104,612	138,661	33%	N/A
ArcaBook Equities	80,589	44,785	55,398	24%	-31%
TotalView - ITCH 3.2	77,225	52,558	59,591	13%	-23%
OPRA	N/A	1,376,865	1,380,464	0.3%	N/A
Totals	375,266	267,659	331,157	24%	-12%

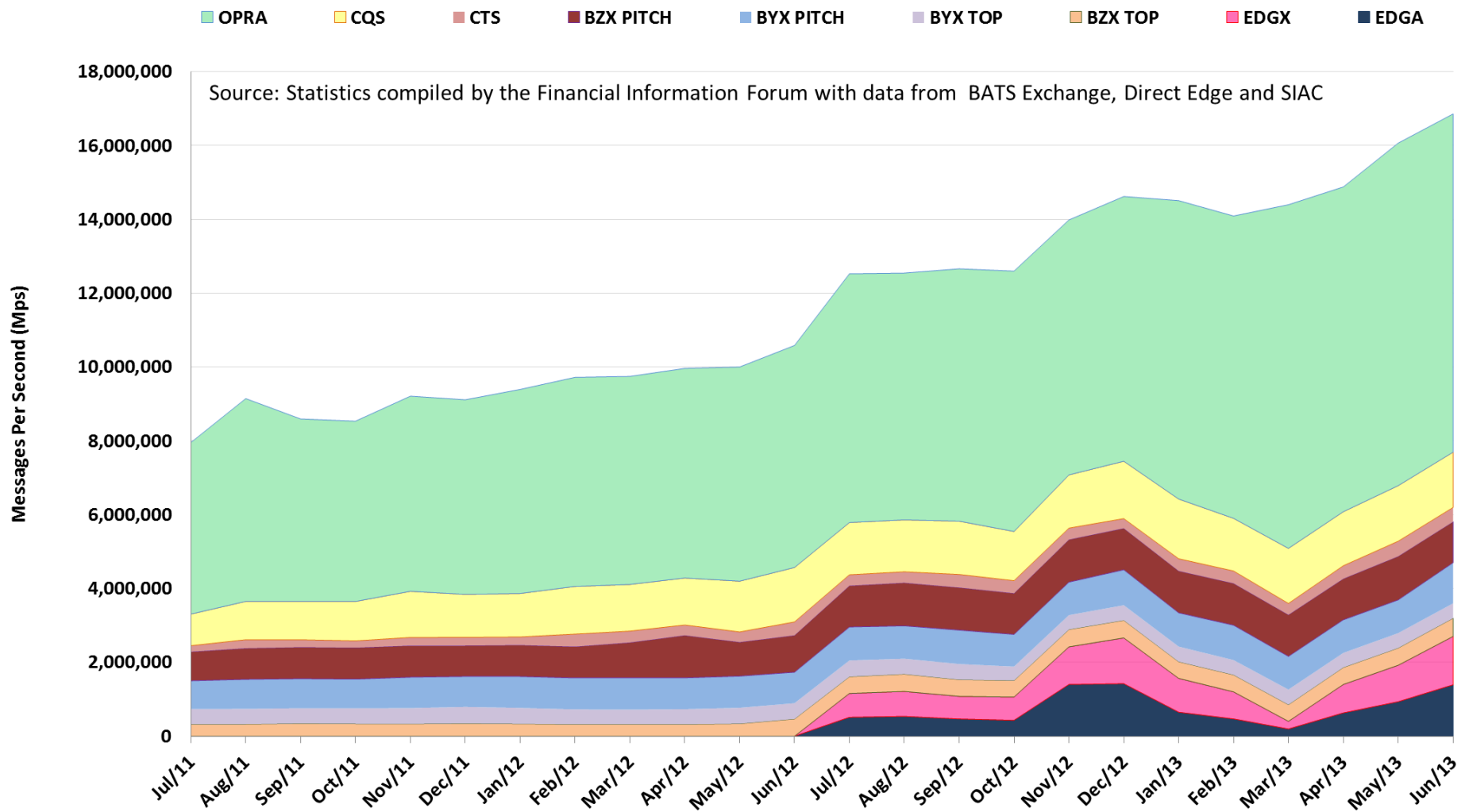
Annual Traffic Ratio	0.9
Annual Traffic Percent Change	-12%
Monthly Traffic Percent Change	24%



* Note: Annual % Change doesn't include 1 minute statistics for CQS, CTS and OPRA in 2012

Consolidated Equity Feeds and OPRA Capacity Statistics

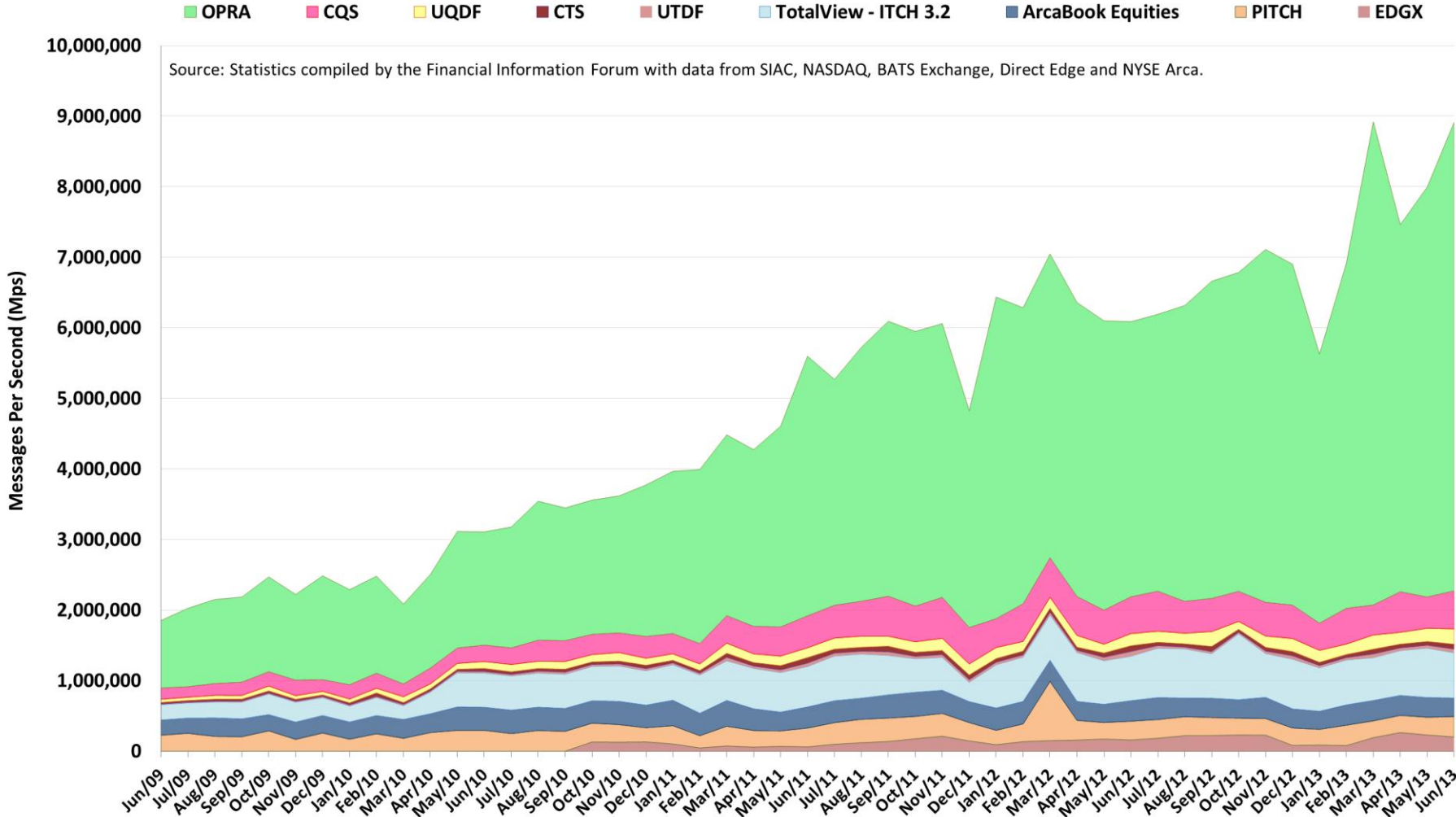
OPRA, SIAC & BATS 10 Millisecond Peak Rates



Note: 10 Millisecond statistics in messages per second are calculated above by multiplying the highest number of messages flowing in the busiest 10 millisecond with 100. Direct Edge EDGA and EDGX added in Jun 2012

Consolidated Equity Feeds and OPRA Capacity Statistics

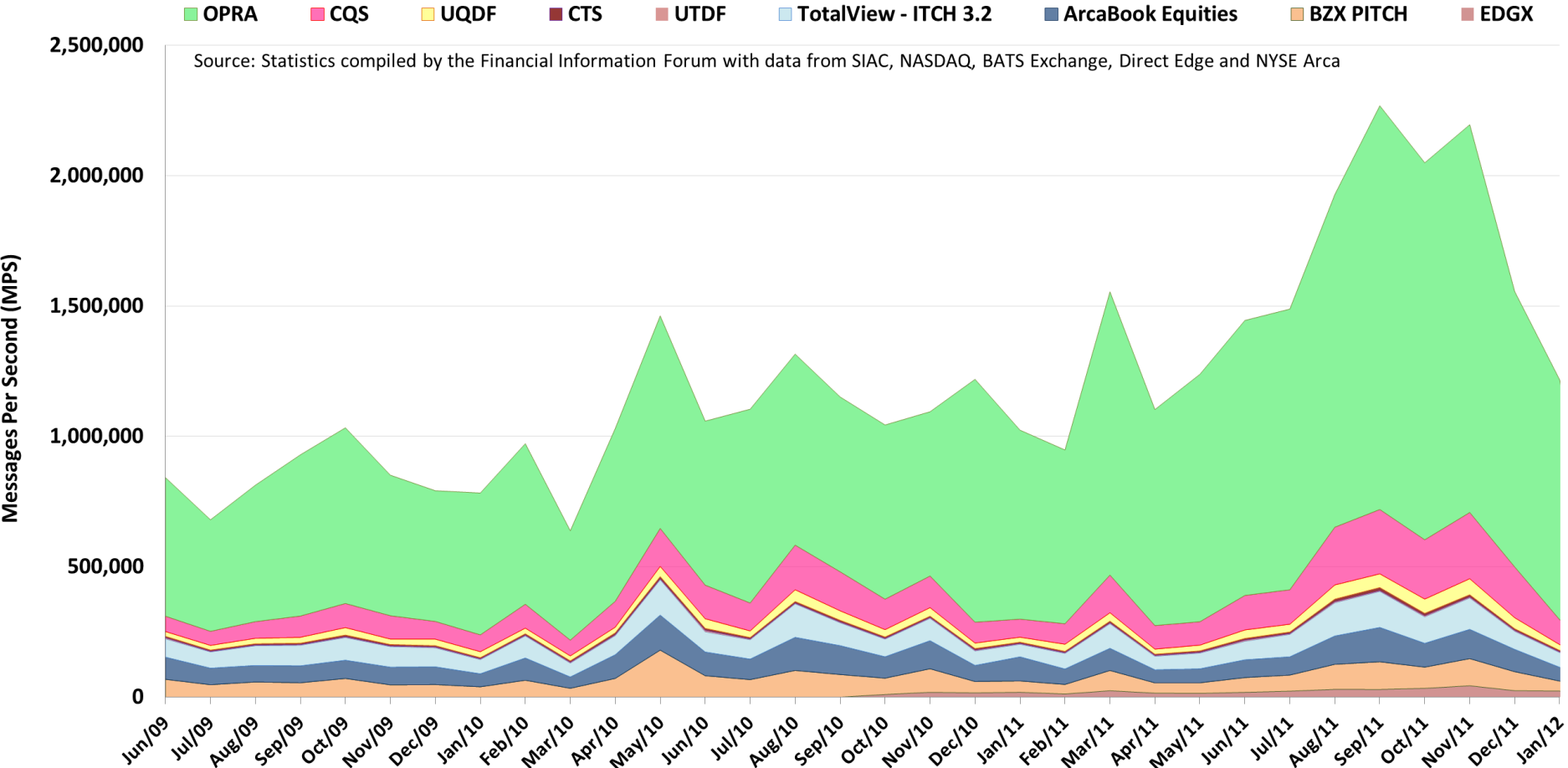
OPRA & Consolidated Equities 1 Second Peak Rates



Note: TotalView ITCH 3.1 shown from April 2009 onwards. As of March 2010, NASDAQ launched the OS1 Equity Symbology compliant feed TotalView - ITCH 3.2. Direct Edge EDGX shown from Oct 2010.

Consolidated Equity Feeds and OPRA Capacity Statistics

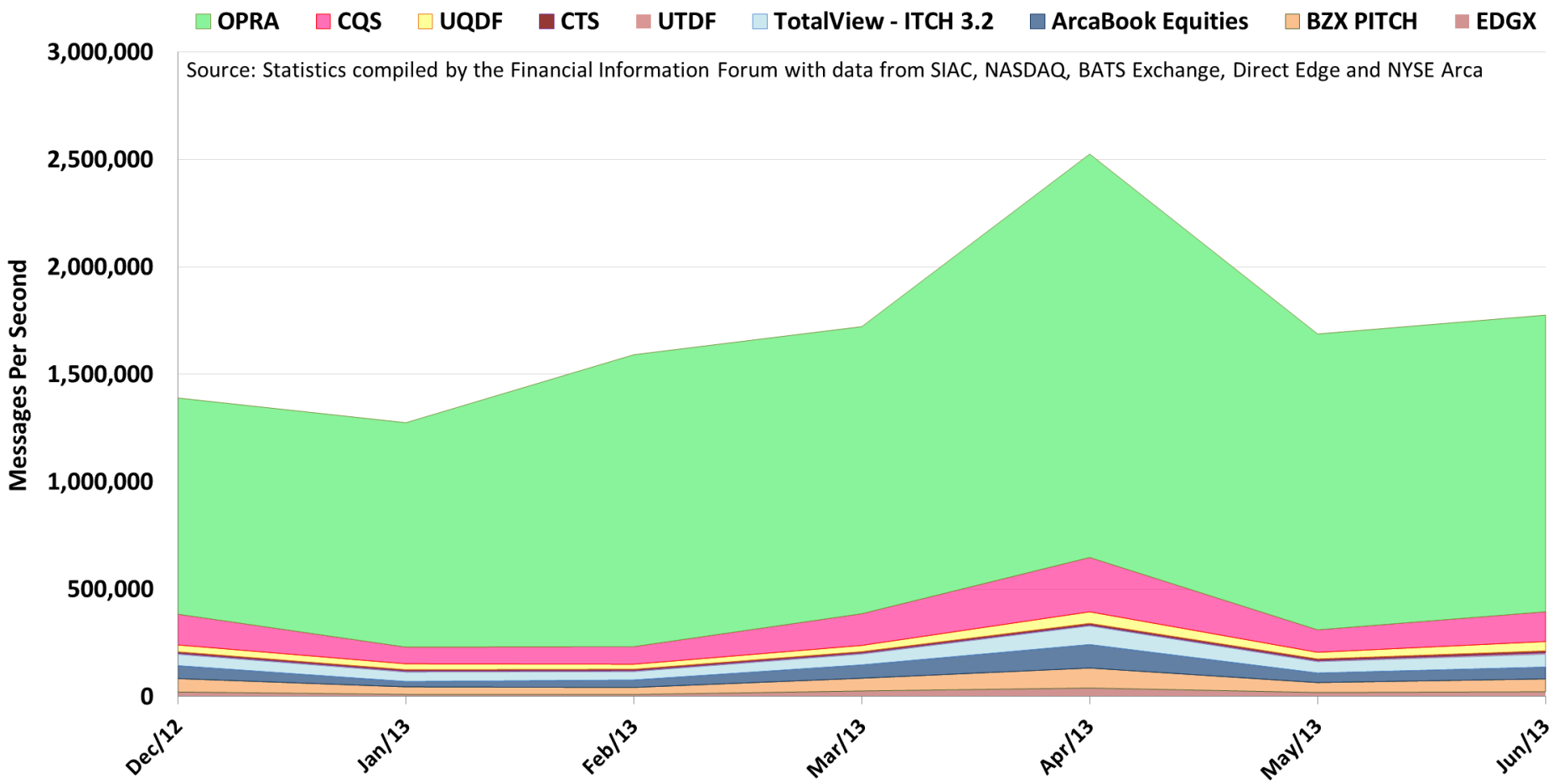
OPRA & Consolidated Equities 1 Minute Peak Rates



Note: TotalView ITCH 3.1 shown from April 2009 onwards. As of March 2010, NASDAQ launched the OSI Equity Symbology compliant feed TotalView - ITCH 3.2. Direct Edge EDGX shown from Oct 2010.

Consolidated Equity Feeds and OPRA Capacity Statistics

OPRA & Consolidated Equities 1 Minute Peak Rates

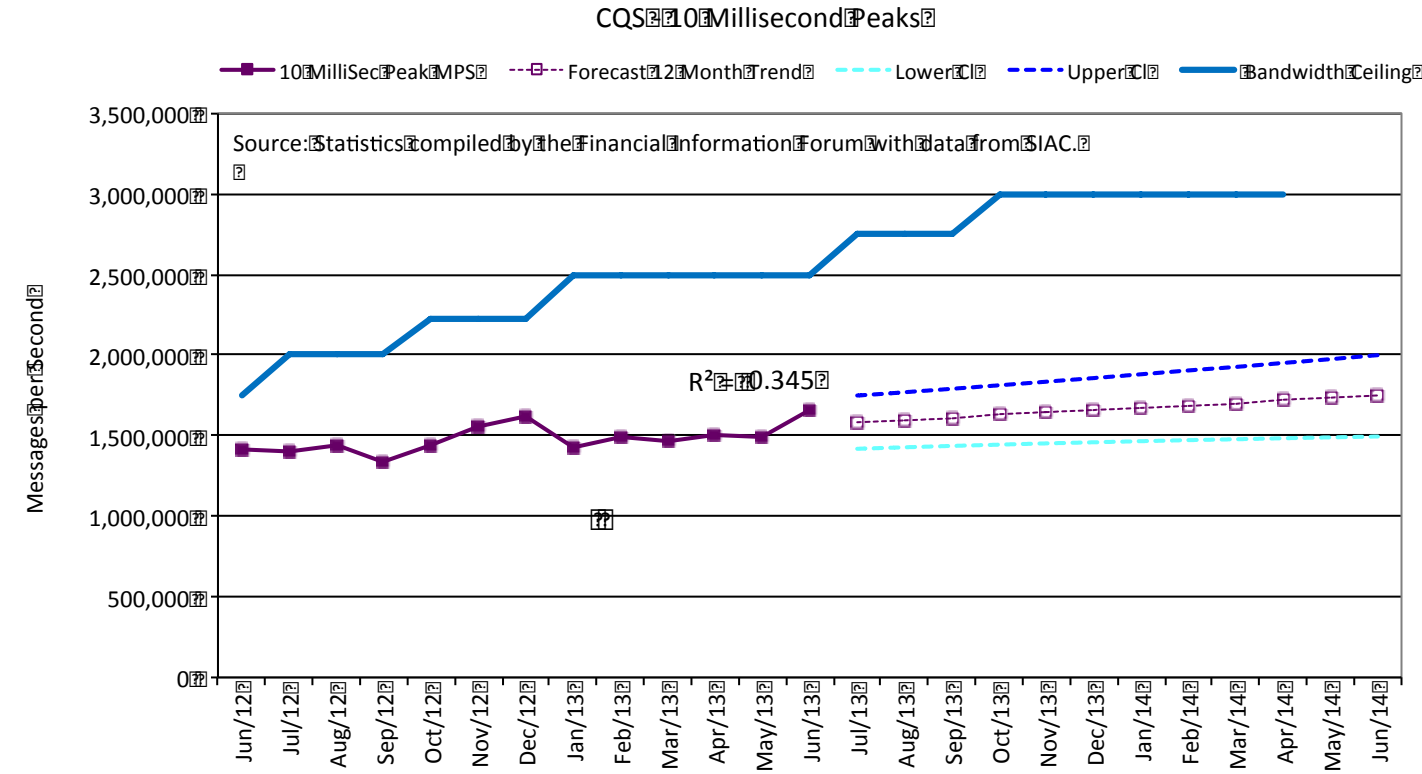


Equity SIP Feeds Capacity Statistics

Slide Name
CQS 10 Millisecond Peak Forecasts
CQS 1 Second Peak Forecasts
CQS Daily Peak Messages Rates
CQS Accuracy Charts
CTS 10 Millisecond Peak Forecasts
CTS 1 Second Peak Forecasts
UTP UQDF 1 Second Peak Forecasts
UTP UQDF Daily Peak Messages Rates
UTP UQDF Accuracy Charts
UTP UTDF 1 Second Peak Forecasts
SIP Total Monthly Message Volume – OPRA, CQS, UQDF
SIP Total Monthly Message Volume – CTS, UTDF
Equity SIP Quote to Trade Ratio

Equity SIP Feeds Capacity Statistics

CQS 10 Millisecond Peak Forecasts



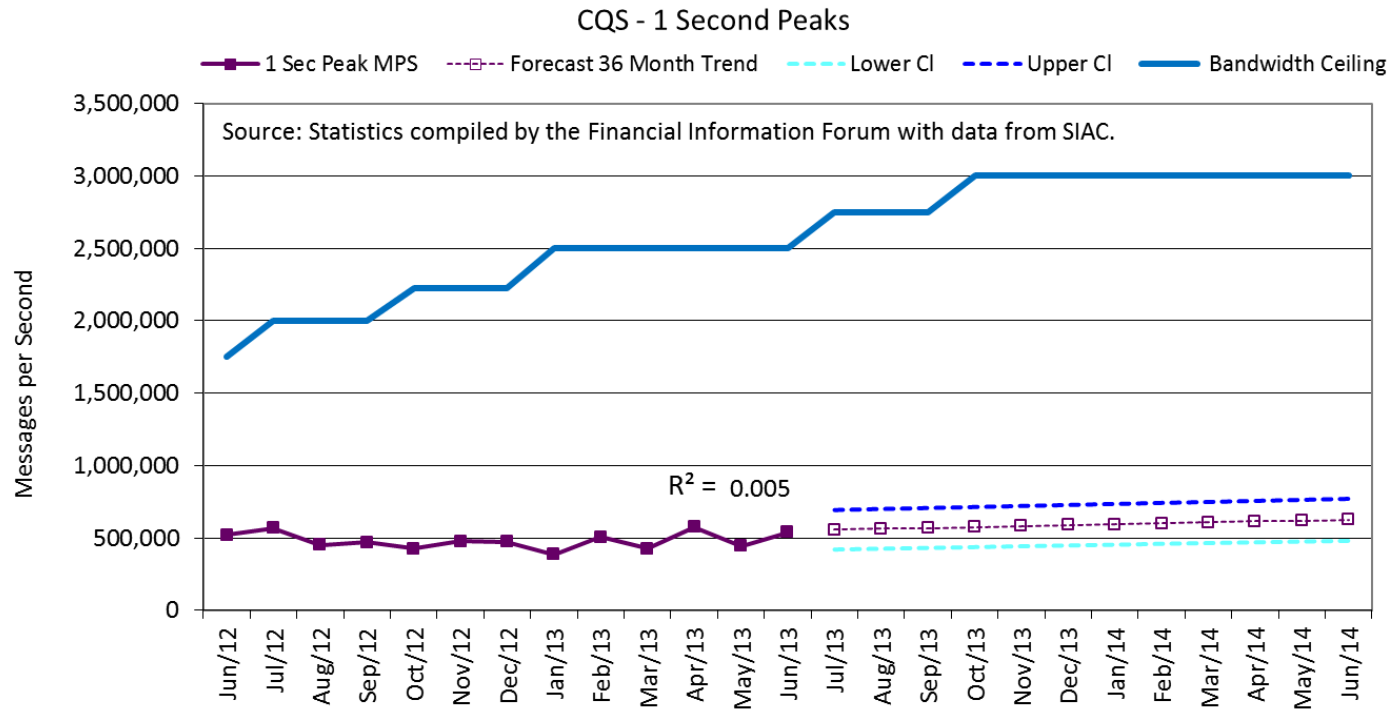
- Record Peak: 1,664,565 mps (6/21/2013)
- CQS 10 Millisecond Peak Annual Growth rate: 18%; Six Month Forecast: **-0.4%**
- CQS Ceiling: 2,750,000 mps (2.24 Gbps); October, 2013: 3,000,000 mps (2.45 Gbps) ([SIAC April 19, 2013 Notice](#))

	Actual 10 MSec Peak	Monthly % Change
Jun-12	1,414,350	-4%
Jul-12	1,407,780	-0.5%
Aug-12	1,443,310	3%
Sep-12	1,333,235	-8%
Oct-12	1,440,635	8%
Nov-12	1,553,795	8%
Dec-12	1,617,160	4%
Jan-13	1,426,170	-12%
Feb-13	1,491,500	5%
Mar-13	1,462,310	-2%
Apr-13	1,505,345	3%
May-13	1,497,450	-1%
Jun-13	1,664,565	11%
	Predicted 10 MSec Peak	Monthly % Change
Jul-13	1,583,321	-5%
Aug-13	1,598,488	1%
Sep-13	1,613,654	1%
Oct-13	1,628,332	1%
Nov-13	1,643,499	1%
Dec-13	1,658,176	1%
Jan-14	1,673,343	1%
Feb-14	1,688,510	1%
Mar-14	1,702,209	1%
Apr-14	1,717,376	1%
May-14	1,732,054	1%
Jun-14	1,747,220	1%

Note: 10 Millisecond statistics in messages per second are calculated above by multiplying the highest number of messages flowing in the busiest 10 millisecond with 100. Statistics also shown in raw format (messages per 10 millisecond)

Equity SIP Feeds Capacity Statistics

CQS 1 Second Peak Forecasts



- Record Peak: 580,870 mps (11/2/2011, 1:01:00 PM)
- CQS Ceiling: 2,500,000 (2.04 Gbps) ([SIAC Oct 22, 2012 Notice](#))
- Forecasts since May 2012 have consistently over-predicted the June 2013 peak by a maximum of 34%.
- CQS 1 Second Peak Annual Growth rate: 3%; Six Month Forecast: 9%

Note: Forecast based on 36 months of historic data.

	Actual 1 Sec Peak	Monthly % Change
Jun-12	522,087	8%
Jul-12	567,321	9%
Aug-12	452,552	-20%
Sep-12	470,870	4%
Oct-12	427,056	-9%
Nov-12	478,830	12%
Dec-12	474,294	-1%
Jan-13	385,443	-19%
Feb-13	508,345	32%
Mar-13	425,195	-16%
Apr-13	574,891	35%
May-13	443,554	-23%
Jun-13	539,065	22%
	Predicted 1 Sec Peak	Monthly % Change
Jul-13	820,104	52%
Aug-13	836,554	2%
Sep-13	853,005	2%
Oct-13	868,925	2%
Nov-13	885,375	2%
Dec-13	901,295	2%
Jan-14	917,745	2%
Feb-14	934,195	2%
Mar-14	949,054	2%
Apr-14	965,504	2%
May-14	981,424	2%
Jun-14	997,874	2%

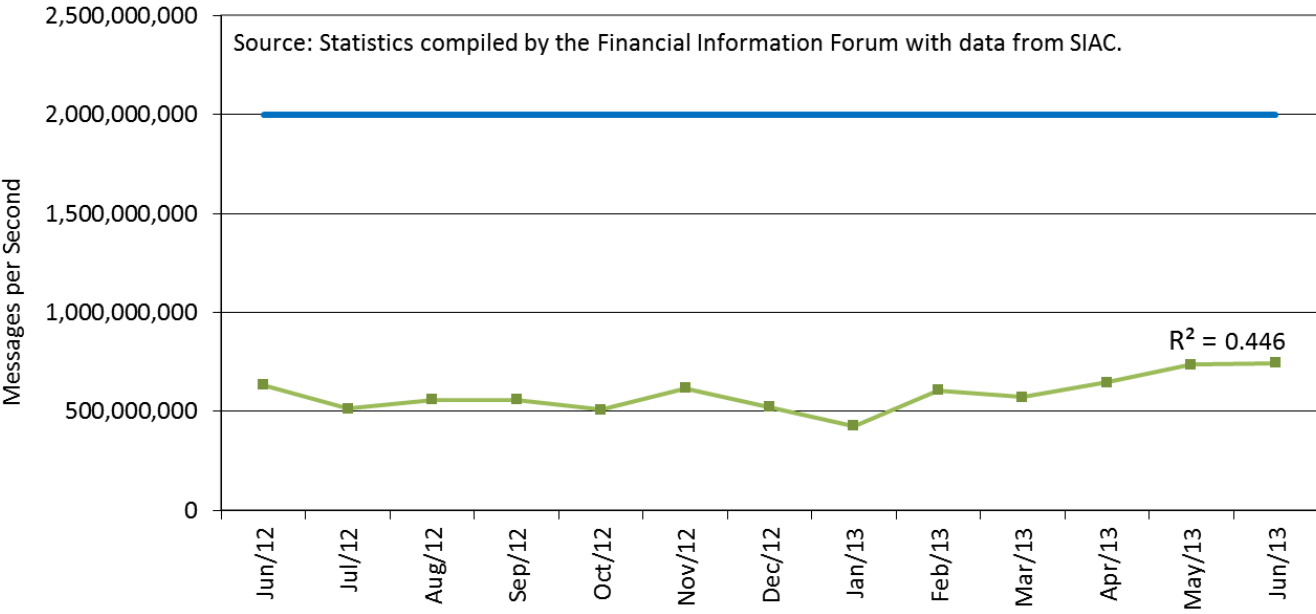
Equity SIP Feeds Capacity Statistics

CQS Daily Peak Messages Rates

CQS Daily Peak Messages

■ Daily Peak Messages — Bandwidth Ceiling

Source: Statistics compiled by the Financial Information Forum with data from SIAC.



	Actual Daily Peak Messages	Monthly % Change
Jun-12	633,321,307	-9%
Jul-12	514,593,910	-19%
Aug-12	559,181,459	9%
Sep-12	557,640,669	-0.3%
Oct-12	507,303,629	-9%
Nov-12	617,329,981	22%
Dec-12	522,169,306	-15%
Jan-13	427,395,796	-18%
Feb-13	607,341,698	42%
Mar-13	571,410,031	-6%
Apr-13	645,049,357	13%
May-13	735,898,676	14%
Jun-13	743,703,845	1%

- Record Peak: 1,919,132,028 messages (August 10, 2011)
- CQS Peak Daily Messages Annual Growth Rate: 17%;
- CQS Daily Message Ceiling: 2,000,000,000 messages (July and October 2012) ([SIAC Oct 22, 2012 Notice](#))

Equity SIP Feeds Capacity Statistics

CQS Accuracy Charts



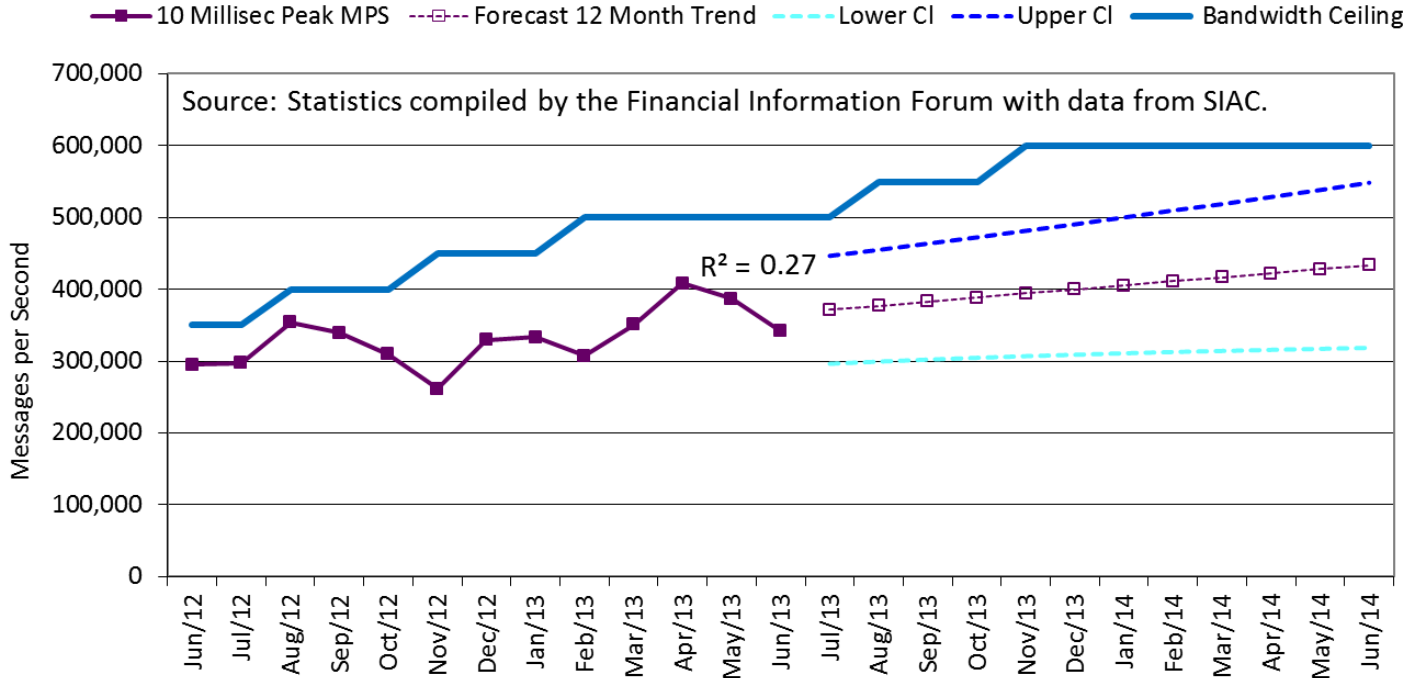
Month	CQS - 1 Sec Peak Accuracy													
	Actual	May-12	Jun-12	Jul-12	Aug-12	Sep-12	Oct-12	Nov-12	Dec-12	Jan-13	Feb-13	Mar-13	Apr-13	May-13
Jun-12	522,087	110%												
Jul-12	567,321	103%	103%											
Aug-12	452,552	132%	131%	131%										
Sep-12	470,870	130%	129%	129%	126%									
Oct-12	427,056	146%	145%	145%	142%	139%								
Nov-12	478,830	133%	132%	132%	129%	127%	123%							
Dec-12	474,294	137%	136%	136%	133%	130%	127%	125%						
Jan-13	385,443	172%	171%	171%	167%	163%	159%	156%	152%					
Feb-13	508,345	133%	132%	132%	129%	126%	123%	121%	118%	113%				
Mar-13	425,195	161%	161%	161%	157%	154%	149%	147%	143%	137%	135%			
Apr-13	574,891	122%	121%	121%	118%	116%	112%	110%	107%	103%	101%	98%		
May-13	443,554	160%	160%	160%	156%	153%	148%	145%	141%	136%	133%	128%	128%	
Jun-13	539,065	134%	134%	134%	130%	128%	124%	122%	118%	113%	111%	107%	107%	103%

Month	CQS - Daily Peak Messages Accuracy													
	Actual	May-12	Jun-12	Jul-12	Aug-12	Sep-12	Oct-12	Nov-12	Dec-12	Jan-13	Feb-13	Mar-13	Apr-13	May-13
Jun-12	633,321,307	163%												
Jul-12	514,593,910	203%	194%											
Aug-12	559,181,459	190%	181%	171%										
Sep-12	557,640,669	193%	184%	173%	163%									
Oct-12	507,303,629	216%	205%	192%	181%	172%								
Nov-12	617,329,981	180%	171%	160%	150%	142%	136%							
Dec-12	522,169,306	216%	205%	191%	179%	169%	161%	156%						
Jan-13	427,395,796	267%	253%	236%	221%	208%	198%	191%	181%					
Feb-13	607,341,698	191%	181%	168%	157%	148%	140%	135%	127%	119%				
Mar-13	571,410,031	205%	194%	180%	168%	158%	150%	144%	135%	126%	122%			
Apr-13	645,049,357	184%	174%	161%	150%	141%	134%	128%	120%	112%	108%	102%		
May-13	735,898,676	164%	154%	143%	133%	124%	118%	113%	105%	98%	94%	89%	86%	
Jun-13	743,703,845	164%	155%	143%	133%	124%	117%	112%	104%	96%	93%	87%	84%	88%

Note: Forecast based on 36 months of historic data.

Equity SIP Feeds Capacity Statistics

CTS 10 Millisecond Peak Forecasts



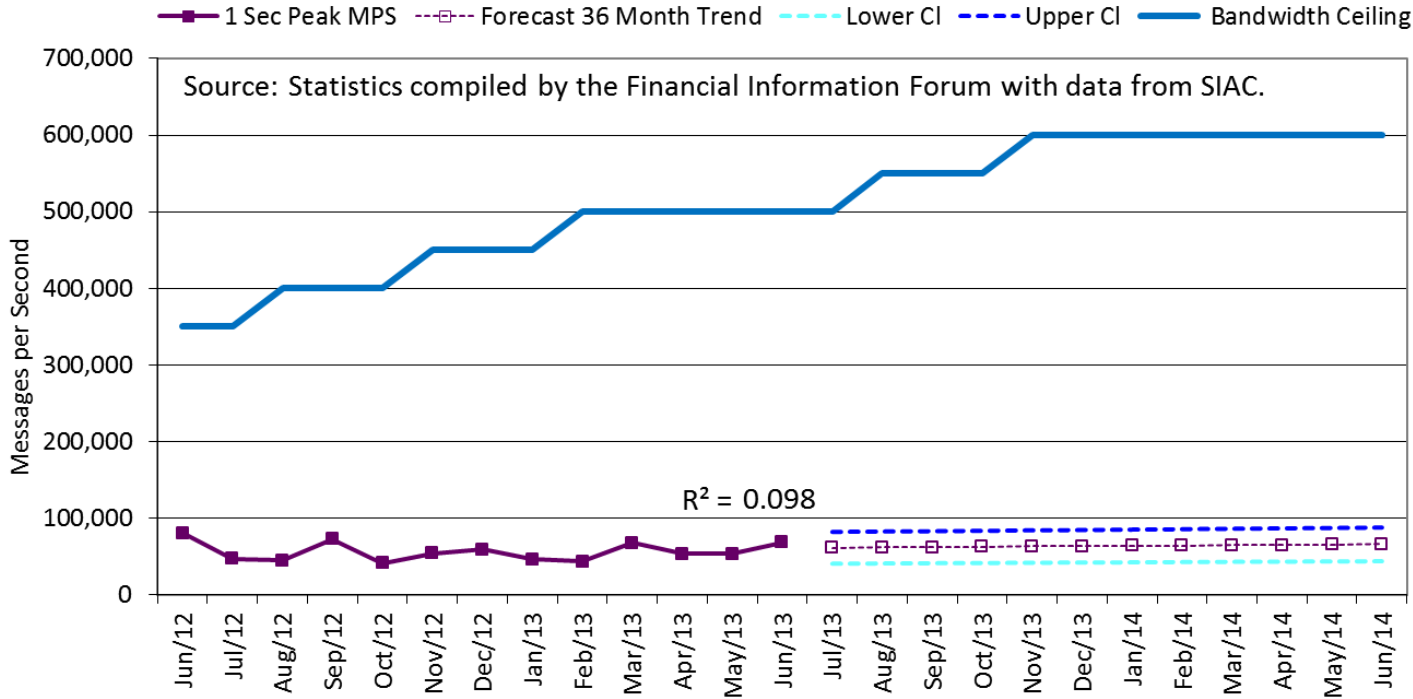
- Record Peak: 408,586 mps (4/30/2013)
- Forecasts since May 2012 have over-predicted the June 2013 peak by a maximum of 51% and under predicted by a minimum of 9%.
- CTS 10 MilliSecond Peak Annual Growth Rate: 16%; Six Month Forecast: 17%.
- CTS Ceiling: July, 2013: 550,000 mps (348.5 Mbps); October, 2013: 600,000 mps (380.2 Mbps) ([SIAC April 19, 2013 Notice](#))

Note: Forecast based on 12 Months Data

Actual 10 MSec Peak	Monthly % Change	
Jun-12	295,216	-18%
Jul-12	297,212	1%
Aug-12	353,652	19%
Sep-12	339,236	-4%
Oct-12	309,876	-9%
Nov-12	261,698	-16%
Dec-12	329,630	26%
Jan-13	333,250	1%
Feb-13	306,919	-8%
Mar-13	351,219	14%
Apr-13	408,586	16%
May-13	386,572	-5%
Jun-13	341,732	-12%
Predicted 10 MSec Peak	Monthly % Change	
Jul-13	371,448	9%
Aug-13	377,190	2%
Sep-13	382,931	2%
Oct-13	388,486	1%
Nov-13	394,227	1%
Dec-13	399,783	1%
Jan-14	405,524	1%
Feb-14	411,265	1%
Mar-14	416,451	1%
Apr-14	422,192	1%
May-14	427,748	1%
Jun-14	433,489	1%

Equity SIP Feeds Capacity Statistics

CTS 1 Second Peak Forecasts



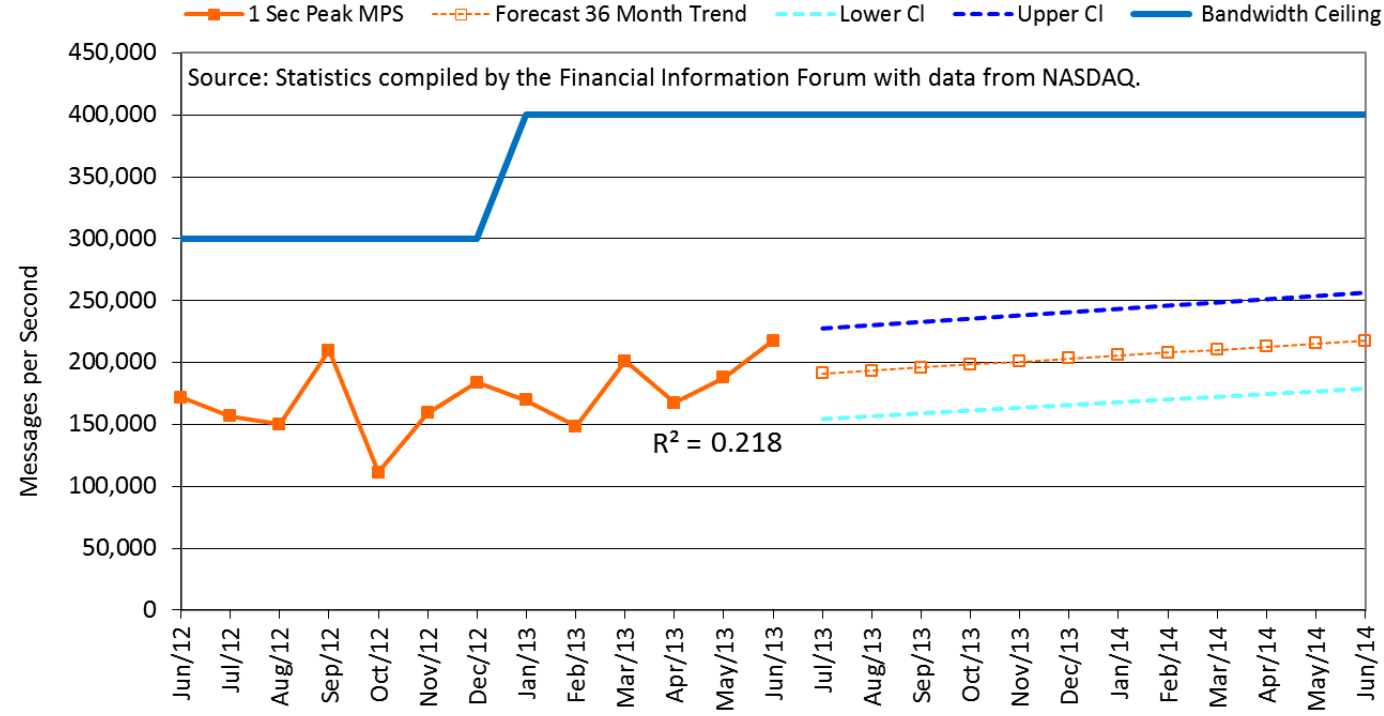
	Actual 1 Second Peak	Monthly % Change
Jun-12	80,747	36%
Jul-12	47,230	-42%
Aug-12	44,954	-5%
Sep-12	72,426	61%
Oct-12	41,154	-43%
Nov-12	53,856	31%
Dec-12	59,460	10%
Jan-13	46,103	-22%
Feb-13	43,722	-5%
Mar-13	67,660	55%
Apr-13	53,168	-21%
May-13	53,125	-0.1%
Jun-13	68,688	29%
	Predicted 1 Second Peak	Monthly % Change
Jul-13	61,416	-11%
Aug-13	61,832	1%
Sep-13	62,249	1%
Oct-13	62,651	1%
Nov-13	63,068	1%
Dec-13	63,470	1%
Jan-14	63,887	1%
Feb-14	64,303	1%
Mar-14	64,679	1%
Apr-14	65,095	1%
May-14	65,498	1%
Jun-14	65,914	1%

- Record Peak: 80,747 mps (6/22/2012, 03:45:00 PM)
- Forecasts since May 2012 have over-predicted the June 2013 peak by a maximum of 19% and under predicted by a minimum of 12%.
- CTS Ceiling: July, 2013: 550,000 mps (348.5 Mbps); October, 2013: 600,000 mps (380.2 Mbps) ([SIAC April 19, 2013 Notice](#))
- CTS 1 Second Peak Annual Growth Rate: **-15%**; Six Month Forecast: **-8%**.
- Forecasts based on 36 Months of data.

Note: Forecast based on 36 months of historic data.

Equity SIP Feeds Capacity Statistics

UQDF 1 Second Peak Forecasts



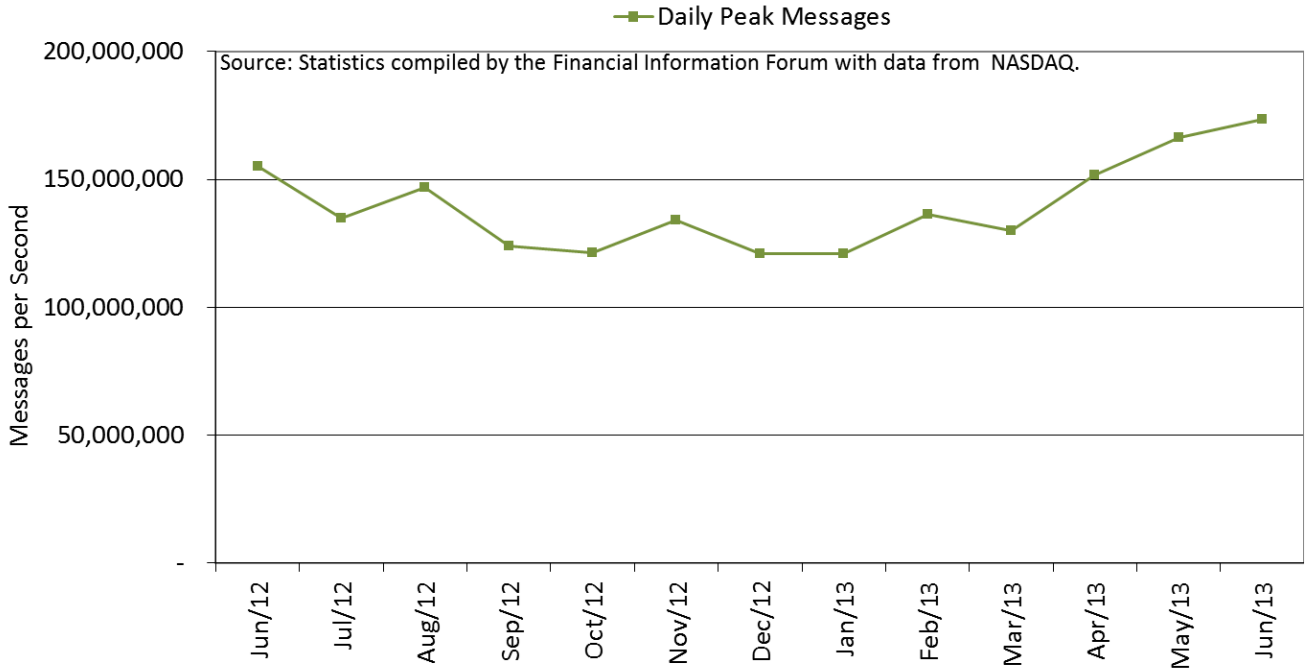
- Record Peak: 217,486 mps (June 2013)
- Forecasts since May 2012 have consistently under-predicted the June 2013 peak by a minimum of 15%.
- UQDF Ceiling: 400,000 mps (256 Mbps)
[\(UTP Vendor Alert#2012 – 8\)](#)
- UQDF 1 Second Peak Annual Growth Rate: 27%; Six Month Forecast: -7%.

Note: Forecast based on 36 months of historic data.

Actual 1 Second Peak	Monthly % Change	
Jun-12	171,732	38%
Jul-12	156,518	-9%
Aug-12	150,051	-4%
Sep-12	209,975	40%
Oct-12	111,288	-47%
Nov-12	159,147	43%
Dec-12	184,046	16%
Jan-13	169,577	-8%
Feb-13	148,377	-13%
Mar-13	201,271	36%
Apr-13	167,353	-17%
May-13	187,897	12%
Jun-13	217,486	16%
Predicted 1 Second Peak	Monthly % Change	
Jul-13	191,003	-12%
Aug-13	193,477	1%
Sep-13	195,951	1%
Oct-13	198,345	1%
Nov-13	200,819	1%
Dec-13	203,213	1%
Jan-14	205,687	1%
Feb-14	208,161	1%
Mar-14	210,395	1%
Apr-14	212,869	1%
May-14	215,263	1%
Jun-14	217,737	1%

Equity SIP Feeds Capacity Statistics

UQDF Daily Peak Messages Rates



	Actual Daily Peak Messages	Monthly % Change
Jun-12	155,187,000	-7%
Jul-12	134,833,015	-13%
Aug-12	146,831,473	9%
Sep-12	123,927,605	-16%
Oct-12	121,295,418	-2%
Nov-12	134,009,087	10%
Dec-12	121,049,523	-10%
Jan-13	120,861,986	0%
Feb-13	136,500,547	13%
Mar-13	130,144,489	-5%
Apr-13	151,720,836	17%
May-13	166,314,339	10%
Jun-13	173,388,550	4%

- Record Peak: 453,955,258 messages (August 08, 2011)
- UQDF Peak Daily Messages Annual Growth Rate: 12%.

Equity SIP Feeds Capacity Statistics

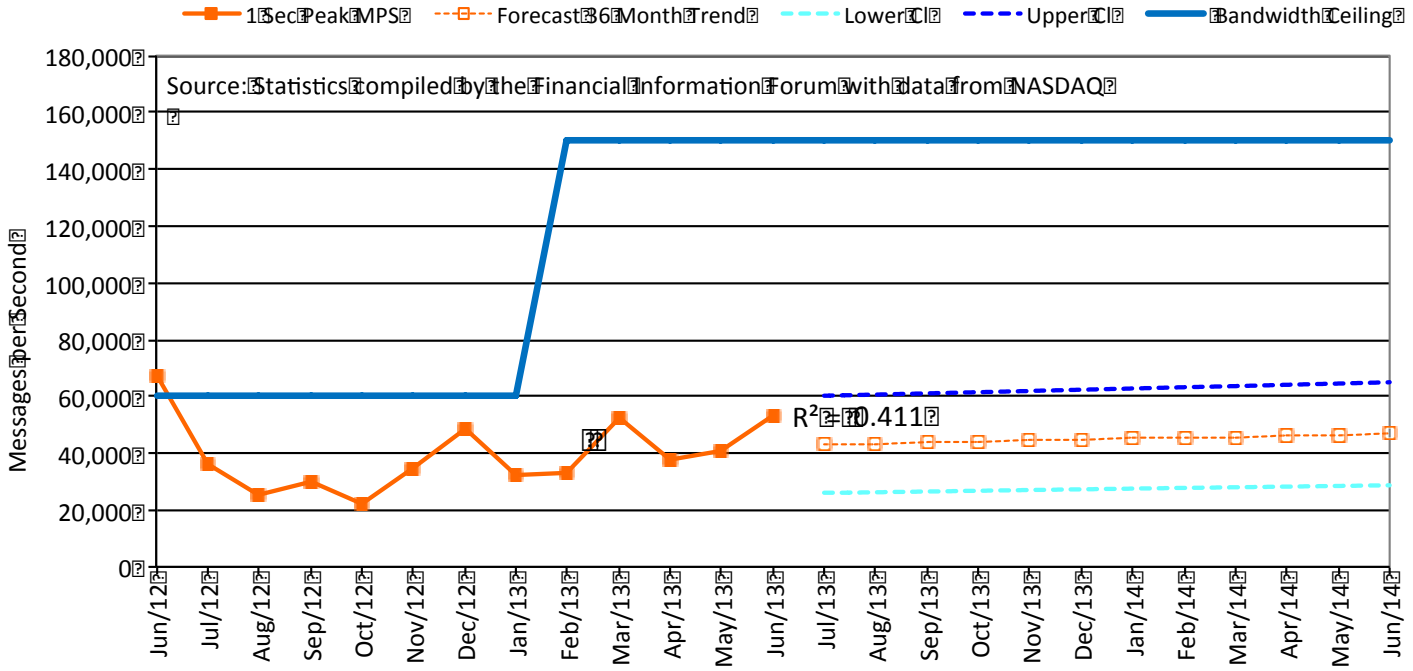
UQDF Accuracy Charts

Month	UQDF - 1 Sec Peak Accuracy													
	Actual	May-12	Jun-12	Jul-12	Aug-12	Sep-12	Oct-12	Nov-12	Dec-12	Jan-13	Feb-13	Mar-13	Apr-13	May-13
Jun-12	171,732	100%												
Jul-12	156,518	112%	112%											
Aug-12	150,051	120%	120%	118%										
Sep-12	209,975	87%	87%	86%	85%									
Oct-12	111,288	168%	168%	165%	163%	165%								
Nov-12	159,147	119%	119%	118%	116%	118%	113%							
Dec-12	184,046	105%	105%	104%	102%	104%	100%	98%						
Jan-13	169,577	116%	116%	115%	113%	115%	110%	108%	107%					
Feb-13	148,377	135%	135%	133%	131%	134%	128%	125%	125%	123%				
Mar-13	201,271	101%	101%	100%	98%	100%	96%	94%	93%	92%	89%			
Apr-13	167,353	124%	124%	122%	120%	122%	117%	115%	114%	112%	109%	110%		
May-13	187,897	112%	112%	111%	109%	111%	106%	104%	103%	101%	98%	99%	98%	
Jun-13	217,486	99%	99%	97%	95%	97%	93%	91%	90%	89%	86%	87%	86%	85%

Month	UQDF - Daily Peak Messages Accuracy													
	Actual	May-12	Jun-12	Jul-12	Aug-12	Sep-12	Oct-12	Nov-12	Dec-12	Jan-13	Feb-13	Mar-13	Apr-13	May-13
Jun-12	155,187,000	149%												
Jul-12	134,833,015	173%	153%											
Aug-12	146,831,473	160%	140%	124%										
Sep-12	123,927,605	191%	165%	144%	129%									
Oct-12	121,295,418	197%	168%	145%	128%	119%								
Nov-12	134,009,087	180%	151%	129%	112%	103%	86%							
Dec-12	121,049,523	201%	167%	140%	119%	108%	88%	77%						
Jan-13	120,861,986	203%	167%	138%	115%	103%	80%	67%	61%					
Feb-13	136,500,547	182%	147%	120%	98%	87%	64%	51%	44%	40%				
Mar-13	130,144,489	192%	154%	124%	99%	86%	60%	45%	37%	31%	58%			
Apr-13	151,720,836	166%	131%	104%	81%	70%	45%	31%	23%	17%	43%	54%		
May-13	166,314,339	153%	119%	93%	71%	60%	36%	22%	13%	7%	33%	44%	61%	
Jun-13	173,388,550	148%	114%	88%	65%	54%	29%	14%	5%	-2%	25%	37%	55%	72%

Equity SIP Feeds Capacity Statistics

UTDF 1 Second Peak Forecasts



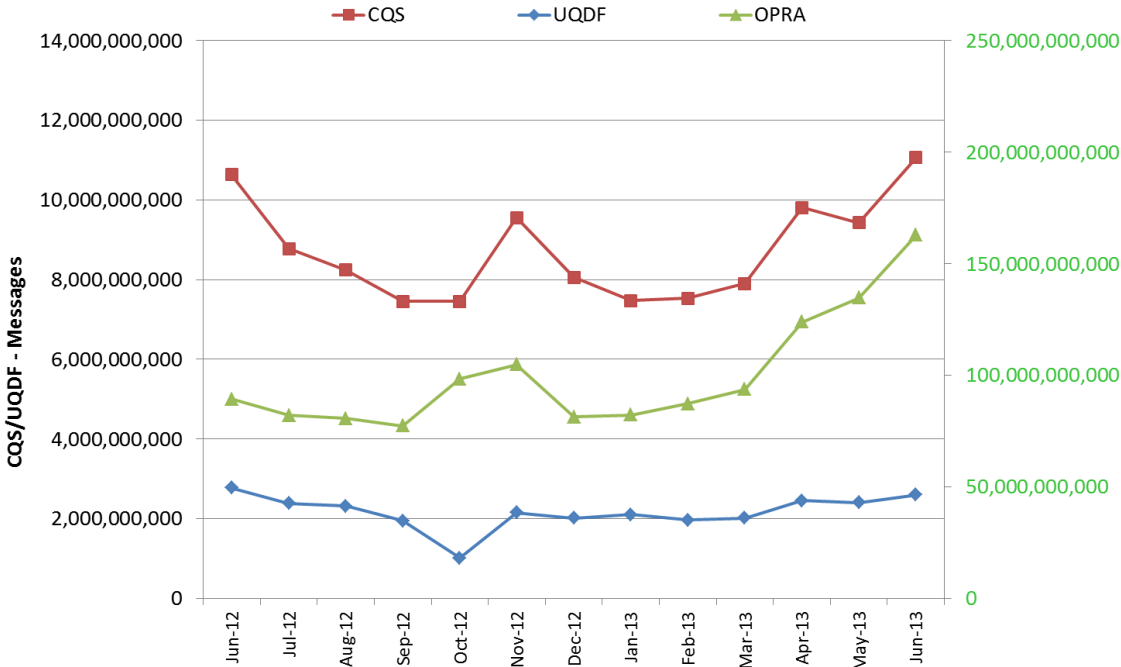
- Record Peak: 66,863 mps (June 2012)
- Forecasts since May 2012 have over-predicted the June 2013 peak by a maximum of 16% and under-predicted by a minimum of 21%.
- UTDF Ceiling: 150,000 mps (101 Mbps) ([UTP Vendor Alert #2012 - 8](#))
- UTDF 1 Second Peak Annual Growth Rate: **-21%**; Six Month Forecast: 15%

Note: Forecast based on 36 months of historic data.

	Actual 1 Second Peak	Monthly % Change
Jun-12	66,883	38%
Jul-12	36,481	-45%
Aug-12	25,611	-30%
Sep-12	30,147	18%
Oct-12	22,078	-27%
Nov-12	34,360	56%
Dec-12	48,263	40%
Jan-13	32,161	-33%
Feb-13	33,362	4%
Mar-13	52,183	56%
Apr-13	37,571	-28%
May-13	41,073	9%
Jun-13	52,971	29%
	Predicted 1 Second Peak	Monthly % Change
Jul-13	43,122	-19%
Aug-13	43,469	1%
Sep-13	43,816	1%
Oct-13	44,151	1%
Nov-13	44,498	1%
Dec-13	44,834	1%
Jan-14	45,180	1%
Feb-14	45,527	1%
Mar-14	45,840	1%
Apr-14	46,187	1%
May-14	46,523	1%
Jun-14	46,869	1%

SIP Total Monthly Message Volumes

OPRA, UQDF and CQS



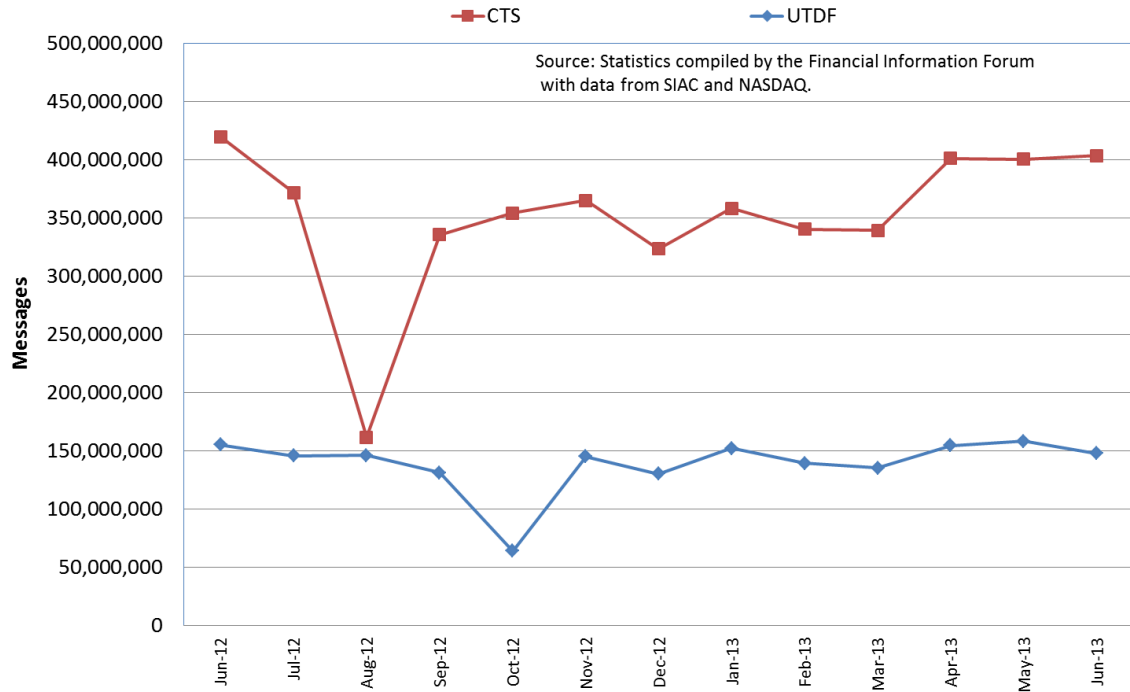
- OPRA Annual Increase: 82%
- CQS Annual Increase: 4%
- UQDF Annual Decrease: 6%

Total Monthly Message Volume			Combined Average Daily Volume
Date	UQDF	CQS	
Jun-12	2,772,819,865	10,632,367,072	638,342,235
Jul-12	2,383,602,705	8,773,003,674	531,266,970
Aug-12	2,317,804,321	8,241,554,280	459,102,548
Sep-12	1,948,330,199	7,452,279,225	494,768,917
Oct-12	1,016,336,632	7,452,279,225	403,267,422
Nov-12	2,148,867,295	9,552,313,807	557,199,100
Dec-12	2,017,355,401	8,052,399,165	503,487,728
Jan-13	2,099,233,536	7,474,101,082	455,873,077
Feb-13	1,969,123,978	7,531,093,813	500,011,463
Mar-13	2,010,832,630	7,896,498,260	495,366,545
Apr-13	2,447,109,450	9,805,224,566	556,924,273
May-13	2,400,946,680	9,430,865,048	537,809,624
Jun-13	2,601,863,331	11,062,086,463	683,197,490

Total Monthly Message Volume		Average Daily Volume
Date	OPRA	
Jun-12	89,294,301,414	4,252,109,591
Jul-12	81,932,078,269	3,901,527,537
Aug-12	80,600,107,361	3,504,352,494
Sep-12	77,303,404,427	4,068,600,233
Oct-12	98,407,788,187	4,686,085,152
Nov-12	104,739,265,089	4,987,584,052
Dec-12	81,363,853,339	4,068,192,667
Jan-13	82,227,243,377	3,915,583,018
Feb-13	87,207,025,489	4,589,843,447
Mar-13	93,573,969,245	4,678,698,462
Apr-13	123,865,614,055	5,630,255,184
May-13	134,587,099,561	6,117,595,435
Jun-13	162,771,803,250	8,138,590,163

SIP Total Monthly Message Volumes

CTS and UTDF

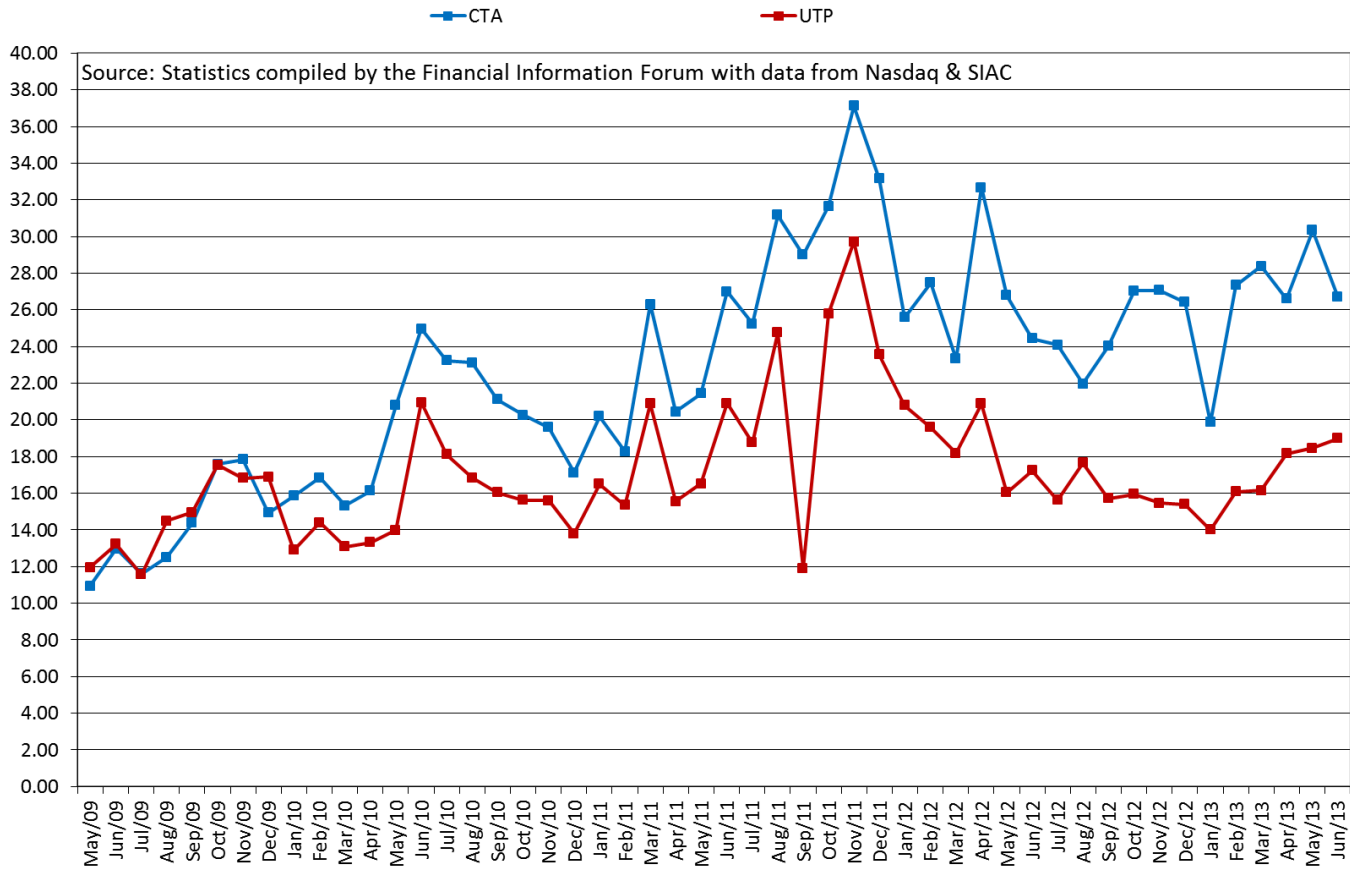


Total Monthly Message Volume			Combined Average Daily Volume
Date	CTS	UTDF	
Jun-12	419,654,459	155,256,344	27,376,705
Jul-12	371,667,055	145,744,313	24,638,637
Aug-12	161,497,125	145,969,289	13,368,105
Sep-12	335,376,242	131,270,376	24,560,348
Oct-12	354,092,908	63,753,314	19,897,439
Nov-12	364,944,046	144,977,064	24,281,958
Dec-12	323,465,864	130,270,584	22,686,822
Jan-13	357,979,570	151,964,526	24,283,052
Feb-13	340,193,139	139,332,573	25,238,195
Mar-13	339,154,769	135,066,072	23,711,042
Apr-13	401,092,662	154,299,130	25,245,081
May-13	400,458,110	158,289,889	25,397,636
Jun-13	403,211,028	147,595,377	27,540,320

- CTS Annual Decrease: 4%
- UTDF Annual Decrease: 5%

Equity SIP Feeds Capacity Statistics

Equity SIP Quote to Trade Ratio



Date	CTA Q/T Ratio	UTP Q/T Ratio
Jun-11	27.00	20.90
Jul-11	25.23	18.75
Aug-11	31.17	24.76
Sep-11	29.00	11.91
Oct-11	31.65	25.79
Nov-11	37.13	29.71
Dec-11	33.16	23.55
Jan-12	25.58	20.80
Feb-12	27.47	19.59
Mar-12	23.33	18.17
Apr-12	32.68	20.88
May-12	26.79	16.04
Jun-12	24.42	17.23
Jul-12	24.08	15.61
Aug-12	21.96	17.65
Sep-12	24.01	15.71
Oct-12	27.04	15.94
Nov-12	27.06	15.47
Dec-12	26.43	15.40
Jan-13	19.86	14.01
Feb-13	27.34	16.07
Mar-13	28.37	16.15
Apr-13	26.61	18.16
May-13	30.34	18.47
Jun-13	26.69	18.98

% Change		
Period	CTA Q/T Ratio	UTP Q/T Ratio
Monthly	-12%	3%
Annual	9%	10%
YTD Change	34%	36%

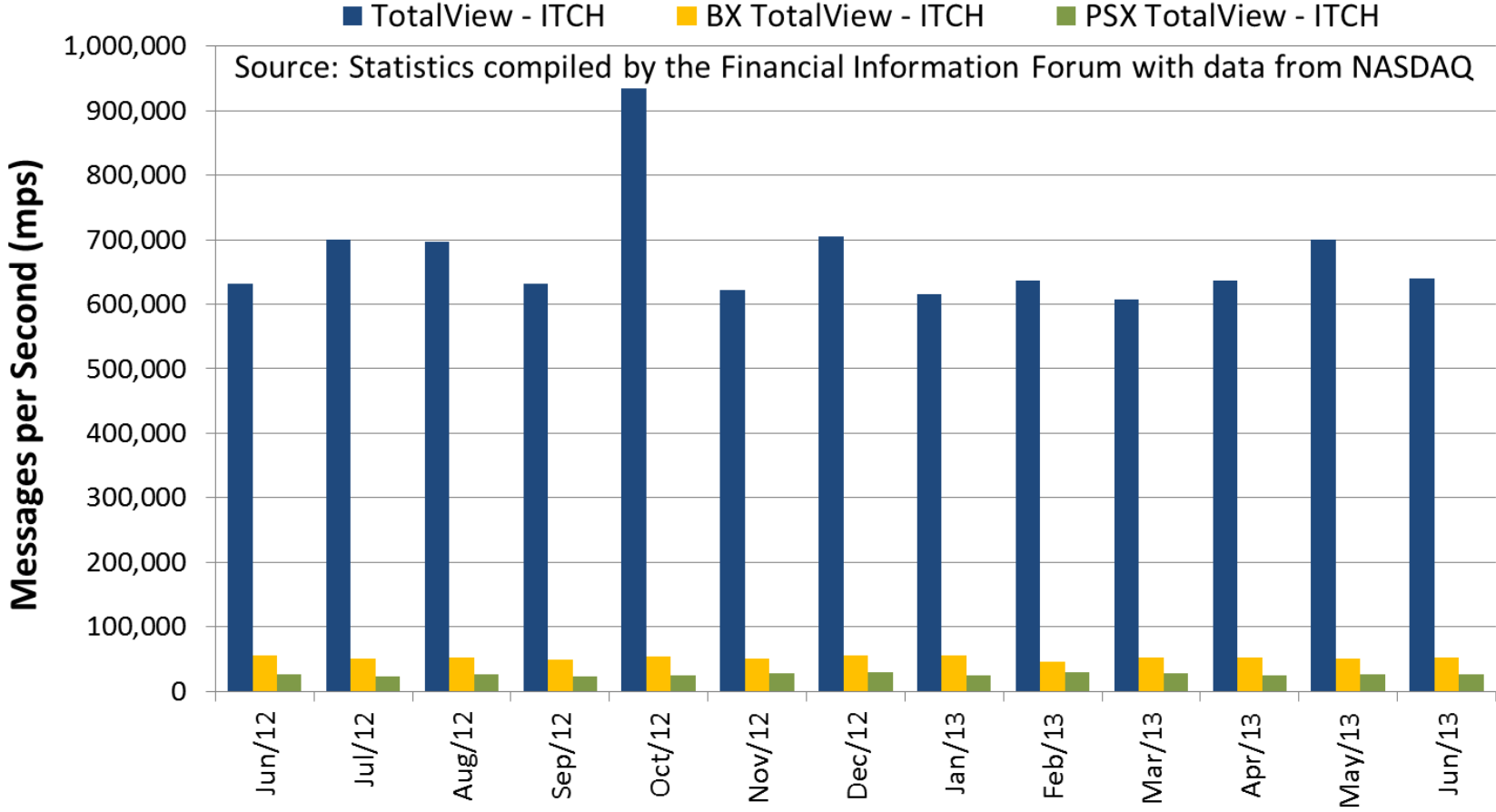
- At an annual rate, during June 2012 to June 2013, the CTA Q/T and UTP Q/T Ratio increased by 9% and 10% respectively.

Equities Proprietary Feeds Capacity Statistics

Slide Name
NASDAQ Proprietary Equity Feeds 5 Second Peak Message Rates
FIF Projection Based on TotalView – ITCH 1 Second Peak Rates
FIF Projection Based on NYSE ArcaBook Equities – 1 Second (Core)
BATS BZX TOP Peak Message Rates
BATS BZX TOP 1 Second Peak Forecasts
BATS BZX PITCH Peak Data Rates
BATS BZX PITCH 1 Second Peak Forecasts
BATS CHI-X Europe BXE PITCH Peak Data Rates
BATS CHI-X Europe CXE PITCH Peak Data Rates
Direct Edge EDGA EDGX Peak Data Rates

Equities Proprietary Feeds Capacity Statistics

NASDAQ Proprietary Equity Feeds 1 Second Peak Message Rates



Bandwidth Ceilings

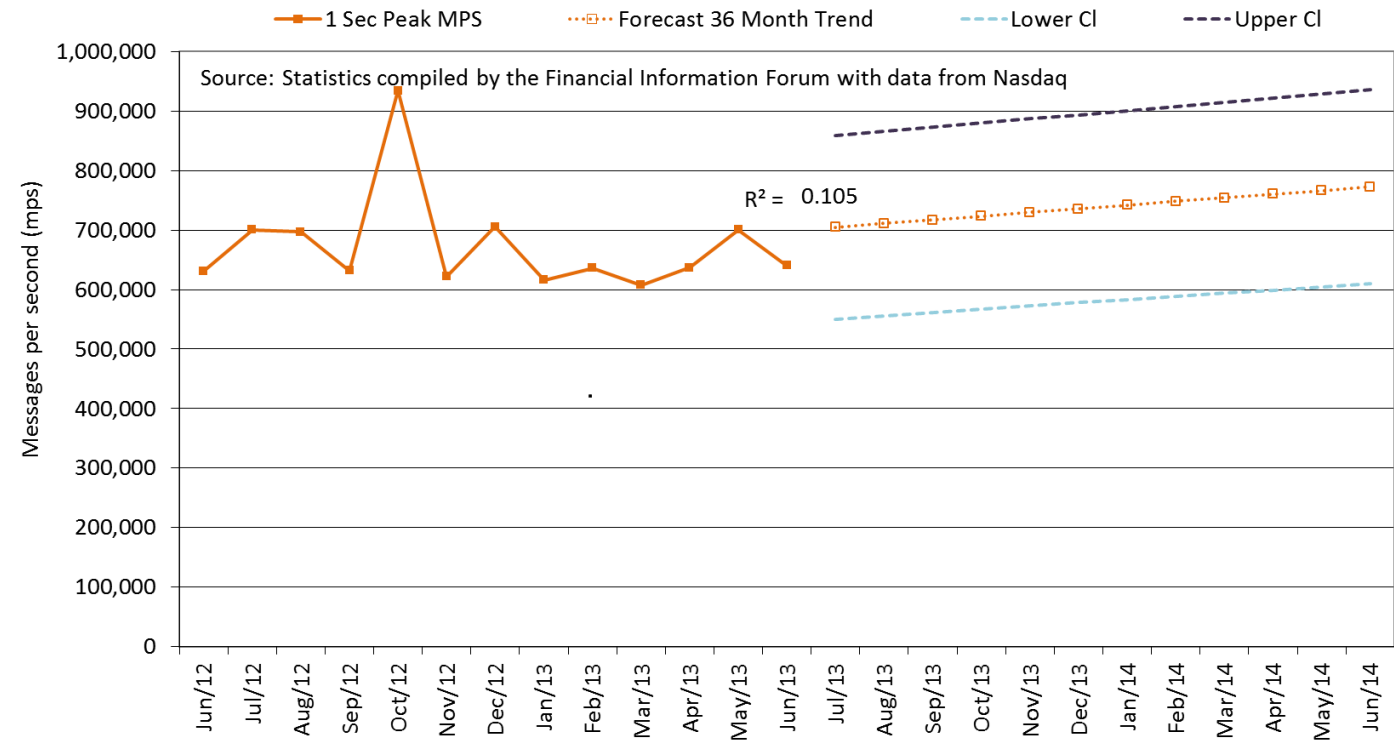
- TotalView ITCH 3.2 - 84Mbps
- TotalView ITCH Aggregated Ver. 1.1 - 73 Mbps
- BX TotalView ITCH 3.2 - 40 Mbps

Source: <http://www.nasdaqtrader.com/content/technicalsupport/specifications/dataproducts/bandwidthreport.xls>

Note: BX TotalView ITCH 3.2 shown as BX TotalView ITCH. TotalView ITCH 3.2 shown as TotalView ITCH. Data missing for Aug 2 - Aug 3 and Aug 8 - Aug 11

Equities Proprietary Feeds Capacity Statistics

FIF Projection Based on TotalView – ITCH 1 Second Peak Rates



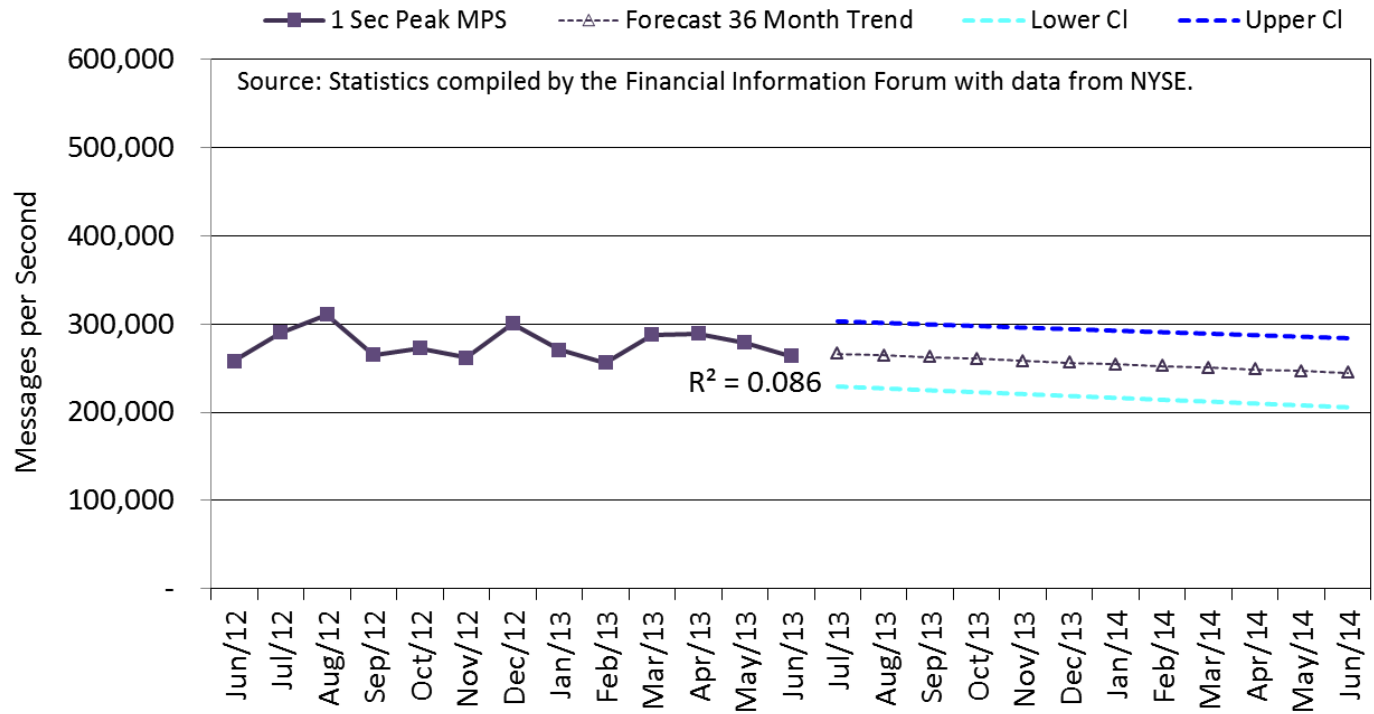
- Record Peak: 934,182 mps (10/26/2012, 3:59 PM)
- Annual Increase: 2%; Six month forecast: 15%

Actual 1 Second Peak		Monthly % Change
Jun-12	631,252	2%
Jul-12	700,613	11%
Aug-12	697,240	-0.5%
Sep-12	631,668	-9%
Oct-12	934,182	48%
Nov-12	622,162	-33%
Dec-12	705,328	13%
Jan-13	615,879	-13%
Feb-13	636,474	3%
Mar-13	607,411	-5%
Apr-13	636,600	5%
May-13	700,412	10%
Jun-13	640,583	-9%
Predicted 1 Second Peak		Monthly % Change
Jul-13	704,651	10%
Aug-13	710,970	1%
Sep-13	717,288	1%
Oct-13	723,403	1%
Nov-13	729,722	1%
Dec-13	735,837	1%
Jan-14	742,155	1%
Feb-14	748,474	1%
Mar-14	754,181	1%
Apr-14	760,500	1%
May-14	766,615	1%
Jun-14	772,934	1%

Note: TotalView ITCH 3.2 shown as TotalView ITCH.
Forecast based on 36 months of historic data.

Equities Proprietary Feeds Capacity Statistics

FIF Projection Based on NYSE ArcaBook Equities – 1 Second (Core)



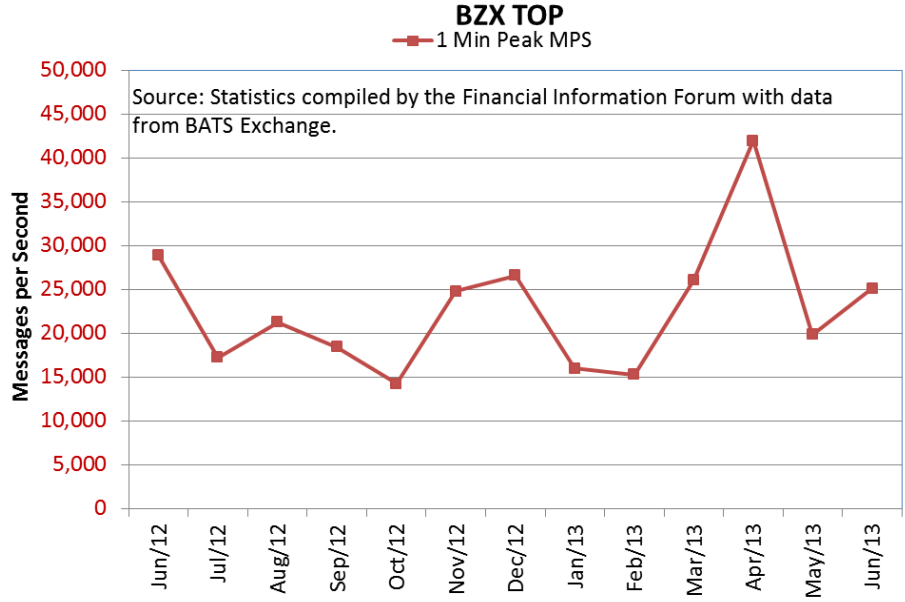
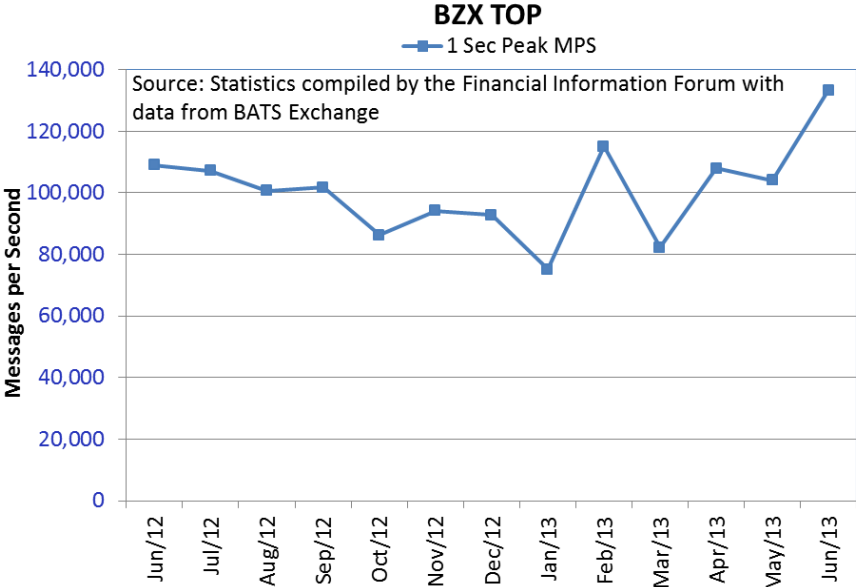
Actual 1 Second Peak	Monthly % Change	
Jun-12	258,263	-4%
Jul-12	290,650	13%
Aug-12	310,738	7%
Sep-12	265,255	-15%
Oct-12	272,844	3%
Nov-12	261,965	-4%
Dec-12	300,432	15%
Jan-13	270,750	-10%
Feb-13	256,467	-5%
Mar-13	287,775	12%
Apr-13	289,220	1%
May-13	279,030	-4%
Jun-13	263,678	-6%
Predicted 1 Second Peak	Monthly % Change	
Jul-13	266,168	1%
Aug-13	264,194	-1%
Sep-13	262,220	-1%
Oct-13	260,310	-1%
Nov-13	258,337	-1%
Dec-13	256,427	-1%
Jan-14	254,453	-1%
Feb-14	252,479	-1%
Mar-14	250,697	-1%
Apr-14	248,723	-1%
May-14	246,813	-1%
Jun-14	244,839	-1%

- Record Peak: 365,814 mps (03/28/2011, 9:30:00 AM)
- Annual Growth Rate: 2%

Note: Data missing between May 16-23 and Aug 10-12, 2011 for ArcaBook Equities. 4-channel feed statistics shown. Forecast based on 36 months of historic data

Equities Proprietary Feeds Capacity Statistics

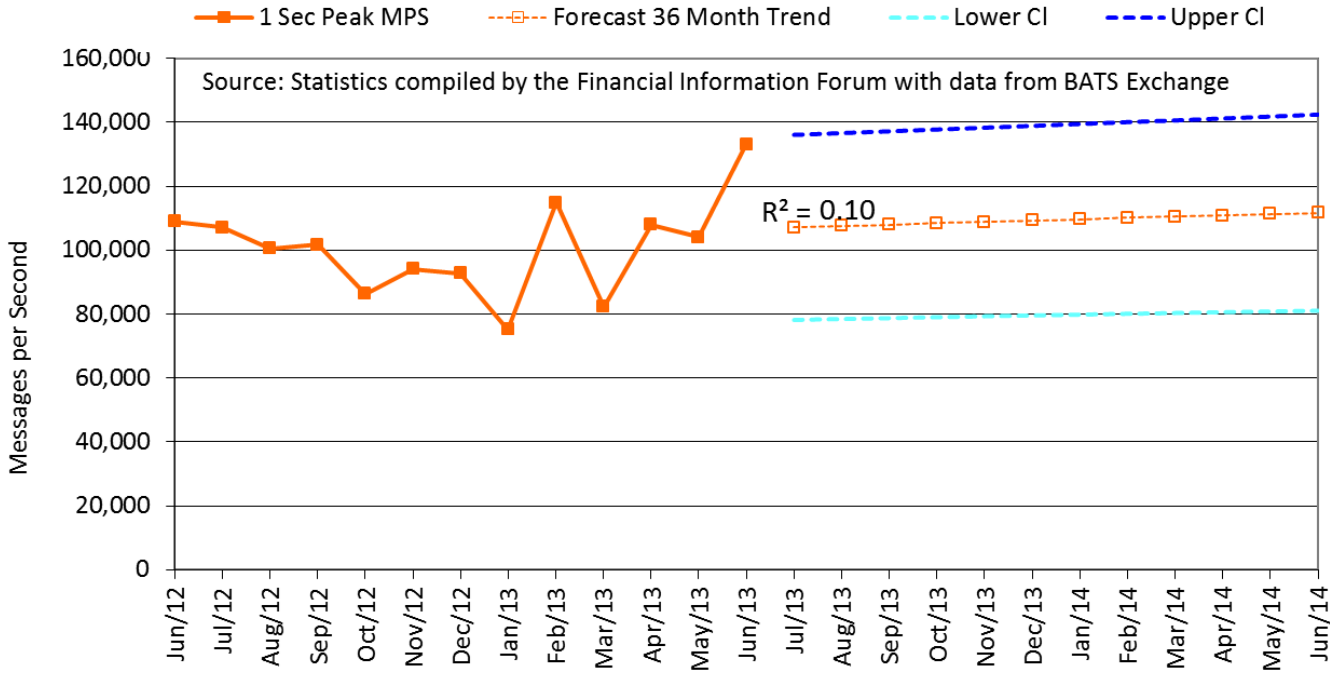
BATS BZX TOP Peak Message Rates



BZX TOP															
Rate	Jun-12	Jul-12	Aug-12	Sep-12	Oct-12	Nov-12	Dec-12	Jan-13	Feb-13	Mar-13	Apr-13	May-13	Jun-13	Peak Date	Period Ending
1 Sec Peak MPS	109,059	107,091	100,565	101,718	86,312	94,148	92,740	75,164	114,973	110,973	107,959	104,054	133,201	09/13/11	2:57:00 PM
5 Sec Peak MPS	55,675	40,844	49,505	40,540	39,420	38,479	56,809	32,887	46,104	44,866	60,398	41,234	52,738	05/06/10	2:45:09 PM
10 Sec Peak MPS	39,202	30,916	41,151	34,596	27,209	30,545	42,633	25,243	31,001	42,691	52,830	31,301	37,748	05/06/10	2:45:10 PM
1 Min Peak MPS	28,937	17,229	21,249	18,407	14,241	24,784	26,577	15,986	15,257	26,040	41,941	19,844	25,110	05/06/10	2:44:36 PM
Daily Peak Messages	108,415,463	94,298,811	100,887,746	96,997,251	98,598,381	110,744,318	83,060,317	75,524,754	110,729,525	97,469,725	104,704,486	126,378,005	124,872,816	N/A	N/A
Monthly % Change															
Rate	Jul-12	Aug-12	Sep-12	Oct-12	Nov-12	Dec-12	Jan-13	Feb-13	Mar-13	Apr-13	May-13	Jun-13			
1 Sec Peak MPS	-2%	-6%	1%	-15%	9%	-1%	-19%	53%	-29%	31%	-4%	28%			
5 Sec Peak MPS	-27%	21%	-18%	-3%	-2%	48%	-42%	40%	-3%	35%	-32%	28%			
10 Sec Peak MPS	-21%	33%	-16%	-21%	12%	40%	-41%	23%	38%	24%	-41%	21%			
1 Min Peak MPS	-40%	23%	-13%	-23%	74%	7%	-40%	-5%	71%	61%	-53%	27%			
Daily Peak Messages	-13%	7%	-4%	2%	12%	-25%	-9%	47%	-12%	7%	21%	-1%			

Equities Proprietary Feeds Capacity Statistics

BATS BZX TOP 1 Second Peak Forecasts



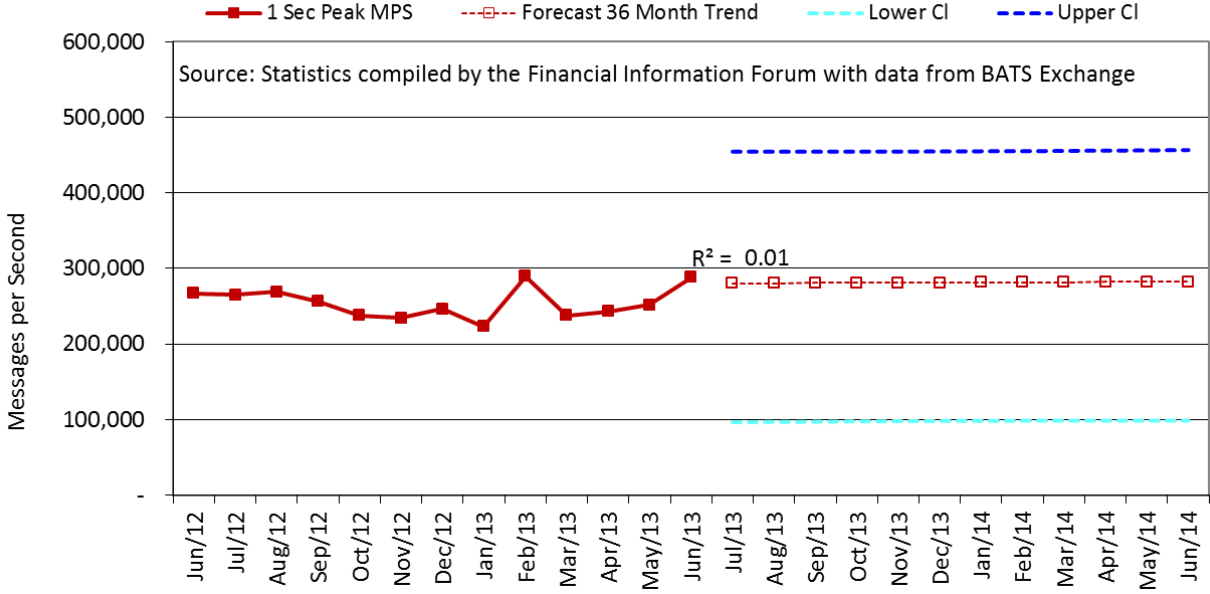
- Record Peak: 145,285 mps (9/13/2011, 2:57:00 PM)
- 1 Second Peak Annual Growth Rate: 22%; Six Month Forecast: **-18%**

Note: Forecast based on 36 months of historic data

Actual Daily Peak Messages		Monthly % Change
Jun-12	109,059	-0.5%
Jul-12	107,091	-2%
Aug-12	100,565	-6%
Sep-12	101,718	1%
Oct-12	86,312	-15%
Nov-12	94,148	9%
Dec-12	92,740	-1%
Jan-13	75,164	-19%
Feb-13	114,973	53%
Mar-13	82,198	-29%
Apr-13	107,959	31%
May-13	104,054	-4%
Jun-13	133,201	28%
Predicted Daily Peak Messages		Monthly % Change
Jul-13	107,144	-20%
Aug-13	107,571	0.4%
Sep-13	107,999	0.4%
Oct-13	108,412	0.4%
Nov-13	108,840	0.4%
Dec-13	109,253	0.4%
Jan-14	109,681	0.4%
Feb-14	110,108	0.4%
Mar-14	110,494	0.4%
Apr-14	110,921	0.4%
May-14	111,335	0.4%
Jun-14	111,762	0.4%

Equities Proprietary Feeds Capacity Statistics

BATS BZX PITCH Peak Data Rates



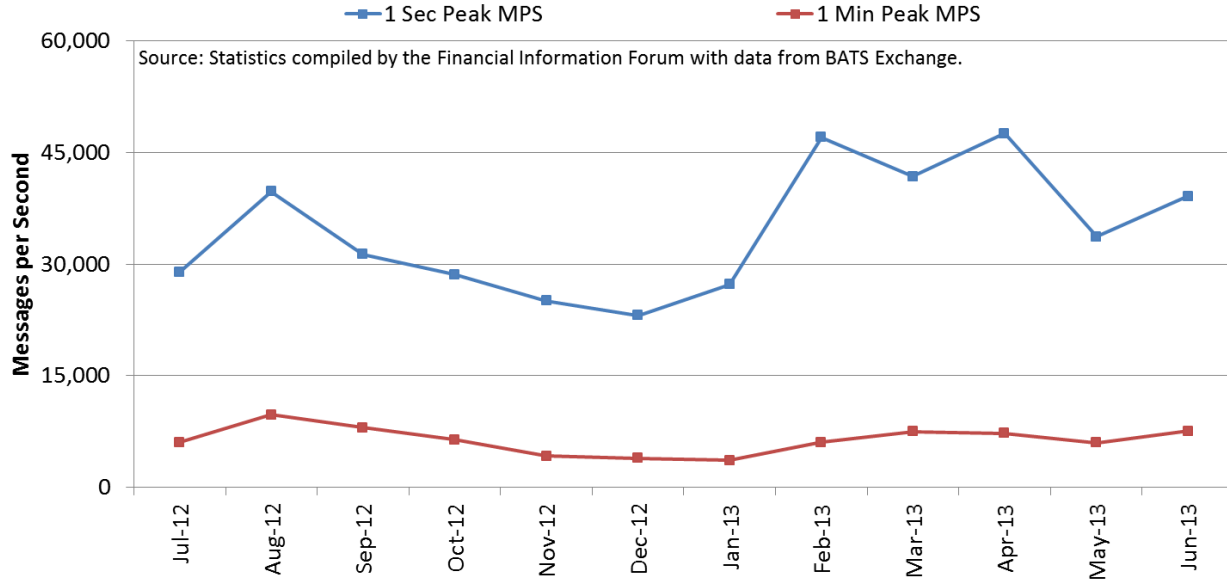
BATS BZX PITCH														Peak Date	Period Ending
Rate	Jun-12	Jul-12	Aug-12	Sep-12	Oct-12	Nov-12	Dec-12	Jan-13	Feb-13	Mar-13	Apr-13	May-13	Jun-13		
1 Sec Peak MPS	266,883	265,048	269,337	256,170	237,697	234,543	246,442	223,199	289,714	237,585	243,359	251,897	288,493	03/23/12	11:58:00 AM
5 Sec Peak MPS	134,589	96,187	121,991	98,075	95,708	97,143	131,530	89,296	109,670	105,356	136,703	117,058	129,692	03/23/12	11:58:00 AM
10 Sec Peak MPS	93,209	73,488	99,644	82,871	64,980	76,081	98,875	69,133	73,957	100,052	120,174	88,057	96,767	03/23/12	11:58:00 AM
1 Min Peak MPS	68,076	38,074	51,169	40,766	33,161	59,044	62,094	35,277	32,915	59,139	92,908	46,201	59,459	03/23/12	11:57:00 AM
Daily Peak Messages	263,266,731	235,879,310	231,213,134	237,653,154	242,684,405	278,517,079	212,111,358	184,630,304	269,558,743	238,361,098	265,740,745	314,994,975	308,698,963	N/A	N/A
Monthly % Change															
Rate	Jul-12	Aug-12	Sep-12	Oct-12	Nov-12	Dec-12	Jan-13	Feb-13	Mar-13	Apr-13	May-13	Jun-13			
1 Sec Peak MPS	-1%	2%	-5%	-7%	-1%	5%	-9%	30%	-18%	2%	4%	15%			
5 Sec Peak MPS	-29%	27%	-20%	-2%	1%	35%	-32%	23%	-4%	30%	-14%	11%			
10 Sec Peak MPS	-21%	36%	-17%	-22%	17%	30%	-30%	7%	35%	20%	-27%	10%			
1 Min Peak MPS	-44%	34%	-20%	-19%	78%	5%	-43%	-7%	80%	57%	-50%	29%			
Daily Peak Messages	-10%	-2%	3%	2%	15%	-24%	-13%	46%	-12%	11%	19%	-2%			

- Record Peak: 837,359 mps (3/23/2012, 11:58:00 AM)
- 1 Second Peak Annual Growth Rate: 8%; Six Month Forecast: -2%
- Forecast based on 36 Months of data

Note: Forecast based on 36 months of historic data

Equities Proprietary Feeds Capacity Statistics

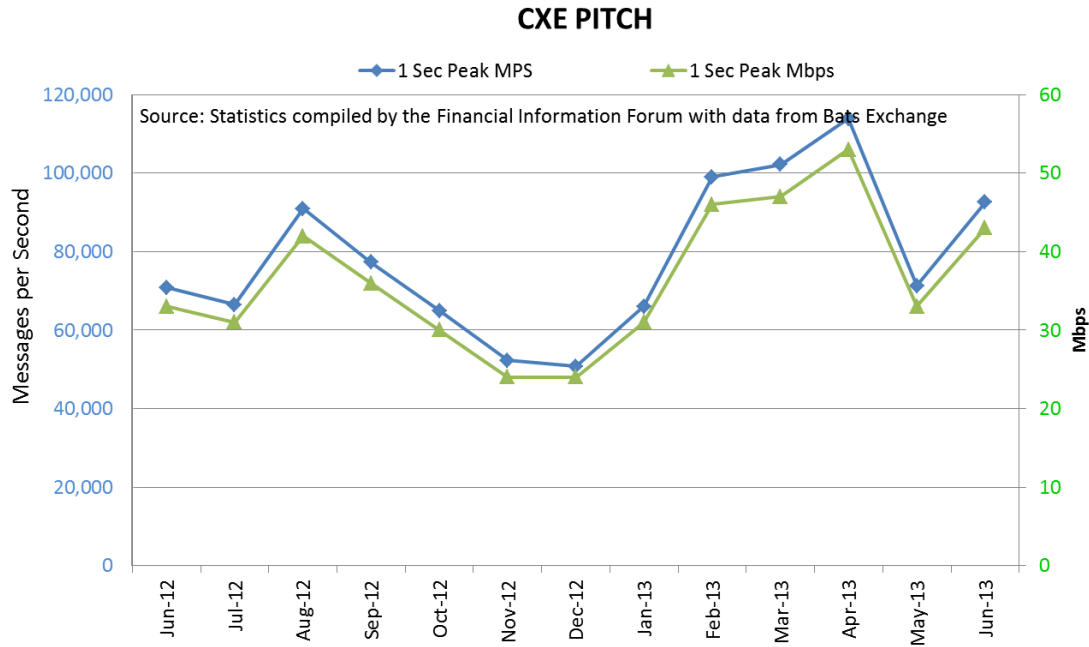
BATS CHI-X Europe BXE PITCH Peak Data Rates



BATS CHI-X Europe BXE PITCH														
Rate	Jul-12	Aug-12	Sep-12	Oct-12	Nov-12	Dec-12	Jan-13	Feb-13	Mar-13	Apr-13	May-13	Jun-13	Peak Date	Period Ending
1 Sec Peak MPS	28,915	39,778	31,339	28,591	25,081	23,090	27,288	47,067	41,801	47,557	33,687	39,136	11/14/11	12:48:45 PM
5 Sec Peak MPS	15,538	19,713	21,412	13,989	12,767	12,242	12,191	17,955	23,979	17,727	18,637	21,981	02/05/10	1:30:00 PM
10 Sec Peak MPS	12,597	15,533	15,353	10,144	8,491	7,941	8,044	12,259	15,919	13,766	14,008	16,827	07/02/10	1:29:55 PM
15 Sec Peak MPS	10,353	14,175	13,673	8,917	7,600	6,910	6,393	10,319	12,692	12,058	11,175	13,813	07/02/10	1:29:55 PM
1 Min Peak MPS	6,053	9,725	8,010	6,354	4,200	3,885	3,616	6,045	7,461	7,247	5,960	7,542	07/02/10	1:29:43 PM
Daily Peak Messages	31,296,225	35,671,927	25,271,157	34,914,237	28,519,910	26,394,269	24,327,818	35,353,930	30,105,767	32,392,221	39,006,034	38,200,834	05/07/10	N/A
Bandwidth Ceiling	20	20	20	20	20	20	20	20	20	20	20	20		
Monthly % Change														
Rate	Aug-12	Sep-12	Oct-12	Nov-12	Dec-12	Jan-13	Feb-13	Mar-13	Apr-13	May-13	Jun-13			
1 Sec Peak MPS	38%	-21%	-9%	-12%	-8%	18%	72%	-11%	14%	-29%	16%			
5 Sec Peak MPS	27%	9%	-35%	-9%	-4%	-0.4%	47%	34%	-26%	5%	18%			
10 Sec Peak MPS	23%	-1%	-34%	-16%	-6%	1%	52%	30%	-14%	2%	20%			
15 Sec Peak MPS	37%	-4%	-35%	-15%	-9%	-7%	61%	23%	-5%	-7%	24%			
1 Min Peak MPS	61%	-18%	-21%	-34%	-8%	-7%	67%	23%	-3%	-18%	27%			
Daily Peak Messages	14%	-29%	38%	-18%	-7%	-8%	45%	-15%	8%	20%	-2%			

Equities Proprietary Feeds Capacity Statistics

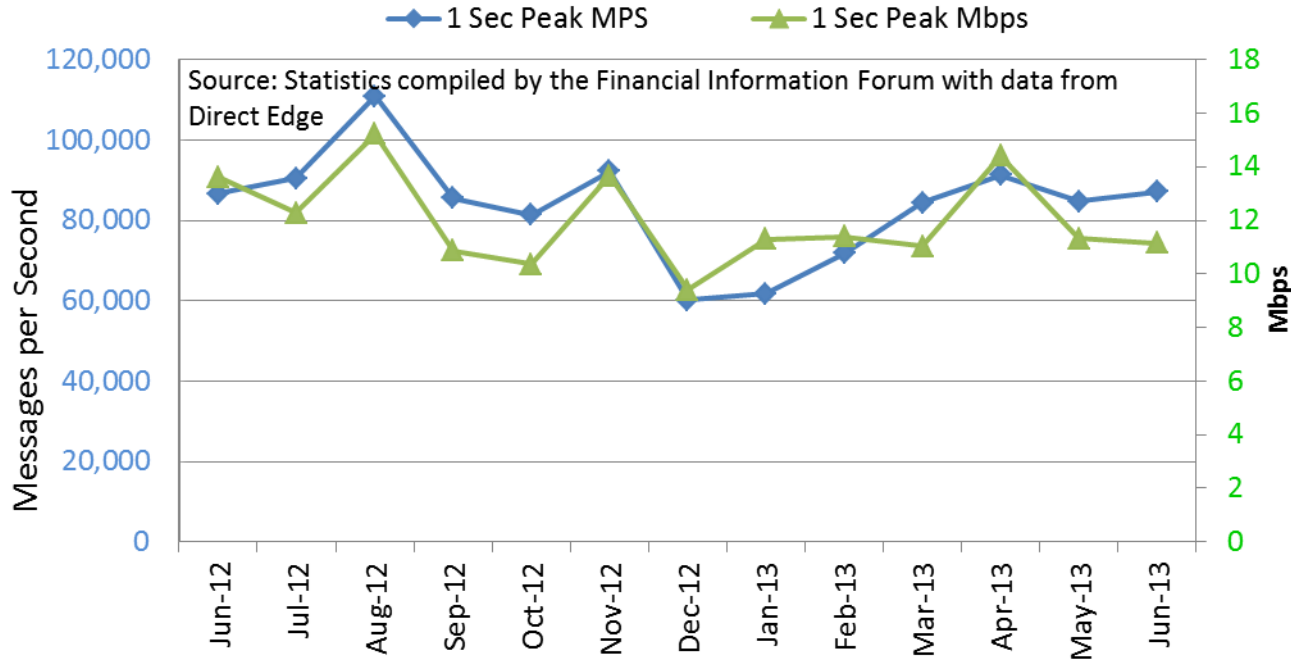
BATS CHI-X Europe CXE PITCH Peak Data Rates



BATS CHI-X Europe CXE PITCH															
Rate	Jun-12	Jul-12	Aug-12	Sep-12	Oct-12	Nov-12	Dec-12	Jan-13	Feb-13	Mar-13	Apr-13	May-13	Jun-13	Peak Date	Period Ending
1 Sec Peak MPS	70,882	66,498	90,937	77,333	64,912	52,278	50,825	66,054	99,042	102,141	113,890	71,254	92,546	04/05/13	10:52:00 AM
5 Sec Peak MPS	40,995	35,196	43,013	52,691	33,046	29,585	25,349	25,057	37,917	53,397	41,502	28,354	41,531	03/12/13	3:49:00 PM
10 Sec Peak MPS	32,401	26,140	34,832	36,175	23,392	19,643	15,832	16,334	26,886	37,550	29,184	21,782	28,409	03/20/13	12:25:00 PM
15 Sec Peak MPS	28,758	22,222	31,655	28,823	19,853	17,237	11,395	15,600	22,771	29,821	28,464	17,351	23,102	08/02/12	1:43:53 PM
1 Min Peak MPS	19,783	12,236	23,892	17,877	13,937	9,434	7,957	8,357	12,662	12,452	18,799	10,669	15,022	09/01/11	10:00:03 AM
Daily Peak Messages	91,345,673	69,751,481	83,303,126	60,743,518	63,157,421	60,879,326	47,407,674	52,236,954	77,572,517	72,177,621	89,199,264	82,005,972	86,882,088	06/01/12	N/A
Monthly % Change															
Rate	Jul-12	Aug-12	Sep-12	Oct-12	Nov-12	Dec-12	Jan-13	Feb-13	Mar-13	Apr-13	May-13	Jun-13			
10 Sec Peak MPS	-19%	33%	4%	-35%	-16%	-19%	3%	65%	40%	-22%	-25%	30%			
15 Sec Peak MPS	-23%	42%	-9%	-31%	-13%	-34%	37%	46%	31%	-5%	-39%	33%			
1 Min Peak MPS	-38%	95%	-25%	-22%	-32%	-16%	5%	52%	-2%	51%	-43%	41%			
Daily Peak Messages	-24%	19%	-27%	4%	-4%	-22%	10%	49%	-7%	24%	-8%	6%			

Equities Proprietary Feeds Capacity Statistics

Direct Edge EDGA Peak Data Rates



EDGA

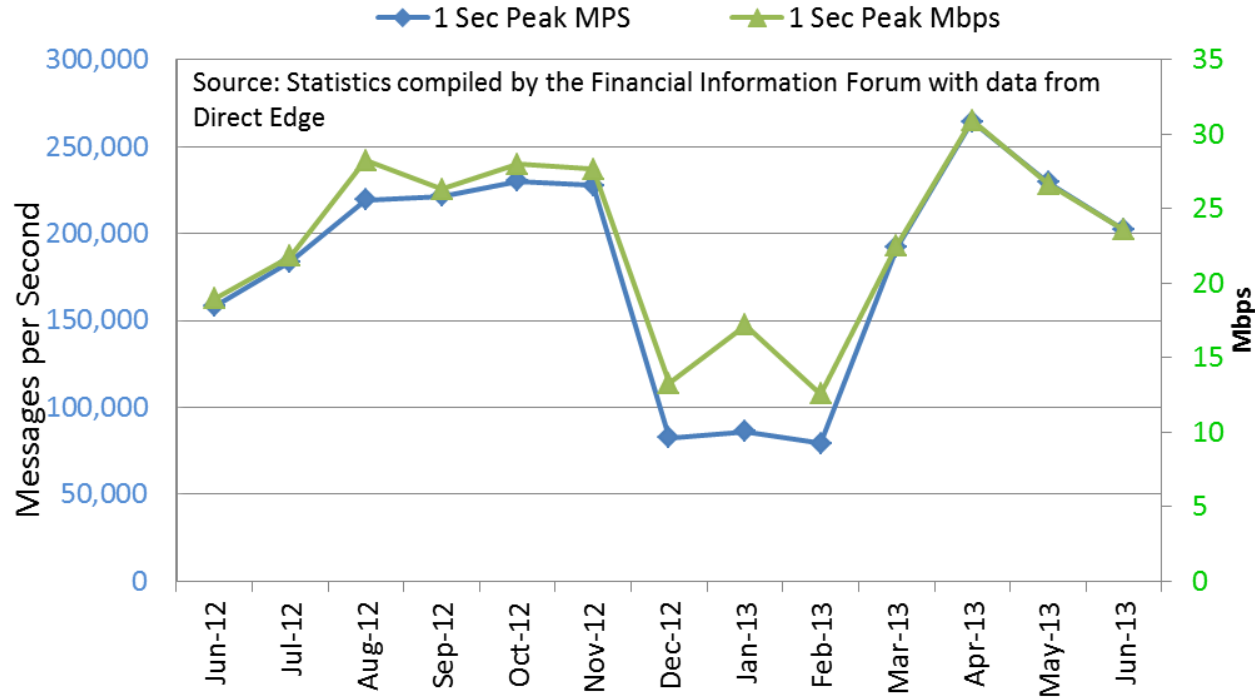
Rate	Jun-12	Jul-12	Aug-12	Sep-12	Oct-12	Nov-12	Dec-12	Jan-13	Feb-13	Mar-13	Apr-13	May-13	Jun-13	Peak Date	Period Ending
1 Sec PeakMPS	86,698	90,458	110,997	85,491	81,441	92,279	60,116	61,763	71,896	84,399	91,324	84,801	87,201	11/01/11	3:46:01 PM
5 Sec PeakMPS	39,599	32,332	42,182	36,849	32,885	35,345	37,344	23,960	31,239	41,078	54,777	52,029	51,756	11/01/11	3:46:01 PM
10 Sec Peak MPS	26,875	24,243	31,895	23,958	23,057	23,223	28,002	15,335	20,706	38,190	48,888	40,036	41,959	11/01/11	3:46:01 PM
15 Sec Peak MPS	25,397	23,526	25,256	20,088	19,045	21,431	24,927	12,282	15,914	37,355	46,830	34,677	36,419	11/01/11	3:45:59 PM
1 Min Peak MPS	20,840	14,463	14,191	10,724	10,421	18,625	18,402	7,022	9,121	23,563	40,188	21,646	24,144	09/01/11	10:00:03 AM
Daily Peak Messages	66,119,252	61,663,160	60,950,678	59,731,236	52,472,498	54,238,203	45,117,526	37,097,318	62,231,994	88,729,029	99,692,101	116,206,478	112,933,291	08/10/11	N/A

Monthly % Change

Rate	Jul-12	Aug-12	Sep-12	Oct-12	Nov-12	Dec-12	Jan-13	Feb-13	Mar-13	Apr-13	May-13	Jun-13
10 Sec Peak MPS	-10%	32%	-25%	-4%	1%	21%	-45%	35%	84%	28%	-18%	5%
15 Sec Peak MPS	-7%	7%	-20%	-5%	13%	16%	-51%	30%	135%	25%	-26%	5%
1 Min Peak MPS	-31%	-2%	-24%	-3%	79%	-1%	-62%	30%	158%	71%	-46%	12%
Daily Peak Messages	-7%	-1%	-2%	-12%	3%	-17%	-18%	68%	43%	12%	17%	-3%

Equities Proprietary Feeds Capacity Statistics

Direct Edge EDGX Peak Data Rates



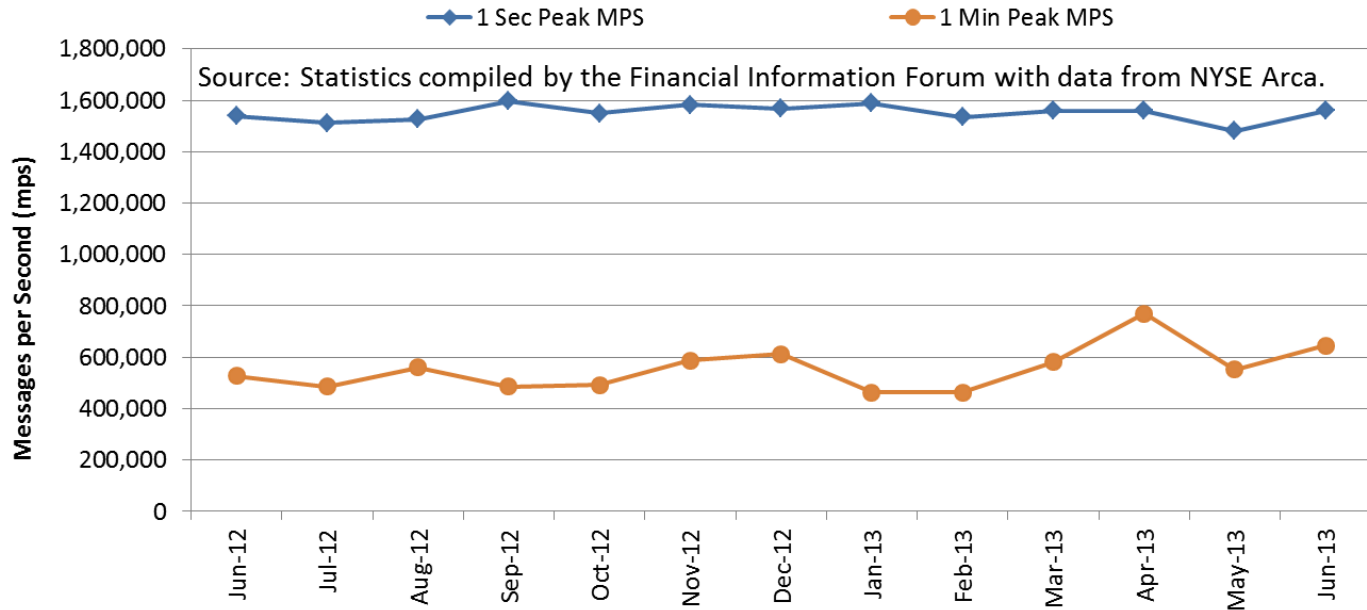
EDGX														Peak Date	Period Ending
Rate	Jun-12	Jul-12	Aug-12	Sep-12	Oct-12	Nov-12	Dec-12	Jan-13	Feb-13	Mar-13	Apr-13	May-13	Jun-13		
1 Sec Peak MPS	158,232	183,676	219,495	221,618	230,316	227,746	82,636	86,221	79,213	192,116	264,298	229,593	202,213	04/15/13	3:59:59 PM
5 Sec Peak MPS	55,125	54,349	62,056	65,920	67,460	61,085	48,976	46,897	45,991	56,613	66,682	61,459	60,705	08/26/11	10:00:04 AM
10 Sec Peak MPS	36,929	32,606	41,380	38,671	39,657	36,488	34,817	27,703	28,036	43,710	50,637	37,331	44,359	11/01/11	3:46:01 PM
15 Sec Peak MPS	32,957	27,056	31,354	29,079	30,222	27,676	30,667	21,845	21,542	42,706	49,321	28,930	36,751	10/26/11	10:00:03 AM
1 Min Peak MPS	26,950	13,683	15,195	16,443	14,274	21,488	21,617	10,143	9,771	26,240	40,017	19,090	22,882	11/01/11	3:45:59 PM
Daily Peak Messages	107,424,102	69,690,327	72,079,090	80,850,481	74,786,990	68,147,028	56,680,671	49,396,193	76,646,834	106,336,935	119,081,859	130,515,424	135,352,327	01/18/12	N/A
Monthly % Change															
Rate	Jul-12	Aug-12	Sep-12	Oct-12	Nov-12	Dec-12	Jan-13	Feb-13	Mar-13	Apr-13	May-13	Jun-13			
10 Sec Peak MPS	-12%	27%	-7%	3%	-8%	-5%	-20%	1%	56%	16%	-26%	19%			
15 Sec Peak MPS	-18%	16%	-7%	4%	-8%	11%	-29%	-1%	98%	15%	-41%	27%			
1 Min Peak MPS	-49%	11%	8%	-13%	51%	1%	-53%	-4%	169%	53%	-52%	20%			
Daily Peak Messages	-35%	3%	12%	-7%	-9%	-17%	-13%	55%	39%	12%	10%	4%			

Proprietary Feeds – Derivatives

Slide Name
NYSE ArcaBook Options Peak Message Rates (MPS and Mbps)
NYSE AMEX Options Peak Message Rates (MPS and Mbps)
CME 1 Sec Peak Message Rates and Mbps – FIX/FAST
CME 1 Sec Peak Message Rates and Mbps – Lines
CME Daily Message Peak Rates
Deutsche Börse CEF Classic – CEF Total, Eurex & CEF Ultra + Eurex Peak Message Rate Data
Deutsche Börse Scoach Peak Message Rate Data

Proprietary Feeds – Derivatives

NYSE ArcaBook Options Peak Message Rates



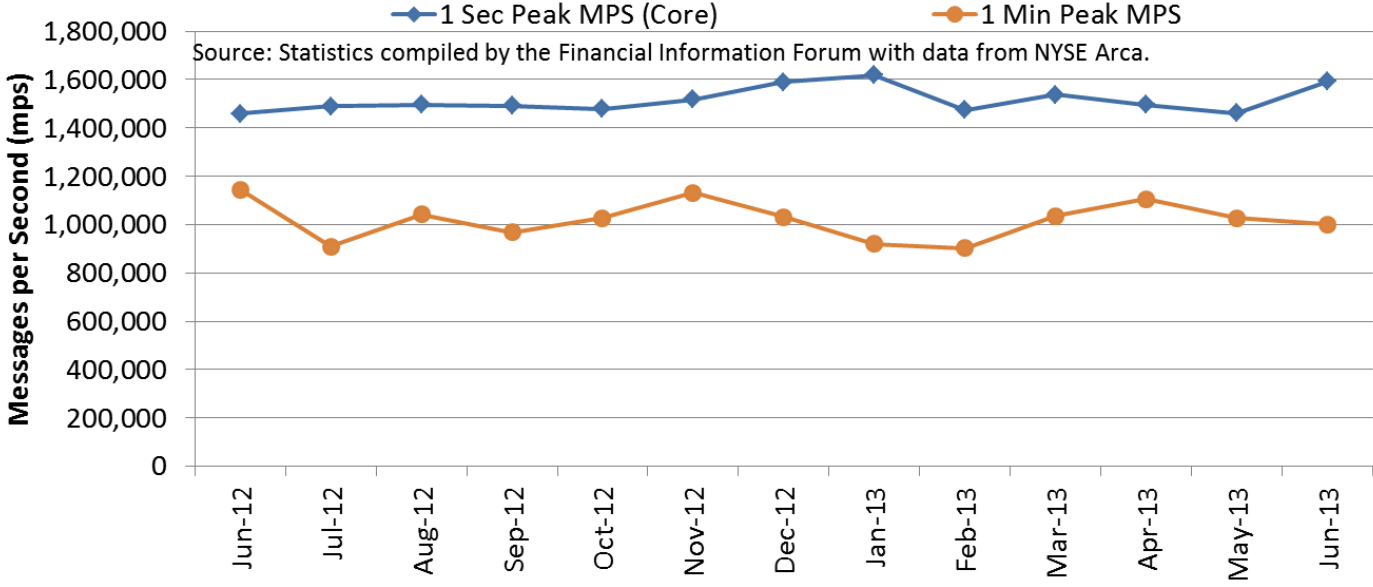
ArcaBook Options															
Peak Period	Jun-12	Jul-12	Aug-12	Sep-12	Oct-12	Nov-12	Dec-12	Jan-13	Feb-13	Mar-13	Apr-13	May-13	Jun-13	Peak Date	Period Ending
1 Sec Peak MPS	1,539,847	1,512,919	1,526,045	1,597,438	1,549,167	1,583,410	1,567,653	1,588,056	1,534,923	1,559,861	1,559,075	1,481,096	1,559,048	09/04/12	9:30:09 AM
5 Sec Peak MPS	1,303,725	1,313,165	1,339,637	1,371,371	1,302,754	1,371,532	1,276,443	1,298,151	1,304,118	1,338,060	1,365,649	1,300,102	1,326,265	05/04/12	9:31:00 AM
10 Sec Peak MPS	1,203,626	1,205,453	1,231,090	1,236,693	1,176,168	1,255,074	1,141,259	1,196,169	1,157,556	1,229,458	1,233,164	1,201,692	1,227,934	05/04/12	9:31:00 AM
15 Sec Peak MPS	1,072,833	1,062,745	1,088,714	1,032,269	982,221	1,170,758	935,125	952,405	925,411	1,030,548	1,016,511	1,033,107	1,077,197	05/04/12	9:31:00 AM
1 Min Peak MPS	527,424	486,890	561,477	485,414	492,088	587,906	612,839	463,091	462,963	582,049	769,455	551,205	645,380	05/04/12	9:31:00 AM
Daily Peak Messages	1,986,673,392	1,776,265,200	2,146,726,476	1,980,642,132	2,294,314,956	2,993,799,204	2,282,749,128	1,664,083,764	2,642,614,308	2,564,917,488	3,025,185,408	3,860,455,788	4,051,398,384	08/05/11	N/A

ArcaBook Options Peak Message Rates (Monthly & Annual % Change)													
Peak Period	Jul-12	Aug-12	Sep-12	Oct-12	Nov-12	Dec-12	Jan-13	Feb-13	Mar-13	Apr-13	May-13	Jun-13	Annual Change
1 Sec Peak MPS	-2%	1%	5%	-3%	2%	-1%	1%	-3%	2%	0%	-5%	5%	1%
5 Sec Peak MPS	1%	2%	2%	-5%	5%	-7%	2%	0.5%	3%	2%	-5%	2%	2%
10 Sec Peak MPS	0.2%	2%	0.5%	-5%	7%	-9%	5%	-3%	6%	0.3%	-3%	2%	2%
15 Sec Peak MPS	-1%	2%	-5%	-5%	19%	-20%	2%	-3%	11%	-1%	2%	4%	0.4%
1 Min Peak MPS	-8%	15%	-14%	1%	19%	4%	-24%	-0.03%	26%	32%	-28%	17%	22%
Daily Peak Messages	-11%	21%	-8%	16%	30%	-24%	-27%	59%	-3%	18%	28%	5%	104%

Note: Data missing between Aug 8-12 for Arcabook Options.

Proprietary Feeds – Derivatives

NYSE AMEX Options Peak Message Rates



AMEX Options															
Peak Period	Jun-12	Jul-12	Aug-12	Sep-12	Oct-12	Nov-12	Dec-12	Jan-13	Feb-13	Mar-13	Apr-13	May-13	Jun-13	Peak Date	Period Ending
1 Sec Peak MPS (Core)	1,457,985	1,489,753	1,495,994	1,491,627	1,478,404	1,517,840	1,589,220	1,618,370	1,474,521	1,536,606	1,495,281	1,462,056	1,591,285	01/11/13	9:30:00 AM
5 Sec Peak MPS	1,350,374	1,382,018	1,414,448	1,380,871	1,399,034	1,421,466	1,416,228	1,431,230	1,382,751	1,381,055	1,409,469	1,348,145	1,363,801	01/11/13	9:30:21 AM
10 Sec Peak MPS	1,288,891	1,299,292	1,293,670	1,290,200	1,285,754	1,328,248	1,291,343	1,305,655	1,304,795	1,288,369	1,301,230	1,263,377	1,260,338	11/20/12	9:30:12 AM
15 Sec Peak MPS	1,251,125	1,245,378	1,242,185	1,243,538	1,238,347	1,268,565	1,239,365	1,251,637	1,253,765	1,235,429	1,248,864	1,223,914	1,216,050	11/20/12	9:30:07 AM
1 Min Peak MPS	1,145,768	907,952	1,042,318	967,497	1,027,368	1,131,384	1,031,599	918,945	903,248	1,034,846	1,104,771	1,026,529	1,000,628	06/01/12	9:31:00 AM
Daily Peak Messages	4,832,124,970	4,345,827,036	5,069,750,769	4,903,184,246	5,729,398,478	6,424,799,578	4,977,964,889	3,979,413,660	5,857,385,255	5,869,915,429	5,721,296,260	5,218,676,126	8,534,367,414	08/04/11	N/A

ArcaBook Options Peak Message Rates (Monthly % Change)												
Peak Period	Jul-12	Aug-12	Sep-12	Oct-12	Nov-12	Dec-12	Jan-13	Feb-13	Mar-13	Apr-13	May-13	Jun-13
1 Sec Peak MPS (Core)	2%	0.4%	-0.3%	-1%	2.7%	5%	2%	-9%	4%	-3%	-2%	9%
5 Sec Peak MPS	2%	2%	-2%	1%	2%	-0.4%	1%	-3%	-0.1%	2%	-4%	1%
10 Sec Peak MPS	1%	-0.4%	-0.3%	-0.3%	3%	-3%	1%	-0.1%	-1%	1%	-3%	-0.2%
15 Sec Peak MPS	-0.5%	-0.3%	0.1%	-0.4%	2%	-2%	1%	0.2%	-1%	1%	-2%	-0.6%
1 Min Peak MPS	-21%	15%	-7%	6%	10%	-9%	-11%	-2%	15%	7%	-7%	-3%
Daily Peak Messages	-10%	17%	-3%	17%	12%	-23%	-20%	47%	0.2%	-3%	-9%	64%

Note: Data missing between May 12-23, 2011 and Aug 5-11 for Amex Options.

NYSE Arca and AMEX Feeds Bandwidth

June 2013



Type	Description/Comment	Peak 1 Sec A or B (Mbps)	Peak 10 mSec A or B (Mbps)	10 mSec peak as % of 1 Sec Peak
Arca-Equities	Refresh of Integrated Feed Data	185.23	342.10	185%
	Retransmissions of Uncompacted 4 Channel Data	118.22	393.78	333%
	Uncompacted 10 Channel Data Full Depth	102.96	878.18	853%
	Uncompacted 4 Channel Data Full Depth	96.85	667.96	690%
	Integrated Feed Data	98.58	547.42	555%
	Refresh by Request of Uncompacted 4 Channel Data	66.20	197.14	298%
	Retransmissions of Integrated Feed Data	106.27	233.09	219%
	Periodic Refresh of Uncompacted 10 Channel Data	48.99	262.91	537%
	Compacted 10 Channel Data Full Depth	43.16	203.55	472%
	Compacted 4 Channel Data Full Depth	38.72	200.93	519%
	Retransmissions of Uncompacted 10 Channel Data	13.53	283.83	2098%
	Top of Book Data	29.98	147.32	491%
	Periodic Refresh of Compacted 10 Channel Data	22.99	197.02	857%
	Periodic Refresh of Compacted 4 Channel Data	19.31	197.17	1021%
	Retransmissions of Compacted 4 Channel Data	0.54	13.20	2434%
	Retransmissions of Compacted 10 Channel Data	0.63	24.43	3862%
	Last Trade Data	7.53	219.12	2911%
	Bulletin Board Retransmissions of Compacted Data	9.73	199.97	2055%
	Bulletin Board Periodic Refresh of Uncompacted Data	2.20	19.99	907%
	Retransmissions of Last Trade Data	1.87	87.72	4686%
	Bulletin Board Periodic Refresh of Compacted Data	1.95	23.56	1211%
	Bulletin Board Refresh by Request of Compacted Data	0.39	23.97	6137%
	Global Index Feed	1.03	53.01	5141%
	Tick Stream Data	0.93	43.85	4713%
	Bulletin Board Refresh by Request of Uncompacted Data	0.17	7.56	4406%
	Refresh by Request of Compacted 4 Channel Data	0.29	13.20	4481%
	Bulletin Board Uncompacted Data	0.24	9.23	3807%

NYSE Arca and AMEX Feeds Bandwidth

June 2013



Type	Description/Comment	Peak 1 Sec A or B (Mbps)	Peak 10 mSec A or B (Mbps)	10 mSec peak as % of 1 Sec Peak
Arca-Equities	Bulletin Board Compacted Data	0.09	2.89	3172%
	Retransmissions of Tick Stream Data	0.02	2.14	9970%
	Retransmissions of Top of Book Data	0.00	0.07	2352%
	Bulletin Board Retransmissions of Uncompacted Data	0.00	0.27	8974%
Arca-Options	Options Depth of Book Data (Top 5)	332.77	1542.57	464%
	Options Top of Book Data	149.31	874.45	586%
	Options Series Status	12.45	150.28	1208%
	Complex Options Data	7.64	89.75	1174%
	Options Last Trade Data	0.35	11.63	3299%
	Options Order Imbalance	0.26	6.24	2431%
AMEX-Options	Options Depth of Book Data (Top 5)	439.86	1542.77	351%
	Options Top of Book Data	218.63	999.55	457%
	Options Series Status	12.01	117.92	982%
	Complex Options Data	8.73	103.00	1180%
	Options Last Trade Data	0.47	14.12	3037%
	Options Order Imbalance	0.41	9.09	2207%
NYSE-Equities	Full Depth of Book Data (Ultra)	164.03	346.98	212%
	Top of Book Data	74.47	201.02	270%
	Retransmission of Full Depth of Book Data (Ultra)	42.88	286.77	669%
	Program Trade Tracking	10.07	20.43	203%
	Last Trade Data	9.93	16.60	167%
	Real Time Last Sale Reference Prices (for web sites)	7.70	13.15	171%
	Auction Order Imbalance	3.55	48.46	1365%
	Aggregated Limit Order Book (1-second refreshes)	2.18	19.77	908%
	Retail Trade Tracking	1.83	28.71	1567%
	Retransmissions of Top of Book Data	1.66	6.73	405%
	Liquidity Replenishment Points	1.58	32.78	2077%

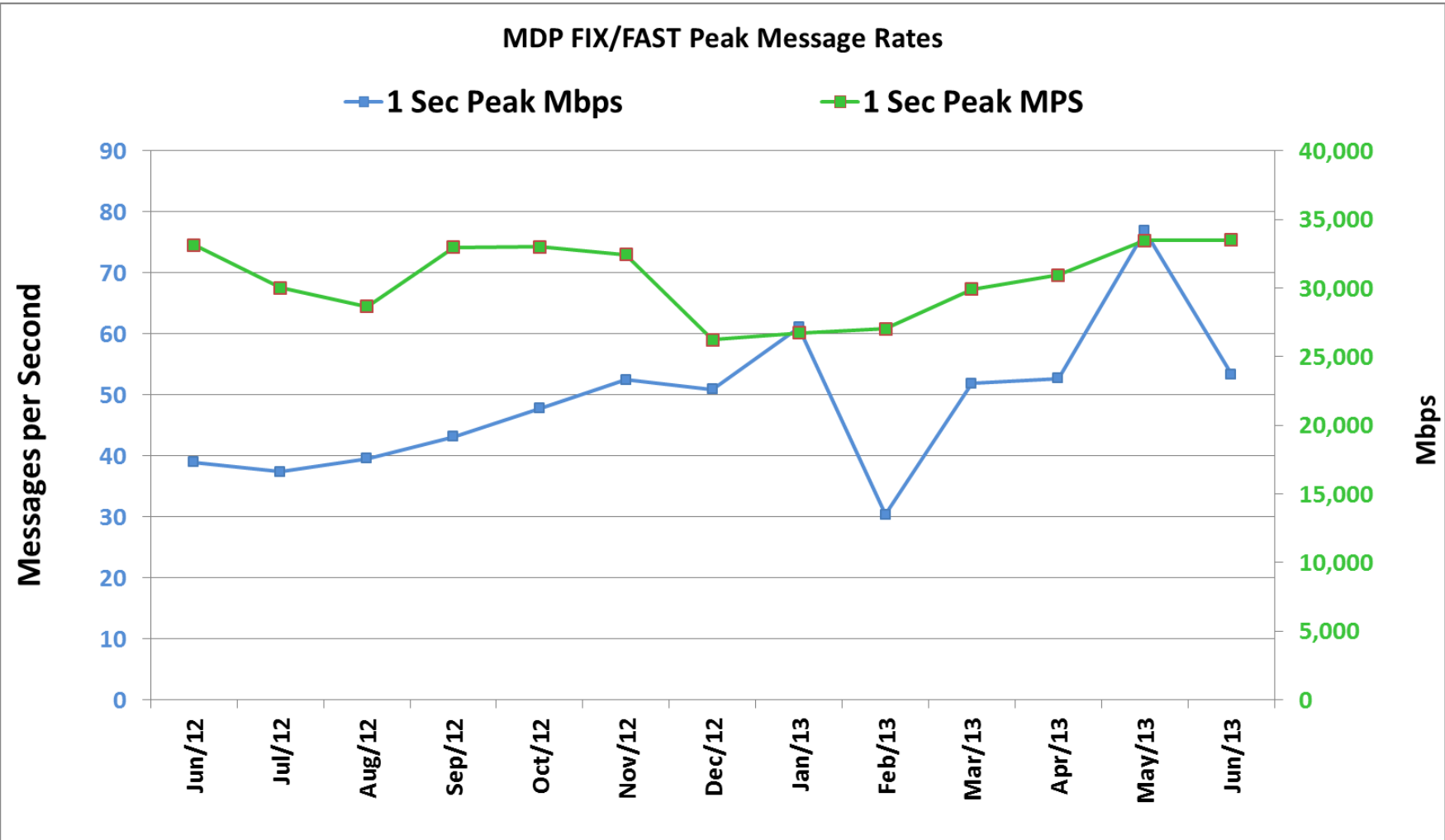
NYSE Arca and AMEX Feeds Bandwidth

June 2013

Type	Description/Comment	Peak 1 Sec A or B (Mbps)	Peak 10 mSec A or B (Mbps)	10 mSec peak as % of 1 Sec Peak
NYSE-Equities	Retransmission of Aggregated Limit Order Book (1-second refreshes)	1.16	2.17	187%
	Retransmissions of Last Trade Data	1.14	1.62	142%
	Retransmissions of Auction Order Imbalance	0.11	0.82	741%
	Retransmissions of Liquidity Replenishment Points	0.00	0.00	N/A
AMEX-Equities	All AMEX Equity Products	8.75	39.62	453%
Liffe-US	Top of Book	10.46	20.11	192%
	Depth of Book	4.52	13.92	308%

Proprietary Feeds – Derivatives

MDP FIX/FAST Peak Message Rates



Source: Statistics compiled by the Financial Information Forum with data from CME Group

Additional CME peak data is available at - <http://www.cmegroup.com/market-data/distributor/market-data-platform.html>

Proprietary Feeds – Derivatives

CME 1 Sec Peak Message Rates and Mbps

CME Line	1 Sec Peak	Monthly % Change	Mbps	Monthly % Change	Date of Peak	Time of Peak
95-CME Aggregate 95	33,503	0.03%	53	-31%	20-Jun-13	1:21:30 PM
60-CME FX Futures II	6,200	-5%	5	-9%	6-Jun-13	7:46:14 AM
30-NYMEX Crude Futures	6,097	-4%	6	15%	28-Jun-13	1:30:00 PM
112-CBOT Globex Commodity Options	6,360	2%	5	2%	18-Jun-13	2:27:28 PM
7-CME Globex Equity Futures	5,840	1%	5	4%	28-Jun-13	3:00:01 PM
15-CME Equity Futures - excludes E-mini S&P 500	5,980	10%	6	14%	12-Jun-13	11:13:51 AM
11-CME Globex FX Futures	4,212	-22%	4	-29%	11-Jun-13	12:33:28 PM
61-CME FX Options II	3,902	-25%	7	-23%	4-Jun-13	8:29:04 AM
116-CBOT Globex Interest Rate Options	5,350	8%	8	6%	4-Jun-13	8:19:27 AM
8-CME Globex Equity Options	5,320	9%	10	-6%	20-Jun-13	10:19:15 AM
111-CBOT Globex Commodity Futures	4,004	-11%	11	237%	19-Jun-13	1:14:55 PM
12-CME Globex FX Options	4,755	8%	7	-15%	6-Jun-13	7:45:52 AM
115-CBOT Globex Interest Rate Futures	2,726	-21%	4	-43%	7-Jun-13	7:29:59 AM
31-NYMEX Non-Crude Energy Futures	2,843	-12%	3	-79%	28-Jun-13	1:30:00 PM
33-COMEX Futures	2,517	-18%	8	-25%	28-Jun-13	9:27:08 AM
35-NYMEX Crude Options	2,818	-5%	7	-19%	26-Jun-13	8:24:48 AM
38-COMEX Options	2,996	8%	10	16%	13-Jun-13	9:04:53 AM
801-Inter Exchange Spreads	5,110	129%	12	111%	25-Jun-13	12:27:08 PM
13-CME Globex Commodity, Industrial Commodity and TRAKRS Futures	4,553	135%	7	47%	5-Jun-13	12:44:08 PM
113-CBOT Globex Equity Index Futures	2,404	25%	2	13%	20-Jun-13	1:21:30 PM
25-BM&F Options	1,744	2%	1	2%	28-Jun-13	2:00:00 PM
23-BMD Options	1,508	-5%	1	-5%	27-Jun-13	2:00:47 PM
9-CME Globex Interest Rate Futures	1,593	5%	3	-62%	19-Jun-13	12:59:10 PM

Proprietary Feeds – Derivatives

CME 1 Sec Peak Message Rates and Mbps

CME Line	1 Sec Peak	Monthly % Change	Mbps	Monthly % Change	Date of Peak	Time of Peak
14-CME Globex Commodity, Industrial Commodity and TRAKRS Options	1,737	20%	5	18%	19-Jun-13	11:27:02 AM
118-MGEX Globex Futures	2,968	107%	3	55%	25-Jun-13	12:27:08 PM
24-BM&F Futures	1,520	16%	1	7%	21-Jun-13	8:49:07 AM
120-KCBT Globex Futures	2,909	130%	3	78%	6-Jun-13	11:53:18 AM
16-CME Equity Options - excludes E-mini S&P 500	1,568	25%	3	-9%	26-Jun-13	2:15:06 PM
36-NYMEX Non-Crude Energy Options	893	-5%	2	-24%	17-Jun-13	12:09:49 PM
121-KCBT Globex Options	1,191	27%	1	41%	26-Jun-13	8:54:03 AM
32-NYMEX Metals, Softs, and Alternative Markets & COMEX Futures	738	-18%	2	-5%	26-Jun-13	8:01:45 AM
26-MexDer Futures	718	-14%	0	-30%	11-Jun-13	8:27:50 AM
28-DME Futures	673	-18%	1	-1%	20-Jun-13	8:15:52 AM
10-CME Globex Interest Rate Options	1,776	119%	2	48%	13-Jun-13	7:28:36 AM
22-BMD Futures	738	6%	1	6%	18-Jun-13	1:56:22 PM
27-MexDer Options	421	-26%	0	-42%	28-Jun-13	7:30:03 AM
114-CBOT Globex Equity Index Options	360	-13%	1	61%	3-Jun-13	8:31:29 AM
119-MGEX Globex Options	888	304%	1	523%	27-Jun-13	10:21:11 AM
18-NYMEX Emissions Futures	287	33%	0	-17%	20-Jun-13	10:18:28 AM
21-KRX Futures	83	15%	0	22%	7-Jun-13	7:30:08 AM
37-NYMEX Metals, Softs, and Alternative Markets & COMEX Options	48	-6%	0	-6%	19-Jun-13	8:47:22 AM
6-Volatility Quoted Options	2	-83%	0	-57%	13-Jun-13	7:55:54 AM
19-NYMEX Emissions Options	4	0%	0	0%	27-Jun-13	8:42:00 AM
29-DME Options	1	-50%	0	-58%	28-Jun-13	7:20:28 AM
170-CME Credit OTC	0	-100%	N/A	N/A	0-Jan-00	12:00:00 AM
70-CME Europe Futures	1	N/A	0	N/A	28-Jun-13	7:20:15 AM

Proprietary Feeds – Derivatives

CME Daily Message Peak Rates

CME Line	Daily Peak Messages	Monthly % Change	Date of Peak
95-CME Aggregate 95	108,160,935	1%	6-Jun-13
30-NYMEX Crude Futures	13,374,422	-5%	20-Jun-13
8-CME Globex Equity Options	10,500,712	-1%	24-Jun-13
60-CME FX Futures II	12,054,431	55%	6-Jun-13
116-CBOT Globex Interest Rate Options	8,202,176	16%	21-Jun-13
12-CME Globex FX Options	7,457,927	8%	6-Jun-13
112-CBOT Globex Commodity Options	4,801,308	-21%	5-Jun-13
9-CME Globex Interest Rate Futures	7,326,560	27%	21-Jun-13
38-COMEX Options	4,498,136	-13%	28-Jun-13
61-CME FX Options II	4,423,057	-14%	6-Jun-13
15-CME Equity Futures - excludes E-mini S&P 500	5,963,573	31%	20-Jun-13
111-CBOT Globex Commodity Futures	4,218,344	-3%	28-Jun-13
7-CME Globex Equity Futures	4,250,656	3%	20-Jun-13
11-CME Globex FX Futures	6,049,650	53%	6-Jun-13
33-COMEX Futures	3,015,993	-18%	28-Jun-13
115-CBOT Globex Interest Rate Futures	5,436,450	51%	7-Jun-13
35-NYMEX Crude Options	3,745,546	21%	24-Jun-13
31-NYMEX Non-Crude Energy Futures	2,152,911	-24%	13-Jun-13
24-BM&F Futures	2,782,516	5%	20-Jun-13
16-CME Equity Options - excludes E-mini S&P 500	1,899,343	3%	5-Jun-13
113-CBOT Globex Equity Index Futures	2,418,290	35%	20-Jun-13
26-MexDer Futures	944,632	-36%	7-Jun-13

Proprietary Feeds – Derivatives

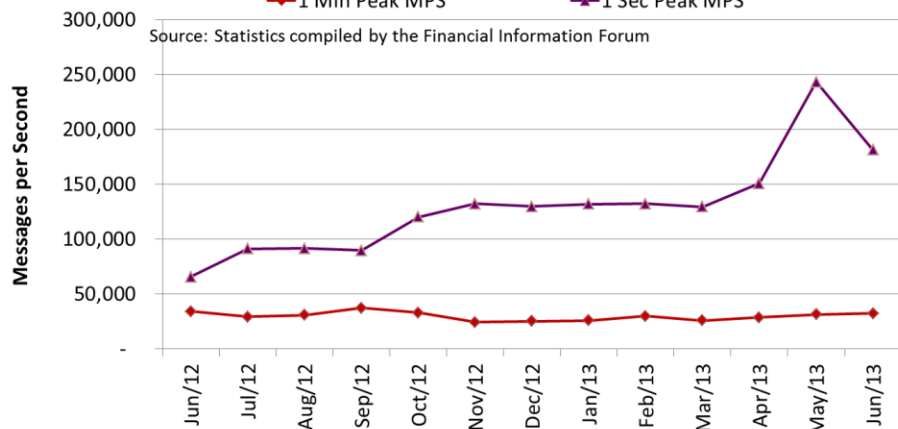
CME Daily Message Peak Rates

CME Line	Daily Peak Messages	Monthly % Change	Date of Peak
801-Inter Exchange Spreads	1,419,904	-1%	20-Jun-13
13-CME Globex Commodity, Industrial Commodity and TRAKRS Futures	1,284,841	-2%	11-Jun-13
36-NYMEX Non-Crude Energy Options	727,468	-41%	3-Jun-13
114-CBOT Globex Equity Index Options	836,962	6%	5-Jun-13
28-DME Futures	865,399	21%	20-Jun-13
14-CME Globex Commodity, Industrial Commodity and TRAKRS Options	739,714	11%	11-Jun-13
32-NYMEX Metals, Softs, and Alternative Markets & COMEX Futures	373,354	-38%	11-Jun-13
10-CME Globex Interest Rate Options	556,079	6%	26-Jun-13
120-KCBT Globex Futures	446,344	-10%	28-Jun-13
27-MexDer Options	331,568	2%	28-Jun-13
118-MGEX Globex Futures	230,933	-22%	4-Jun-13
121-KCBT Globex Options	229,518	10%	12-Jun-13
21-KRX Futures	153,198	43%	24-Jun-13
25-BM&F Options	39,529	38%	4-Jun-13
18-NYMEX Emissions Futures	8,940	6%	12-Jun-13
23-BMD Options	6,251	50%	27-Jun-13
119-MGEX Globex Options	37,901	1063%	25-Jun-13
22-BMD Futures	2,312	20%	17-Jun-13
37-NYMEX Metals, Softs, and Alternative Markets & COMEX Options	1,094	5%	10-Jun-13
19-NYMEX Emissions Options	955	0.2%	10-Jun-13
6-Volatility Quoted Options	955	-1%	13-Jun-13
29-DME Options	950	-0.1%	28-Jun-13
70-CME Europe Futures	950	N/A	28-Jun-13

CEF Core Eurex Peak Message Rates

— 1 Min Peak MPS — 1 Sec Peak MPS

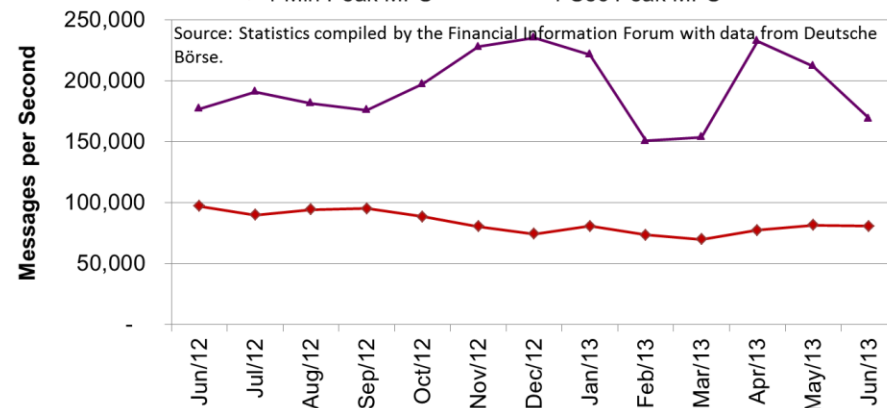
Source: Statistics compiled by the Financial Information Forum



CEF Core Total Peak Message Rates

— 1 Min Peak MPS — 1 Sec Peak MPS

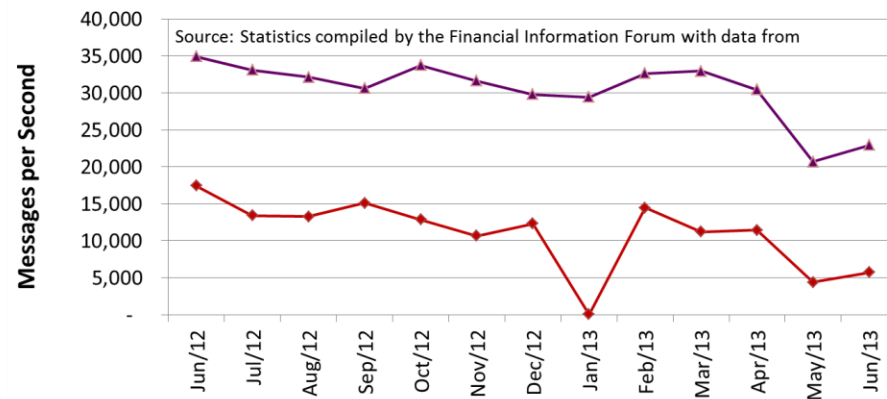
Source: Statistics compiled by the Financial Information Forum with data from Deutsche Börse.



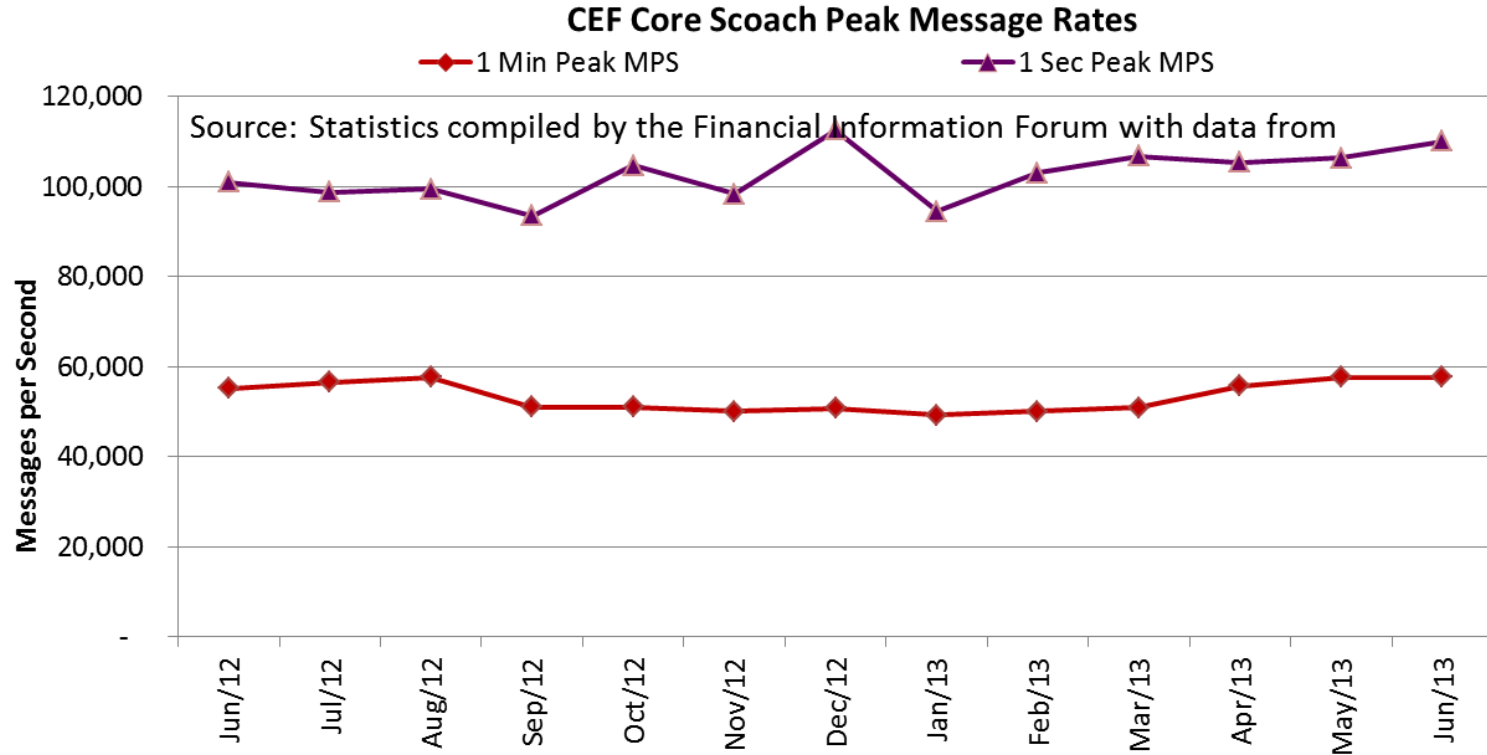
CEF Ultra + Eurex Peak Message Rates

— 1 Min Peak MPS — 1 Sec Peak MPS

Source: Statistics compiled by the Financial Information Forum with data from



- CEF Classic includes Eurex as one source within this service (which means: CEF figures include Eurex figures)
- Note: Eurex updates are disseminated only at the end of "netting intervals" of approximately 250 ms



Peak Period	Jun-12	Jul-12	Aug-12	Sep-12	Oct-12	Nov-12	Dec-12	Jan-13	Feb-13	Mar-13	Apr-13	May-13	Jun-13	Peak Date	Period Ending
1Sec Peak MPS	100,929	98,750	99,489	93,558	104,695	98,325	112,562	94,491	103,082	106,709	105,300	106,290	110,104	12/04/12	2:30:07 PM
10 Sec Peak MPS	66,559	70,311	67,469	55,554	58,724	61,778	60,575	58,904	65,673	60,296	65,311	62,602	69,611	07/25/12	9:01:11 AM
15 Sec Peak MPS	61,240	65,618	63,873	54,577	54,967	55,589	56,017	56,018	56,113	55,764	60,594	59,647	60,748	07/25/12	N/A
1Min Peak MPS	55,133	56,569	57,711	51,081	51,011	50,129	50,731	49,265	50,144	50,930	55,676	57,682	57,606	08/02/12	10:00:03 AM
Daily Peak Messages	1,330,500,060	1,234,711,160	1,242,762,357	979,870,442	979,947,549	1,107,758,086	925,892,484	856,348,454	1,188,106,872	1,074,496,288	1,280,690,252	17,552,773	19,002,403	N/A	N/A

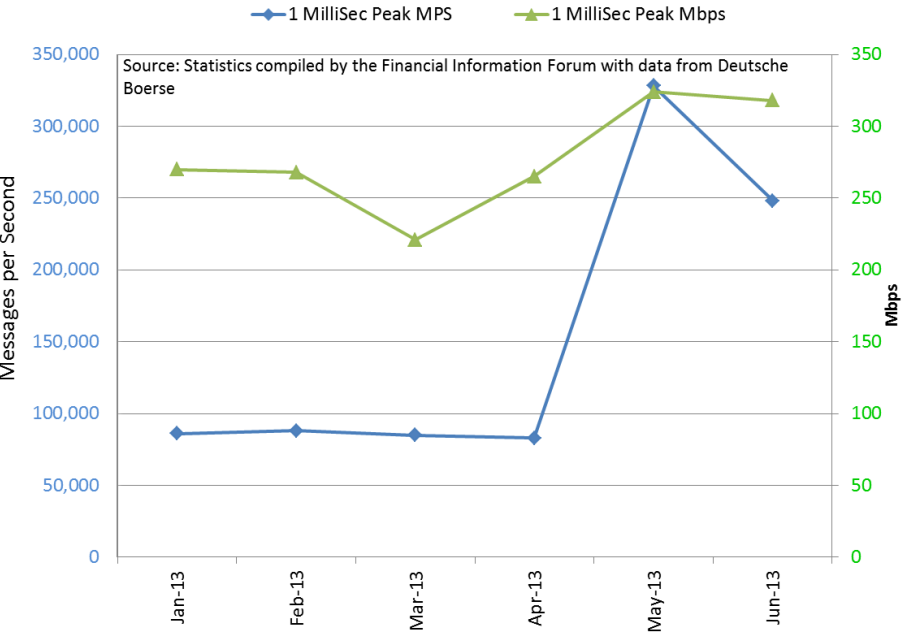
Peak Period	Jul-12	Aug-12	Sep-12	Oct-12	Nov-12	Dec-12	Jan-13	Feb-13	Mar-13	Apr-13	May-13	Jun-13	Annual Change
1Sec Peak MPS	-2%	1%	-6%	12%	-6%	14%	-16%	9%	4%	-1%	1%	4%	9%
10 Sec Peak MPS	6%	-4%	-18%	6%	5%	-2%	-3%	1%	-8%	-4%	1%	5%	5%
15 Sec Peak MPS	7%	-3%	-15%	1%	1%	1%	0.002%	0.2%	-0.6%	9%	-2%	2%	-1%
1Min Peak MPS	3%	2%	-11%	-0.1%	-1.7%	1%	-3%	2%	2%	9%	4%	-0.1%	4%
Daily Peak Messages	-7%	1%	-21%	0.01%	13%	-16%	-8%	39%	-10%	19%	-99%	8%	-99%

Proprietary Feeds – Derivatives

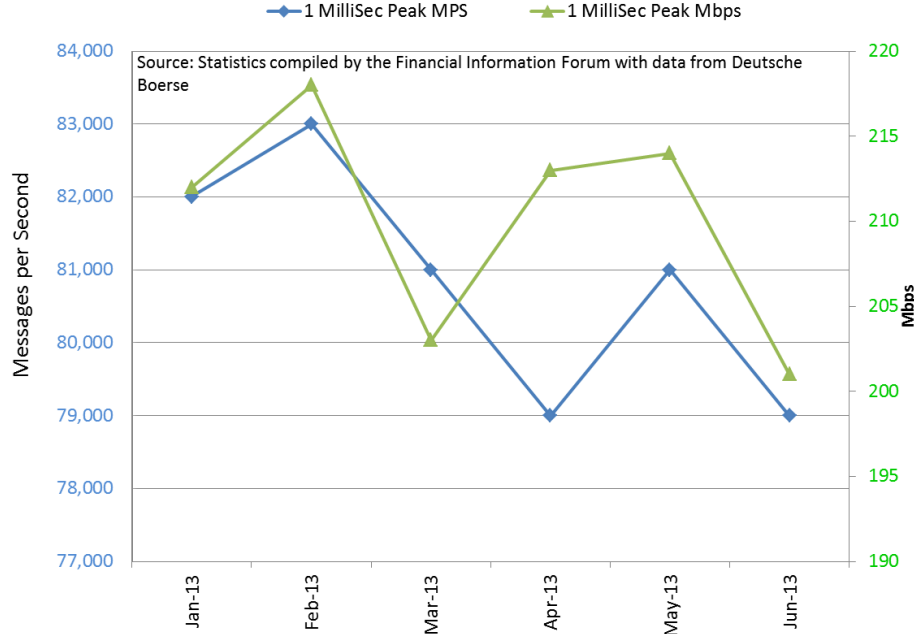
Deutsche Börse CEF Ultra + Eurex & CEF Ultra + Xetra

Millisecond Peak Message Rates

CEF Ultra + Eurex



CEF Ultra + Xetra



CEF Ultra + Eurex - Millisecond Peak Rates						
Peak Period	Jan-13	Feb-13	Mar-13	Apr-13	May-13	Jun-13
1 Millisecond Peak MPS	86,000	88,000	85,000	83,000	328,000	248,000
1 Millisecond Peak Mbps	270	268	221	265	324	318

CEF Ultra + Eurex Millisecond Peak Rates (% Change)					
Peak Period	Feb-13	Mar-13	Apr-13	May-13	June-13
1 Millisecond Peak MPS	2%	-3%	-2%	295%	-24%
1 Millisecond Peak Mbps	-0.7%	-18%	20%	22%	-2%

CEF Ultra + Xetra - Millisecond Peak Rates						
Peak Period	Jan-13	Feb-13	Mar-13	Apr-13	May-13	Jun-13
1 Millisecond Peak MPS	82,000	83,000	81,000	79,000	81,000	79,000
1 Millisecond Peak Mbps	212	218	203	213	214	201

CEF Ultra + Xetra Millisecond Peak Rates (% Change)					
Peak Period	Feb-13	Mar-13	Apr-13	May-13	June-13
1 Millisecond Peak MPS	1%	-2%	-2%	3%	-2%
1 Millisecond Peak Mbps	3%	-7%	5%	0.5%	-6%

Note: 1 Millisecond statistics in messages per second are calculated above by multiplying the highest number of messages flowing in the busiest 1 millisecond with 1000.

Exchange Peak Message Rate Methodology

- **SIAC (OPRA, CQS, CTS)**
 - Measuring Timeframe: 00:00:00 to 23:59:59 ET.
 - The message rates are measured in rolling second fixed-window intervals. For example, the first 5-second window will begin at 00:00:00 and terminate at 00:00:04, the second will begin one second later at 00:00:01 and terminate at 00:00:05 and so on.
 - The maximum message rate for each fixed-window interval is provided to FIF.
 - **Latency:** Message latency is measured beginning with the time-stamp taken as an inbound Participant message arrives at the network entrance to the <CTS-CQS-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.
- **NYSE Arca (Arcabook, Arcabook Options, AMEX Options)**
 - Measuring Timeframe: 09:30:00 to 15:59:59 ET.
 - The message rates are measured in rolling second fixed-window intervals.
 - The maximum rate for each 1, 5, 10, 15 and 60 window is provided to FIF.
- **CME (MDP FIX/FAST and ITC 2.1)**
 - Measuring Timeframe: 07:20:00 to 15:15:00 CT
 - The message rates are measured in rolling second fixed-window intervals.
 - The number of messages in each time range are counted and calculations of the max peak are made off of a metric database.
- **NASDAQ OMX (SIP – UTDF, UQDF)**
 - Measuring Timeframe - Market Open to Market Close 9:30:00 AM to 4:00:00 PM ET. Spins outside market hours are not used in the determination of a peak
 - Base windows of 1 second used. Rolling 1 second measurements are taken. (i.e. 09:30:00.000, 09:30:00.999, ...)
 - All other windows (5-sec, 15-sec, 1-min, and 5-min) are based on 1 second fixed interval numbers.
 - Calculations are based on aggregate messages for all three channels. (Each channel is not individually calculated.)
 - **Latency:** Message latency is measured beginning with the time-stamp taken as an inbound Participant message arrives at the network entrance to the <UQDF-UTDF> 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.

Exchange Peak Message Rate Methodology

- **NASDAQ OMX (Proprietary – TotalView – ITCH 3.2, BX TotalView –ITCH 3.2, PSX TotalView - ITCH)**
 - Measuring Timeframe - Market Open to Market Close 9:30:00 AM to 4:00:00 PM ET. Spins outside market hours are not used in the determination of a peak
 - Base windows of 5 seconds used. Rolling 5 second measurements are taken. (i.e. 09:30:00, 09:30:05, ...)
 - All other windows (15-sec, 1-min, and 5-min) are also tied to even boundaries, and do not use rolling 5-seconds. For example, 15-second intervals would include 09:30:00, 09:30:15, 09:30:30, etc.
 - Calculations are based on aggregate messages for all three channels. (Each channel is not individually calculated) Measuring Timeframe: Full trading day.
- **Deutsche Börse (CEF Core Total, CEF Core Eurex, CEF Core SCOACH)**
 - Measuring Timeframe: Full trading day.
 - The message rates are measured in rolling second fixed-window intervals.
 - For each source and for CEF total we extract the maximum value per day (1 second peak, 10 second peak, 15 second peak, 1 min peak) together with the time when each peak occurred.
- **BATS Exchange (BZX PITCH, BZX TOP, BYX PITCH, BYX TOP)**
 - Measuring Timeframe: 8:00:00 to 16:59:59 ET.
 - The message rates are measured in rolling second fixed-window intervals.
 - The maximum rate for each 1, 5, 10, 60 second window is provided to FIF.
- **Direct Edge (EDGA, EDGX)**
 - Measuring Timeframe: 09:30:00 to 16:00:00 ET.
 - The message rates are measured in rolling second fixed-window intervals.
 - The maximum rate for each 1, 5, 10, 15 and 60 window is provided to FIF.

Appendix 1: FIF Capacity Statistics - Data Matrix

Exchange	Feed	1 MSec Peak	10 MSec Peak	25 MSec Peak	50 MSec Peak	1 Sec Peak	5 Sec Peak	10 Sec Peak	15 Sec Peak	30 Sec Peak	1 Min Peak	5 Min Peak	Daily Peak Messages	Bandwidth ceiling Mbps	1 Sec Mbps	5 Sec Mbps	10 Sec Mbps	15 Sec Mbps	1 Min Mbps
NYSE	ArcaBook Equity					✓	✓	✓	✓		✓		✓						
	ArcaBook Options					✓	✓	✓	✓		✓		✓						
	ArcaBook AMEX Options					✓	✓	✓	✓		✓		✓						
	Euronext												✓	✓					
BATS	BZX PITCH/TOP	✓	✓	✓	✓	✓	✓	✓	✓		✓		✓	✓	✓	✓	✓	✓	✓
	BYX PITCH/TOP	✓	✓	✓	✓	✓	✓	✓	✓		✓		✓	✓	✓	✓	✓	✓	✓
	BATS Options	✓	✓	✓	✓	✓	✓	✓	✓		✓		✓	✓	✓	✓	✓	✓	✓
BATS CHI-X Europe	BXE PITCH/MCASTPITCH AGG	✓	✓	✓	✓	✓	✓	✓	✓		✓		✓						
	CXE PITCH/MCASTPITCH AGG	✓	✓	✓	✓	✓	✓	✓	✓		✓		✓						
CME	ITC 2.1					✓	✓	✓	✓		✓		✓		✓	✓	✓	✓	✓
	FIX/FAST (Per Line)					✓	✓	✓	✓		✓		✓						
	MDP FIX/FAST					✓	✓	✓	✓		✓		✓						
Deutsche Börse	CEF Core Total					✓	✓	✓	✓		✓		✓						
	CEF Core Eurex					✓	✓	✓	✓		✓		✓						
	CEF Ultra + Eurex					✓	✓	✓	✓		✓		✓						
	CEF Core Scoach					✓	✓	✓	✓		✓		✓						
	CEF Eurex+Xetra																		
NASDAQ	BBDS					✓			✓		✓	✓	✓	✓					
	BTDS					✓			✓		✓	✓	✓	✓					
	TDDS					✓			✓		✓	✓	✓	✓					
	BONO					✓	✓		✓		✓	✓	✓	✓					
	DAP					✓	✓		✓		✓	✓	✓	✓					
	ITTO					✓	✓		✓		✓	✓	✓	✓					
	NASDAQ Level 2						✓		✓		✓	✓	✓	✓					
	NLS					✓	✓		✓		✓	✓	✓	✓					
	TotalView Aggregate						✓		✓		✓	✓	✓	✓					
	TotalView ITCH 3.0/3.1					✓	✓		✓		✓	✓	✓	✓					
	OMDF					✓	✓			✓	✓	✓	✓	✓					
	UQDF					✓	✓			✓	✓	✓	✓	✓					
	UTDF					✓	✓			✓	✓	✓	✓	✓					
	QBBO						✓			✓	✓	✓	✓	✓					
SIAC	CQS		✓			✓	✓		✓		✓		✓	✓					
	CTS		✓			✓	✓		✓		✓		✓	✓					
	OPRA		✓			✓	✓		✓		✓		✓	✓					
LSE	Infolect					✓						✓							
Direct Edge	EDGA					✓	✓	✓	✓		✓		✓		✓	✓	✓	✓	
	EDGX					✓	✓	✓	✓		✓		✓		✓	✓	✓	✓	

NYSE ArcaBook Depth of Book	1 sec Peak A or B (Mbps), 50 msec Peak A or B (Mbps)
Thomson Reuters	Most Active RIC Report, Europe Market Share Report
OPRA	Monthly Peak rates breakdown of Market Center by line, Average 1 Sec Peak per Multicast line
BATS	Avg 1 Sec Peak/Multicast Line, MCASTPITCH, 1 Milliseconds Peak, 10 Millisecond Peak (Mps & Mbps), Statistic by Symbol distribution
Market data peaks	1 Sec Mps, time, Mbps data for OPRA, Totalview ITCH 4.0, ArcaBook Equities, BATS PITCH, CQS, CTS, UQDF, UTDF, CME, DirectEdge SCRATCH - EDGX, OpenBook
TMX Group	Toronto TL1 TL2 / CL1 CL2 1/10 Sec Peak data provided by Interactive Data Pricing and Reference Data