## **IP Latency Statistics**

Verizon Enterprise Solutions is constantly measuring the latency (speed) of core areas of its network using data collected by pings via the Internet Control Message Protocol (ICMP).

How is the data collected?

Data is collected from designated routers in key network hubs world-wide, in 5-minute intervals. Monthly latency and packet delivery statistics are derived from averaging all samples from the previous month.

What are our targets?

Verizon Enterprise Solutions Service Level Agreements (SLAs) guarantee

Monthly latency figures of:

- 45ms or less for regional round trips within North America.
- 30ms or less for regional round trips within Europe.
- 90ms or less for transatlantic round trips between London and New York.

## Packet delivery of:

- 99.5 percent or greater for regional round trips within Europe and North America.
- 99.5 percent or greater for transatlantic round trips between London and New York.

		Verizor	n Enterpr	ise Solut	ions Late	ncy Stati	istics (ms	s)				
	2016						2015					
	June	Мау	April	March	February	January	December	November	October	September	August	July
Trans Atlantic (90.000)	74.221	74.231	74.218	73.065	69.960	70.007	70.021	72.106	72.127	72.131	72.100	73.216
Europe (30.000)	11.299	11.341	11.480	11.330	11.379	11.458	11.619	11.549	11.577	11.701	11.662	11.534
North America (45.000)	36.126	35.890	34.617	34.271	35.720	36.009	36.022	36.068	35.481	34.650	34.260	35.922
Intra-Japan (30.000)	8.329	9.625	14.033	8.164	8.181	8.698	8.634	8.183	8.497	8.602	10.490	9.351
Trans Pacific (160.000)	114.534	114.487	114.468	115.137	111.675	111.090	110.855	110.883	110.872	110.095	109.773	109.733
Asia Pacific (125.000)	96.075	95.552	102.874	104.288	93.742	95.174	101.367	107.006	112.106	99.801	96.161	96.431
Latin America (140.000)	130.710	134.001	137.587	135.906	135.129	136.532	135.649	134.352	134.999	134.836	134.686	137.473
EMEA to Asia Pacific (250.000)	128.381	150.332	113.362	115.098	116.863	118.694	124.254	117.133	117.025	208.816	167.362	118.534

Verizo	n Enterpr	ise Solu	tions Lat	ency Sta	itistics fo	or Count	ry Specif	ic Metric	s (ms)			
	2016						2015					
	June	Мау	April	March	February	January	December	November	October	September	August	July
Hong Kong to US (230.000)												
Singapore to US (260.000)	179.266	182.222	175.341	178.474	182.257	182.433	182.106	182.291	182.533	182.665	182.321	182.431
Australia to US (210.000)	153.604	153.599	153.600	153.602	152.418	152.124	152.124	152.170	152.196	152.611	152.168	152.456
Argentina to US (160.000)	124.059	124.701	127.262	125.328	125.184	125.670	125.286	125.588	129.952	128.398	126.023	125.889
Brazil to US (130)	116.788	113.870	111.835	113.084	113.229	111.884	112.663	116.170	116.019	114.784	115.436	115.923
Chile to US (150.000)	103.369	113.691	116.620	102.652	103.589	101.186	100.039	97.468	97.777	97.713	97.736	97.366
Colombia to US (95.000)	58.285	57.808	58.169	61.132	57.221	57.147	57.104	57.583	57.309	57.951	57.917	58.235
Panama to US (60.000)	46.051	46.210	46.288	45.933	46.458	45.717	47.769	45.938	47.647	46.076	45.748	45.852
Venezuela to US (110.000)	49.671	49.678	49.678	49.764	49.887	49.849	49.905	49.983	50.603	50.050	50.049	50.113
NA to India (380.000)	260.642	281.361	244.510	245.769	244.492	246.337	253.096	248.971	245.201	245.470	246.041	248.228
NA to Intra EMEA (110.000)	86.238	85.735	86.335	85.266	86.004	86.083	85.903	85.425	85.414	85.057	85.539	87.895
NA to Korea (200.000)	196.910	193.799	190.222	165.862	167.559	155.065	145.070	-	136.875	135.917	130.950	136.220
NA to Taiwan (220.000)	148.669	148.655	148.809	148.621	147.321	147.459	147.129	-	144.050	143.291	144.054	143.598
Hongkong to Sydney (180.000)	127.408	131.569	174.942	164.366	131.207	128.745	128.126	133.209	132.965	130.500	131.306	130.571
Hongkong to Singapore (65.000)	32.904	31.860	32.317	31.788	31.791	31.552	31.724	37.038	31.389	31.447	31.122	30.778
Hongkong to Tokyo (125.000)	46.807	46.810	46.779	47.108	46.899	46.359	49.438	55.322	55.322	62.059	62.867	55.231

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Singapore to Sydney (150.000)	106.928	103.596	100.612	99.708	99.997	99.813	100.117	134.199	155.965	115.684	100.367	100.230
Singapore to Tokyo (115.000)	77.969	78.546	74.389	73.633	73.753	73.840	84.886	80.648	78.212	76.464	76.721	78.228
Sydney to Tokyo (150.000)	115.605	114.193	145.374	167.259	120.805	131.892	166.992	120.673	122.395	118.830	117.522	120.464
Korea to Singapore (200.000)	95.938	96.785	94.077	92.316	93.941	92.708	93.964	95.040	91.477	101.047	105.588	90.092
Korea to Hongkong (155.000)	48.752	51.748	48.090	46.365	45.743	46.708	44.858	47.675	44.398	61.361	74.027	43.375
Korea to Sydney (220.000)	150.012	146.542	177.708	210.461	161.625	164.480	199.245	157.726	155.657	151.129	149.315	153.765
Korea to Tokyo (80.000)	37.182	33.191	33.092	39.661	41.344	32.535	33.942	38.222	34.265	35.175	34.751	33.266
Korea to India (300.000)	145.402	155.381	154.717	143.306	140.818	140.413	142.503	144.498	138.882	157.541	170.851	136.163
Taiwan to Singapore (95.000)	56.234	54.750	54.729	53.990	53.364	54.971	52.710	-	76.347	59.273	60.603	63.991
Taiwan to Hong Kong (60.000)	21.120	23.851	27.442	39.758	24.807	32.107	26.973	-	26.233	25.600	30.984	37.613
Taiwan to Sydney (240.000)	146.996	152.997	191.822	202.354	150.390	152.000	153.082	-	154.037	154.472	155.732	154.708
Taiwan to Tokyo (95.000)	33.047	33.463	33.279	33.277	33.324	34.520	32.739	-	36.358	36.322	36.263	36.207
Taiwan to India (170.000)	117.783	123.031	127.659	119.224	117.454	120.549	119.133	-	116.863	119.907	122.979	123.097
India to Hongkong (140.000)	95.530	102.957	106.326	98.830	96.855	96.920	97.130	97.683	94.921	94.953	98.282	97.554
India to Singapore (150.000)			74.815						65.083			
India to Sydney (265.000)	168.247	172.797	173.712	166.175	163.303	163.266	162.431	209.259	222.013	179.243	167.531	163.581
India to Tokyo (225.000)	139.190	146.330	150.916	141.891	140.068	141.812	149.309	147.789	143.918	141.155	144.126	140.805
NZ Transpacific (210.000)	129.656	141.434	151.824	149.555	129.532	133.945	132.588	138.434	137.026	146.876	154.665	154.762
NZ to UK (390.000)	306.292	304.887	297.521	305.753	343.458	365.566	390.274	365.773	369.676	404.564	342.605	302.026
India to UK (250.000)	151.068	150.301	115.186	115.237	116.151	117.350	121.055	115.713	115.637	211.292	168.455	118.739
Hongkong to UK (370.000)	236.390	231.110	245.805	246.517	251.251	241.486	241.202	211.582	225.187	287.870	251.196	253.273
UK to Korea (470.000)	324.765	314.983	328.932	332.291	340.340	325.045	323.865	299.562	306.230	389.015	322.616	263.937
Singapore to UK (310.000)	183.105	190.734	181.176	185.892	225.484	246.787	271.822	236.974	188.256	304.693	273.101	248.801
Australia to UK (405.000)												
Japan to UK (330.000)	243.279	246.276	239.959	242.127	247.326	253.178	261.530	247.630	242.415	234.224	229.348	231.188
Taiwan to UK (360.000)	259.657	252.848	267.233	267.866	272.457	262.989	251.201	-	251.488	255.148	274.018	251.091
NZ to India (290.000)	184.648	187.234	189.227	183.408	179.152	182.770	185.547	220.102	239.891	194.760	184.168	182.649
NZ to Hongkong (230.000)	166.147	164.746	178.489	168.079	149.122	150.725	149.963	152.624	151.780	149.392	148.751	149.280
NZ to Korea (250.000)	175.316	175.781	200.738	233.473	185.329	188.001	201.560	180.735	178.480	174.228	175.043	177.350
NZ to Singapore (190.000)	117.633	118.645	117.510	116.857	117.032	117.308	117.184	153.062	175.095	129.673	117.215	117.218
NZ to Australia (60.000)	23.790	23.789	23.804	23.883	23.814	23.850	23.925	23.924	23.928	23.926	23.934	23.924
NZ to Japan (190.000)								143.599	144.579	141.749	140.975	143.738
NZ to Taiwan (250.000)	174.273	174.885			170.442	170.844	169.473	-	175.147	174.999	177.009	178.034
Sydney to Adelaide (40.000)					27.522				_			
Sydney to Brisbane (40.000)	11.837		11.793		11.791					11.745		
Sydney to Canberra (40)	-	8.239		8.104	8.102	8.111	8.116	8.091	8.092	8.094	8.085	
Sydney to Melborne (40.000)												12.387
Sydney to Perth (80)		46.473	46.441	46.442	46.468	46.482	46.433	46.452	46.467	46.650	46.841	46.716
Malaysia to Australia (180.000)		-	-	-	-	-	-	-	-	-	-	-
Malaysia to Hong Kong (85.000)		-	-	-	-	-	-	-	-	-	-	_
Malaysia to India (120.000)		-	-	-	-	-	-	-	-	-	-	-
Malaysia to Japan (110.000)		-	-	-	-	-	-	-	-	-	-	-
Malaysia to Korea (135.000)		-	-	-	-	-	-	-	-	-	-	-
Malaysia to New Zealand (215.000)		-	-	-	-	-	-	-	-	-	-	_
Malaysia to Singapore (50.000)		-	-	-	-	-	-	-	-	-	-	-
Malaysia to Taiwan (110.000)		-	-	-	-	-	-	-	-	-	-	-
Malaysia to UK (280.000)		-	-	-	-	-	-	-	-	-	-	-
Malaysia to Transpacific (230.000)	-	-	-	-	-	-	-	-	-	-	-	

	,	Verizon E	interprise	e Solution	ns Packet	Deliver	y Statistic	s (%)				
	2016						2015					
	June	May	April	March	February	January	December	November	October	September	August	July
Trans Atlantic (99.500)	99.990	99.989	99.993	99.981	99.969	99.977	99.990	100.000	99.973	99.993	99.998	99.955
Europe (99.500)	99.983	99.983	99.982	99.984	99.979	99.981	99.982	99.984	99.985	99.980	99.978	99.976
North America (99.500)	99.990	99.989	99.985	99.982	99.956	99.983	99.992	99.997	99.997	99.993	99.997	99.995
Intra-Japan (99.000)	100.000	100.000	100.000	100.000	100.000	99.993	100.000	100.000	100.000	100.000	100.000	99.998
Trans Pacific (99.000)	99.995	99.989	99.984	99.992	99.992	99.997	100.000	99.993	100.000	100.000	100.000	100.000

Asia Pacific (99.000)	99.988	99.950	99.980	99.984	99.973	99.967	99.977	99.920	99.981	99.994	99.994	99.952
Latin America (99.000)	99.896	99.906	99.902	99.954	99.947	99.941	99.960	99.972	99.952	99.956	99.956	99.940
EMEA to Asia Pacific (99.000)	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000	99.999	100.000	99.996	99.996

Brazit b US (69.00)   99.993   99.996   99.993   99.999   100.000   99.999	Verizon	Enternris	sa Solutio	ons Pack	et Delive	ry Statis	tics for (	Country S	necific N	latrics (º	<b>6</b> )		
Hong Kong Is US (99.000) 99.932 99.944 99.991 99.935 99.946 99.996 99.997 100.000 100.		<del></del>	oc Colum	ons r ack	ot Delive	ry Otatis			респіст	1011103 (7	<b>0</b> )		
Hong Kong to US (99 000) 99.993 99.94 99.97 99.97 99.99 99.99 99.99 100.000 10			Мау	April	March	February			November	October	eptember	August	July
Singapore to US (99 000) 99.997 99.81 89.995 99.991 99.996 100.000 100	Hong Kong to US (99 000)	99 993	99 994	99 991	99 970	99 998	99 994	100 000		100 000		100 000	100 000
Australia to US (99.000) 99.990 99.990 99.993 99.992 99.992 99.996 100.000 100.000 100.000 100.000 100.000 100.000 100.000 100.000 Argentina to US (99.000) 100.000 100.000 99.991 99.988 99.987 99.987 99.987 99.989 99.997 99.998 99.998 99.998 99.998 99.998 100.000 100.000 100.000 99.999 99.999 99.999 99.999 99.999 99.999 99.999 99.999 99.999 99.999 99.999 99.999 99.999 99.999 99.9													
Argentina to US (99.000) 100.000 100.000 99.91 99.98 99.97 100.000 99.99 99.98 99.99 19.99 99.99	<b>3</b> .												
Brazite US (98.00) 99.993 99.996 99.993 99.997 100.000 99.999 99.995 99.998 99.996 99.992 99.996 Chile to US (99.000) 100.000 99.99 99.998 100.000 99.99 99.999 99.999 99.999 100.000 99.99 99.999 99.999 100.000 100.000 100.000 100.000 100.000 100.000 100.000 100.000 100.000 100.000 100.000 99.99 100.000 100.000 99.991 100.000													99.960
Colombia to US (99.000)   100.000   100.000   100.000   100.000   99.996   99.996   99.998   100.000   100.000   99.991   100.000   10						99.997	100.000			99.998			99.993
Panama to US (99.000) 100.000 100.000 100.000 109.986 99.99 99.99 99.99 100.000 99.91 100.000 109.99 Venezuela to US (99.000) 99.74 99.76 99.76 99.87 99.87 99.87 99.87 99.93 99.99 99.91 99.99	Chile to US (99.000)	100.000	100.000	99.999	99.999	100.000	100.000	99.999	99.999	99.999	99.992	99.996	99.997
NA to India (99.000)   99.749   99.767   99.801   99.904   99.973   99.993   99.994   99.993   99.993   99.994   99.995   99.994   99.995   99.994   99.995   99.99	Colombia to US (99.000)	100.000	100.000	99.998	100.000	99.990	99.999	100.000	100.000	100.000	99.999	99.984	99.996
NA to India (99,000) 99.92 99.92 100,000 99.96 99.93 99.99 9	Panama to US (99.000)	100.000	100.000	100.000	100.000	99.986	99.999	99.998	100.000	99.991	100.000	100.000	99.996
NA to Intra EMEA (99.000) 99.93 99.94 99.991 99.997 99.991 99.997 100.000 100.000 100.000 100.000 100.000 100.000 100.000 NA to Taiwan (199.000) 99.993 99.993 99.993 100.000 99.96 100.000 100.000 - 100.000 100.000 100.000 100.000 Hongkong to Sydney (99.000) 100.000 99.978 99.993 99.993 100.000 99.996 100.000 99.978 99.993 99.994 99.995 100.000 99.998 100.000 99.998 99.999 99.994 99.998 100.000 1	Venezuela to US (99.000)	99.749	99.767	99.801	99.904	99.876	99.879	99.913	99.946	99.931	99.927	99.897	99.929
NA to Korea (99.000) 99.95 99.98 99.99 1 99.98 100.000 100.000 - 100.000 100.0	` '		99.992	100.000	99.996	99.993		99.999	99.994	99.993	99.999	99.984	99.951
Hongkong to Sydney (99.000) 99.978 99.984 99.992 99.984 99.995 199.962 99.972 99.983 99.986 99.989 99.999 99.994 99.997 99.878 100.000 100.000 100.000 99.998 Hongkong to Sydney (99.000) 100.000 100.	, ,								100.000				99.955
Hongkong to Sydney (99.000) 99.978 99.984 99.992 99.984 99.995 99.994 99.996 99.994 99.998 100.000 100.000 100.000 100.000 99.997 100.000 100.	` /								-				
Hongkong to Singapore (99.000) 100.000   99.997   99.997   99.997   99.997   99.998   99.998   100.000   1	, ,								-				
Hongkong to Tokyo (99.000) 100.000 100.000 100.000 100.000 99.991 100.000 99.991 100.000 100.0													99.652
Singapore to Sydney (99.000) 99.995 99.992 99.990 99.984 99.972 99.944 99.944 99.900 99.909 99.994 99.997 99.96 Singapore to Tokyo (99.000) 99.979 99.974 99.980 99.994 100.000 100.000 99.993 100.000 99.998 100.000 99.998 100.000 99.998 100.000 10	0 0 1 1												99.997
Singapore to Tokyo (99.000) 99.979 99.974 99.980 99.977 99.970 99.980 99.943 99.947 99.983 99.991 99.992 99.99  Sydney to Tokyo (99.000) 100.000 100.000 100.000 99.997 99.994 100.000 100.000 99.998 100.000 99.997 100.000 100.000 100.000  Korea to Singapore (99.000) 100.000 100.000 100.000 100.000 100.000 100.000 99.991 100.000 100.000 100.000  Korea to Hongkong (99.000) 100.000 100.000 100.000 100.000 100.000 100.000 99.991 100.000 100.000 100.000 100.000  Korea to Tokyo (99.000) 100.000 100.000 100.000 100.000 100.000 100.000 99.991 100.000 99.993 100.000 100.000 100.000 100.000  Korea to India (99.000) 100.000 10													
Sydney to Tokyo (99.000) 100.000 100.000 99.997 99.994 100.000 100.000 99.998 100.000 99.997 100.000 1													99.968
Korea to Singapore (99.000) 100.000 100.000 100.000 99.933 99.976 99.987 99.975 100.000 100.00													
Korea to Hongkong (99.000) 100.000 100.000 100.000 100.000 100.000 99.991 99.993 100.000 100.0													
Korea to Sydney (99.000) 100.000 100.000 100.000 99.991 100.000 99.998 100.000 99.993 100.000 100.000 100.000 100.000 100.000 100.000 Korea to India (99.000) 99.998 99.960 99.993 99.953 99.909 99.980 99.984 99.993 99.993 100.000 1	- · · · · · · · · · · · · · · · · · · ·												
Korea to Tokyo (99.000)   100.000													
Korea to India (99.000) 99.98 99.96 99.993 99.93 99.953 99.90 99.80 99.98 99.993 99.993 100.000 100.000 100.000 100.000 100.000 100.000 100.000 100.000 100.000 100.000 100.000 99.98 99.965 - 100.000 99.978 99.98 99.98 100.000 - 100.000 100.000 100.000 100.000 100.000 100.000 - 100.000 100.000 99.975 100.000 99.98 100.000 100													
Taiwan to Singapore (99.000) 100.000 100.000 99.991 99.998 100.000 99.989 99.965 - 100.000 99.978 99.998 99.98  Taiwan to Hong Kong (99.000) 99.988 99.998 99.991 100.000 100.000 100.000 99.980 100.000 - 100.000 99.975 100.000 99.98  Taiwan to Sydney (99.000) 100.000 100.000 100.000 100.000 100.000 99.985 99.916 - 100.000 99.990 99.989 99.98  Taiwan to Tokyo (99.000) 100.000 100.000 99.988 100.000 100.000 99.987 100.000 - 100.000 99.998 100.000 100.000  Taiwan to India (99.000) 100.000 100.000 99.985 100.000 99.997 100.000 - 100.000 99.998 100.000 100.000  Taiwan to India (99.000) 99.999 99.995 99.995 99.955 99.965 99.965 99.995 99.995 99.997 99.998 100.000 99.998 99.98  India to Hongkong (99.000) 99.994 99.924 99.977 99.918 99.995 99.957 99.957 99.923 99.794 99.985 100.000 99.998 100.000	• , ,												
Taiwan to Hong Kong (99.000) 99.998 99.996 100.000 100.000 100.000 99.980 100.000 - 100.000 99.975 100.000 99.988 Taiwan to Sydney (99.000) 100.000 100.000 99.988 100.000 100.000 100.000 99.988 100.000 100.000 99.987 100.000 - 100.000 99.990 99.989 99.988 100.000 100.000 100.000 99.987 100.000 - 100.000 99.998 100.000 100.000 100.000 100.000 100.000 100.000 99.987 100.000 - 100.000 99.998 100.000 100.000 100.000 100.000 100.000 100.000 99.987 100.000 - 100.000 99.998 100.000 100.00	` /								99.993				
Taiwan to Sydney (99.000) 99.988 99.993 99.991 99.971 99.959 99.935 99.916 - 100.000 99.990 99.989 99.98 99.98 Taiwan to Tokyo (99.000) 100.000 100.000 99.988 100.000 100.000 99.987 100.000 - 100.000 99.998 100.000	<b>2</b> , , , ,								-				
Taiwan to Tokyo (99.000) 100.000 100.000 99.988 100.000 100.000 99.987 100.000 - 100.000 99.998 100.000 100.00									-				
Taiwan to India (99.000) 100.000 99.937 99.995 99.928 99.945 99.946 99.990 - 99.993 99.975 99.998 99.988 100.000 99.999 99.840 99.965 99.969 99.959 99.957 99.982 99.979 99.996 100.000 99.998 99.988 100.000 99.998 99.988 99.998 100.000 99.998 99.988 99.998 100.000 100.00									_				
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Japan to UK (99.000)     99.983     99.966     99.984     99.982     99.995     99.993     100.000     99.986     99.988     99.994     100.000     99.98       Taiwan to UK (99.000)     100.000     99.996     99.988     100.000     100.000     99.987     99.990     -     99.993     99.985     100.000     99.99       NZ to India (99.000)     99.942     99.917     99.973     99.924     99.932     99.900     99.844     99.690     99.942     99.998     99.987     99.95	• • • • • • • • • • • • • • • • • • • •							99.988					
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	Taiwan to UK (99.000)								-	99.993	99.985	100.000	99.996
	NZ to India (99.000)	99.942			99.924	99.932			99.690				99.957
1 שב. סופער   שב. מושא של מושא מושא מושא של מושא מושא מושא מושא מושא מושא מושא מושא	NZ to Hongkong (99.000)				99.988	99.973			99.978	99.978	99.969	99.941	99.882
NZ to Korea (99.000) 100.000 100.000 99.995 100.000 99.998 99.998 100.000 100.000 99.993 100.000 99.998 100.00	NZ to Korea (99.000)	100.000	100.000	99.995	100.000	99.998	99.998	100.000	100.000	99.993	100.000	99.998	100.000
						99.994							99.999
				100.000	99.998	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000
NZ to Japan (99.000) 100.000 100.000 100.000 99.998 100.000 99.999 100.000 99.999 100.000 100.000 100.000 99.99	NZ to Japan (99.000)	100.000	100.000	100.000	99.998	100.000	99.999	100.000	99.999	100.000	100.000	100.000	99.998
NZ to Taiwan (99.000) 99.975 99.890 99.993 99.991 99.969 99.913 99.975 - 100.000 99.993 100.000 99.98	NZ to Taiwan (99.000)	99.975	99.890	99.993	99.991	99.969	99.913	99.975	-	100.000	99.993	100.000	99.980
Sydney to Adelaide (99.000) 100.000 100.000 100.000 100.000 100.000 100.000	Sydney to Adelaide (99.000)	100.000	100.000	100.000	100.000	100.000	100.000	100.000	-		-		
Sydney to Brisbane (99.000) 100.000 100.000 100.000 100.000 100.000 100.000 100.000 100.000 100.000 100.000 100.000 100.000 100.000 100.000 100.000	Sydney to Brisbane (99.000)												
Sydney to Canberra (99.00) - 100.000 100.000 100.000 100.000 100.000 100.000 100.000 100.000 100.000 100.000 99.98	Sydney to Canberra (99.00)	_	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000	99.989

Sydney to Melborne (99.000)	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000
Sydney to Perth (99.000)	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000	100.000
Malaysia to Australia (99.0)	-	-	-	-	-	-	-	-	-	-	-	-
Malaysia to Hong Kong (99.0)	-	-	-	-	-	-	-	-	-	-	-	-
Malaysia to India (99.0)	-	-	-	-	-	-	-	-	-	-	-	-
Malaysia to Japan (99.0)	-	-	-	-	-	-	-	-	-	-	-	-
Malaysia to Korea (99.0)	-	-	-	-	-	-	-	-	-	-	-	-
Malaysia to New Zealand (99.0)	-	-	-	-	-	-	-	-	-	-	-	-
Malaysia to Singapore (99.0)	-	-	-	-	-	-	-	-	-	-	-	-
Malaysia to Taiwan (99.0)	-	-	-	-	-	-	-	-	-	-	-	-
Malaysia to UK (99.0)	-	-	-	-	-	-	-	-	-	-	-	-
Malaysia to Transpacific (99.0)	-	-	-	-	-	-	-	-	-	-	-	-

		Ve	rizon Ente	erprise S	olutions .	Jitter Sta	tistics (m	s)				
	2016						2015					
	June	Мау	April	March	February	January	December	November	October	September	August	July
U.S. Jitter (1.00)	0.045	0.055	0.045	0.042	0.042	0.055	0.052	0.048	0.047	0.053	0.052	0.051
Europe Jitter (1.00)	0.029	0.028	0.028	0.027	0.025	0.025	0.026	0.026	0.025	0.024	0.024	0.025

		,	Verizon E	nterprise	Solution	s MOS St	atistics					
	2016						2015					
	June	Мау	April	March	February	January	December	November	October	September	August	July
U.S.MOS	4.03	4.03	4.03	4.03	4.03	4.03	4.03	4.03	4.03	4.03	4.03	4.03
European MOS	4.04	4.04	4.04	4.04	4.04	4.04	4.04	4.04	4.04	4.04	4.04	4.04

## **SLA VSAT Statistics**

Verizon Enterprise Solutions is constantly measuring the latency (speed) of core areas of its network using data collected by pings via the Internet Control Message Protocol (ICMP).

How is the data collected?

Network Transit Delay is the round trip average monthly delay between the origination and the destination between the inroute and out-route demarcation points.

Network Packet Guarantee is measured based on the percentage of test packets that reach their intended destination, divided by the total number of test packets sent.

What are our targets?

Verizon Enterprise Solutions Service Level Agreements (SLAs) provide:

- · Network Transit Delay 800 Msec or less for regional round trips within North America
- Network Packet Guarantee 99% average or greater for regional round trips within North America

				N	etwork Tra	ansit Dela	y (ms)					
	2016						2015					
	June	Мау	April	March	February	January	December	November	October	September	August	July
VSAT (ms) (800)	653.951	653.28	651.83	640.408	648.377	648.164	642.378	641.154	641.825	640.169	645.661	643.352

	2016						2015					
	June	Мау	April	March	February	January	December	November	October	September	August	July
VSAT (%) (99)	99.899	99.916	99.911	99.925	99.849	99.917	99.924	99.939	99.896	99.928	99.887	99.905

## Private IP Network SLA Statistics

Verizon Enterprise Solutions is constantly measuring the performance metrics of its Private IP network utilizing a variety of tools. Following are the actual performance measurements for the past 12 months:

How is the data collected?

US Network Delay is calculated by measuring round trip transit delay between Verizon Enterprise Solutions-designated backbone network nodes across the contiguous US PIP Network and averaging the results over a thirty day period.

Network MOS is calculated by sampling performance scores for the EF traffic class, using the standards based E-model (ITU-T G.107), between Verizon Enterprise Solutions-designated backbone network nodes in each specific region and averaging the results over a thirty day period.

What are our targets?

The US Network Delay Service Level Standard is 36ms roundtrip or less using 64-byte packets for measurement. The network monthly average MOS performance for EF traffic is a minimum of 4.0.

			Private	IP US Ne	twork La	tency (m	s)					
	2016						2015					
	June	Мау	April	March	February	January	December	November	October	September	August	July
US Network Delay	34.5	34.5	34.6	34.8	34.9	34.6	34.7	34.8	34.9	36.7	34.2	34.7

Private IP Network Mean Opinion Score ("MOS")												
	2016						2015					
	June	Мау	April	March	February	January	December	November	October	September	August	July
US Network MOS	4.41	4.41	4.41	4.41	4.41	4.39	4.35	4.39	-	-	-	-
EMEA Network MOS	4.41	4.41	4.41	4.41	4.41	4.33	4.24	4.24	-	-	-	-
APAC Network MOS	4.41	4.41	4.41	4.41	4.41	4.37	4.36	4.36	-	-	-	-