

TABLE I
DATASET FOR EN-EPTC(END-TO-END NON-PROXIED TRAFFIC-BASED ENCRYPTED PROXY TRAFFIC CLASSIFICATION FRAMEWORK)

Website	Shadowsocks			VMess			Trojan			VLESS		
	Flow-pair	Non-proxied packet	Proxied packet	Flow-pair	Non-proxied packet	Proxied packet	Flow-pair	Non-proxied packet	Proxied packet	Flow-pair	Non-proxied packet	Proxied packet
www.huaweicloud.com	14,589	3,605,588	4,008,473	9,740	5,731,800	1,242,307	9,828	5,061,801	1,145,987	8,323	1,552,796	436,195
www.lixiang.com	10,918	2,029,521	2,171,127	8,506	2,304,462	527,147	8,456	2,018,834	489,308	8,380	1,985,717	474,058
www.h3c.com	21,693	6,178,099	8,780,104	17,263	8,277,860	1,907,842	17,866	8,386,851	2,039,599	17,424	6,903,047	1,597,189
www.oppo.com	11,982	1,918,080	2,087,423	11,933	2,011,525	383,574	11,859	2,027,776	589,193	11,994	2,063,083	577,861
www.amd.com	7,757	1,693,165	1,884,909	5,945	1,416,832	433,189	5,865	1,246,949	398,741	6,200	1,537,812	459,460
www.360.cn	49,238	2,619,657	2,825,171	41,972	1,904,032	1,082,935	43,700	2,126,923	1,144,433	43,467	2,432,159	1,168,529
www.oracle.com	7,890	1,089,036	1,302,441	2,095	293,517	126,243	6,753	529,388	268,630	7,054	1,151,258	462,370
www.mwarc.com	7,740	551,797	620,475	6,505	481,185	231,617	6,439	427,781	223,670	6,533	477,768	225,242
www.sina.com.cn	111,108	4,403,991	4,733,092	77,624	3,646,061	1,212,720	79,002	3,714,576	2,134,935	82,148	4,039,339	2,205,530
www.163.com	41,075	2,628,356	2,770,169	30,736	1,977,213	1,058,311	32,027	2,044,060	1,085,095	31,684	2,223,650	1,114,892
www.10jika.com.cn	27,355	1,189,346	1,295,972	14,546	720,352	383,469	14,166	800,217	390,563	13,438	903,788	398,751
www.csdn.net	25,039	2,576,746	2,711,670	12,044	1,638,510	522,719	12,282	1,637,151	523,904	12,381	1,815,547	547,781
openal.com	5,764	1,579,894	1,713,165	5,103	958,495	364,641	5,181	1,164,799	426,331	5,191	1,136,854	395,401
leetcode.cn	18,920	1,550,207	1,672,196	16,964	1,552,553	617,760	17,095	1,665,900	633,975	16,862	1,626,078	621,267
ctrip.com	31,040	2,044,007	2,214,683	28,663	1,367,919	793,692	28,700	1,449,692	798,206	27,802	1,684,788	814,127
www.apple.com	6,224	1,803,883	1,938,816	4,072	1,260,814	307,295	4,131	1,283,970	322,545	4,088	1,473,166	339,235
www.live.com	8,473	1,546,811	1,772,225	7,525	1,056,286	414,564	7,647	1,118,642	428,532	7,728	1,272,934	458,283
www.v.3.org	747	205,766	223,084	726	211,003	73,746	721	210,144	73,495	722	218,658	72,884
www.xmind.app	8,430	1,810,393	1,960,649	8,319	1,080,666	385,318	8,357	1,171,773	409,252	8,356	1,469,654	453,691
www.booking.com	5,075	375,995	406,769	4,733	249,678	85,796	4,578	281,427	92,331	4,597	308,703	95,297
www.chinews.com	16,635	1,605,509	1,743,548	14,009	1,065,548	460,548	14,901	1,753,266	713,243	15,097	1,873,246	723,204
www.gnn.org	6,074	724,681	813,234	6,666	742,725	244,494	6,693	745,087	242,485	6,648	746,957	239,891
www.lavanguardia.com	26,157	1,911,209	2,247,548	16,678	1,493,248	682,671	17,133	1,497,559	682,908	18,366	1,684,381	749,710
www.alibaba.com	25,830	1,050,422	1,154,055	18,650	750,433	477,547	19,403	795,469	494,252	18,746	837,113	495,435
www.ohv.net	7,421	600,579	667,965	6,295	588,113	237,220	6,310	595,567	234,307	6,152	590,703	229,095
www.imdb.com	9,980	1,870,775	2,024,704	8,659	1,152,081	504,460	8,804	1,233,327	529,372	9,101	1,470,285	582,768
www.brandbucket.com	12,882	798,881	878,661	10,942	751,950	378,308	11,497	786,327	392,842	10,916	754,219	370,667
www.yandex.com	3,754	266,538	275,137	1,582	179,893	81,225	1,656	190,370	84,393	1,760	211,004	92,524
www.tripadvisor.com	2,285	212,167	251,785	4,731	335,077	142,162	2,054	211,200	74,653	2,076	207,008	74,032
www.addtoany.com	2,317	131,301	137,446	2,237	134,789	76,159	2,232	136,285	76,066	2,234	137,585	76,281
cloud.baidu.com	13,955	1,544,724	1,669,178	7,930	611,090	246,968	11,477	686,275	312,183	11,902	1,014,170	380,280
www.amazonaws.cn	16,965	7,458,609	8,097,226	15,611	8,248,702	2,014,711	15,685	7,914,711	2,017,606	15,822	7,954,228	1,920,536
www.qq.com	31,763	2,949,564	3,167,399	20,706	2,569,232	818,823	22,366	2,606,675	848,547	24,647	3,216,103	973,479
www.ytmc.com	4,486	17,458,871	19,459,596	4,434	17,631,928	3,203,676	4,432	17,513,352	3,133,172	4,445	17,589,883	3,104,005
www.vivo.com	14,184	2,382,088	2,547,025	10,977	2,036,408	535,900	10,886	1,989,194	529,810	11,032	2,689,085	634,996
www.jetbrains.com	8,356	2,901,651	3,110,205	7,184	1,558,244	523,568	7,623	1,818,691	596,093	7,682	2,245,293	662,917
www.eastmoney.com	41,579	1,561,829	1,692,135	37,703	1,516,908	923,229	38,010	1,595,124	930,048	38,320	1,600,024	921,294
www.sdu.edu.cn	113,665	4,615,968	5,156,561	74,167	2,456,561	24,688,751	74,657	3,767,020	2,060,939	74,657	4,060,044	1,239,135
www.chinaz.com	13,603	1,115,035	1,205,226	9,773	927,919	374,476	9,689	854,007	346,942	9,864	1,022,576	381,721
ubuntu.com	8,593	2,484,239	3,043,624	5,654	1,718,134	590,408	5,691	1,870,360	634,340	8,736	1,802,736	659,279
www.gamersky.com	47,636	3,653,569	3,929,267	36,544	3,329,246	1,440,219	37,052	3,248,491	1,417,480	37,555	3,191,069	1,402,151
www.lifytek.com	10,419	9,112,139	9,607,386	9,695	10,340,368	1,979,054	9,660	9,550,344	1,826,922	9,632	10,309,448	1,911,507
www.adobe.com	2,830	155,976	172,231	2,664	167,472	89,125	2,693	172,460	90,165	2,924	184,279	97,289
www.dan.com	13,209	1,043,524	1,144,953	12,482	1,011,550	502,123	12,944	1,053,329	516,253	13,112	1,082,156	514,979
www.wiley.com	1,088	183,789	216,987	1,237	229,864	88,048	1,186	233,087	88,065	1,104	203,140	76,647
www.ginx.org	2,215	60,273	63,504	74	34,839	19,673	743	35,243	19,802	718	33,992	19,155
www.networkadvertising.org	24,678	2,840,524	3,027,667	4,486	2,840,524	448,667	4,486	1,990,346	448,667	4,486	1,990,346	448,667
www.ziddu.com	4,083	774,166	855,255	1,031	724,270	144,356	1,151	830,158	163,743	1,236	814,743	160,751
www.arxiv.org	621	110,965	135,453	511	95,099	41,331	667	124,181	53,281	534	99,643	42,550
www.surveymonkey.com	8,222	886,281	979,379	6,678	807,212	341,837	6,748	774,432	330,087	5,718	726,694	287,894
www.msn.com	22,949	3,180,336	3,613,892	18,678	2,859,658	1,067,562	21,096	3,631,352	1,315,156	14,241	3,600,760	1,063,834
www.instructables.com	7,860	1,746,290	2,079,847	4,189	1,269,845	408,204	4,585	1,447,788	457,411	4,727	1,565,764	469,216
www.php.net	1,419	557,927	627,232	1,160	367,585	93,587	1,120	343,786	89,658	1,206	392,343	98,922
www.ikea.com	2,346	454,593	526,033	1,563	552,588	161,745	1,573	435,392	142,662	1,561	358,101	119,113
www.dropcatch.com	1,353	474,495	511,705	1,415	484,455	116,068	1,382	483,157	114,756	1,362	483,446	110,866
www.ieef.org	3,484	475,911	597,414	2,587	497,926	197,926	2,593	495,612	197,926	2,702	444,532	175,839
www.redbull.com	5,992	4,809,759	5,508,410	5,669	6,453,801	1,535,073	5,522	5,961,669	1,463,605	5,771	4,166,993	1,092,215
www.scholastic.com	1,124	688,764	773,395	850	150,624	49,386	858	169,086	52,622	959	476,044	108,690
www.weather.com	12,862	1,391,934	1,663,071	11,070	1,083,866	502,922	11,603	1,042,011	488,762	11,802	1,185,282	527,321
www.interia.pl	10,749	999,786	1,099,368	8,620	631,643	305,565	8,605	647,587	307,440	8,866	734,537	334,357
Total	746,750	129,745,889	143,887,440	728,591	119,671,336	37,663,740	746,750	119,173,564	38,013,919	753,021	119,962,332	37,372,425