Measuring the Tor Network

Evaluation of Bridges and Their Usage in Tor

Karsten Loesing

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Abstract

This document contains the results of an evaluation of bridge archives containing the network statuses, bridge descriptors, and extra-info documents of bridges between May 2008 and June 2009.

The evaluation of bridge data shall answer a couple of questions about bridge usage. These questions start with the number of bridges and the total bandwidth that they transport. Another question is where bridge clients are located. The following analysis focuses on these questions.

All scripts and a howto for performing the evaluation can be found under: `git://git.torproject.org/git/metrics/`
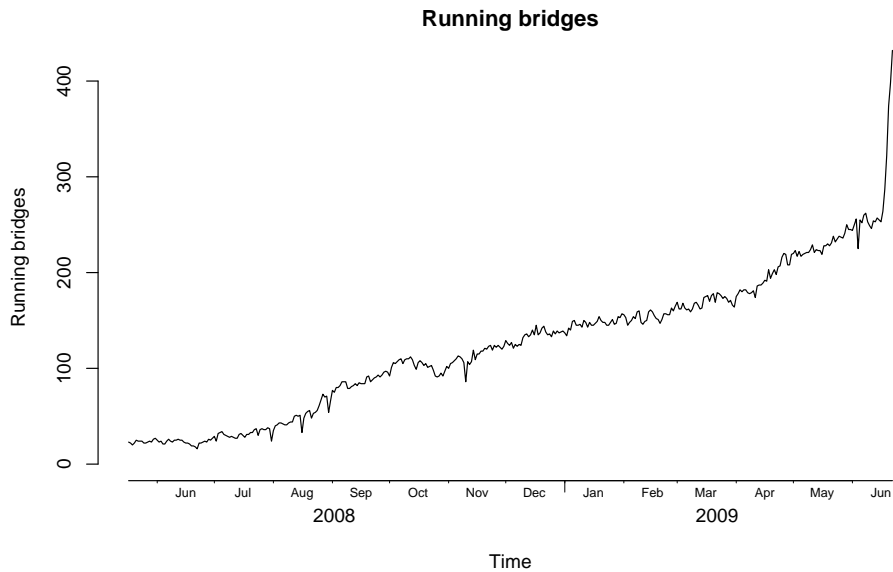
Running bridges

Figure 1: Running bridges between May 16, 2009 and June 21, 2009. The graph shows clearly that the number of bridges increases continuously over time with a significant increase in June 2009, probably as a result of the Iranian elections.
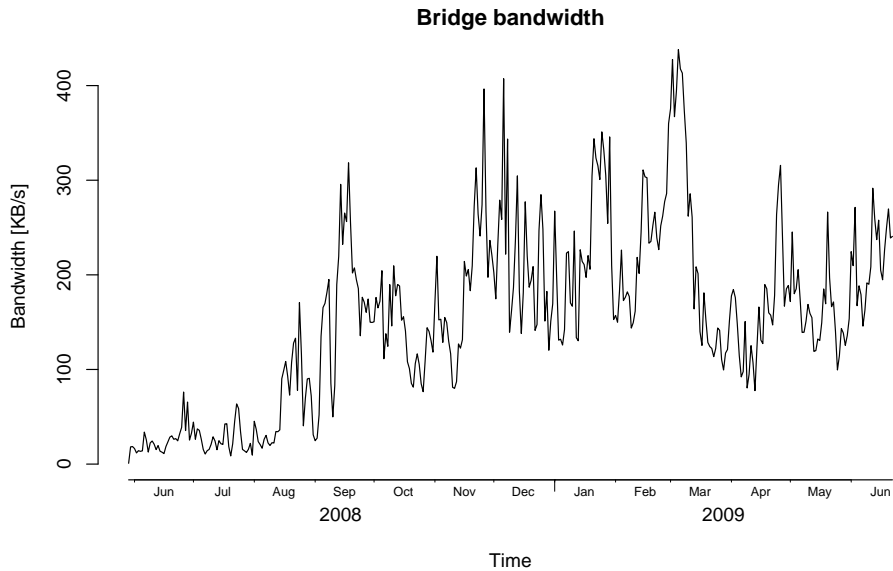
Bridge bandwidth

Figure 2: Observed bandwidth on all bridges between May 2008 and June 2009. In this analysis, the two history lines of extra-info documents are used to calculate observed bandwidth. The trend towards more bridge usage over time is not as clear as is the trend towards more bridges.

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Table 1: Bridge usage by selected countries, inluding the five countries that see most bridge users and a number of countries that might block access to parts of the Internet (the two sets overlap). The numbers represent a rough estimation of the number of users accessing the Tor network over a bridge. The numbers are based on reports by bridges how many users they have seen in the past 48 hours. The trend towards increasing bridge users can be seen for most countries.

| | 2008 | | | | | | | | | 2009 | | | |
	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun*
U.S.A.	152	235	494	833	799	1165	1175	783	953	1174	1317	1510	1405
Iran	0	10	39	36	33	91	78	176	103	26	107	136	487
China	33	69	77	100	139	486	394	207	183	151	188	296	390
Germany	21	64	171	216	260	830	694	562	262	239	209	235	337
Russia	27	55	122	220	190	223	334	251	359	207	263	176	305
U.A.E.	37	67	40	89	38	105	141	175	298	124	76	133	255
Saudi Arabia	3	11	108	103	9	159	334	221	211	193	217	200	126
Belarus	0	3	0	7	80	117	113	54	48	20	36	79	86
Syria	0	0	0	3	4	5	1	0	0	0	35	48	64
Pakistan	0	0	13	3	3	33	16	6	25	10	7	8	32
Viet Nam	0	0	4	0	0	37	30	17	7	36	27	47	25
Azerbaijan	0	0	0	0	0	0	8	0	73	42	122	48	0
Jordan	0	0	0	0	0	0	0	0	0	28	8	22	0
Myanmar	0	0	0	0	0	0	0	2	19	0	3	5	0
Egypt	0	0	0	0	0	0	0	0	0	0	0	2	0
Kazakhstan	0	0	2	0	0	5	9	1	30	40	28	0	0
Uzbekistan	0	0	0	0	0	2	0	0	0	0	3	0	0
Yemen	0	0	0	0	0	0	2	0	0	0	4	0	0
Morocco	0	0	0	0	0	0	0	0	0	0	0	0	0
Sudan	0	0	0	0	0	0	0	0	0	0	0	0	0
Tunisia	0	0	0	0	0	0	0	0	0	0	0	0	0

* Estimation based on data up to June 21, 2009.