

## Experiment 1

	Trial 1	Trial 2	Trial 3	Trial 4	Trial 5	Trial 6	Trial 7	Trial 8
google.com	0.300261	0.318588	0.347924	0.289851	0.297907	0.294609	0.321642	0.3074
youtube.co	0.310033	0.320903	0.302788	0.297129	0.287673	0.293986	0.297316	0.289871
facebook.c	0.259584	0.27944	0.287125	0.290632	0.274413	0.294817	0.259086	0.279418
amazon.co	0.539897	0.492041	0.510323	0.517483	0.519068	0.533366	0.537079	0.528968
wikipedia.c	0.298068	0.296348	0.306207	0.30947	0.308516	0.302672	0.315304	0.30191
reddit.com	0.296601	0.369927	0.277763	0.286366	0.275361	0.278644	0.285582	0.286779
netflix.com	0.293923	0.307245	0.287013	0.269337	0.284633	0.293356	0.302689	0.286722
microsoft.c	0.3257	0.304047	0.274259	0.28097	0.306303	0.292664	0.302982	0.267729
yahoo.com	0.284803	0.354554	0.299158	0.348932	0.294445	0.30308	0.312715	0.389388
zoom.us	0.442288	0.361148	0.429774	0.367683	0.424863	0.429414	0.389103	0.36981

## Experiment 2

	Trial 1	Trial 2	Trial 3	Trial 4	Trial 5	Trial 6	Trial 7	Trial 8
google.com	0.015	0.014	0.014	0.014	0.014	0.016	0.015	0.015
youtube.co	0.015	0.016	0.012	0.018	0.014	0.015	0.015	0.012
facebook.c	0.017	0.016	0.015	0.015	0.015	0.016	0.016	0.023
amazon.co	0.02	0.017	0.017	0.013	0.014	0.013	0.013	0.021
wikipedia.c	0.015	0.016	0.014	0.019	0.018	0.013	0.015	0.015
reddit.com	0.014	0.019	0.016	0.02	0.014	0.015	0.017	0.024
netflix.com	0.018	0.013	0.015	0.014	0.016	0.019	0.014	0.021
microsoft.c	0.015	0.022	0.019	0.016	0.015	0.017	0.022	0.017
yahoo.com	0.015	0.018	0.017	0.017	0.021	0.015	0.021	0.018
zoom.us	0.019	0.015	0.014	0.015	0.016	0.015	0.017	0.018

## Experiment 3

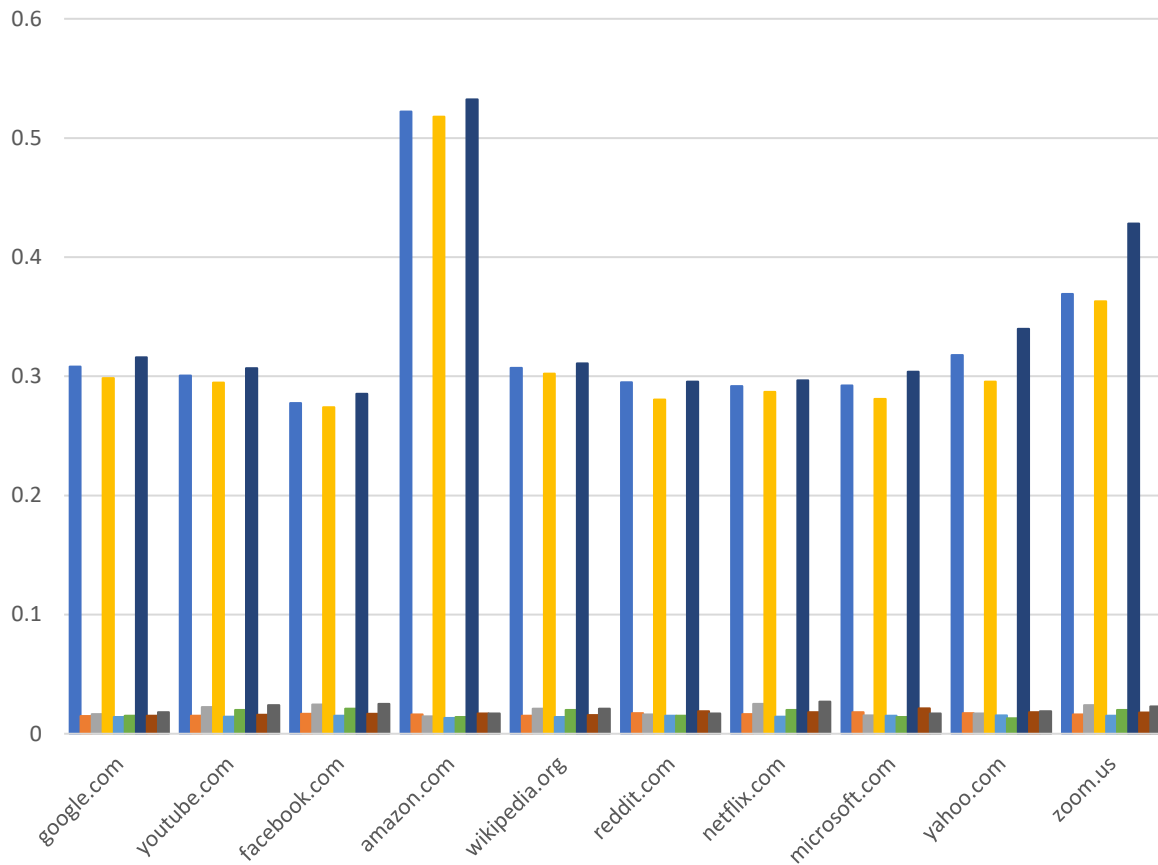
	Trial 1	Trial 2	Trial 3	Trial 4	Trial 5	Trial 6	Trial 7	Trial 8
google.com	0.011	0.013	0.019	0.017	0.014	0.016	0.015	0.018
youtube.co	0.028	0.022	0.027	0.025	0.024	0.02	0.022	0.022
facebook.c	0.034	0.025	0.026	0.028	0.021	0.023	0.021	0.022
amazon.co	0.012	0.014	0.015	0.013	0.017	0.017	0.012	0.014
wikipedia.c	0.02	0.02	0.018	0.021	0.023	0.02	0.021	0.02
reddit.com	0.016	0.015	0.017	0.015	0.016	0.02	0.016	0.024
netflix.com	0.028	0.036	0.027	0.037	0.02	0.019	0.022	0.021
microsoft.c	0.015	0.015	0.014	0.014	0.018	0.014	0.013	0.017
yahoo.com	0.016	0.019	0.017	0.015	0.023	0.012	0.012	0.013
zoom.us	0.027	0.021	0.02	0.023	0.028	0.04	0.022	0.02

		Experiment 1			
Trial 9	Trial 10		Average	25th Perce	75th Percentile
0.300273	0.303623	google.com	0.308208	0.298495	0.315791
0.29745	0.308156	youtube.cc	0.30053	0.294772	0.306814
0.274047	0.275472	facebook.c	0.277403	0.274139	0.285203
0.520392	0.524269	amazon.co	0.522289	0.517879	0.532267
0.320187	0.311244	wikipedia.c	0.306993	0.3021	0.3108
0.291835	0.300019	reddit.com	0.294888	0.280378	0.295409
0.296979	0.294966	netflix.com	0.291686	0.286794	0.296476
0.280854	0.286163	microsoft.c	0.292167	0.280883	0.303781
0.29082	0.301344	yahoo.com	0.317924	0.295623	0.339878
0.229725	0.247042	zoom.us	0.369085	0.362782	0.428277

		Experiment 2			
Trial 9	Trial 10		Average	25th Perce	75th Percentile
0.015	0.016	google.com	0.0148	0.014	0.015
0.016	0.017	youtube.cc	0.015	0.01425	0.016
0.016	0.018	facebook.c	0.0167	0.01525	0.01675
0.016	0.017	amazon.co	0.0161	0.01325	0.017
0.013	0.014	wikipedia.c	0.0152	0.014	0.01575
0.017	0.018	reddit.com	0.0174	0.01525	0.01875
0.018	0.016	netflix.com	0.0164	0.01425	0.018
0.014	0.023	microsoft.c	0.018	0.01525	0.02125
0.014	0.017	yahoo.com	0.0173	0.0155	0.018
0.015	0.019	zoom.us	0.0163	0.015	0.01775

		Experiment 3			
Trial 9	Trial 10		Average	25th Perce	75th Percentile
0.026	0.015	google.com	0.0164	0.015	0.018
0.015	0.019	youtube.cc	0.0224	0.02	0.024
0.025	0.02	facebook.c	0.0245	0.021	0.025
0.015	0.018	amazon.co	0.0147	0.014	0.017
0.019	0.027	wikipedia.c	0.0209	0.02	0.021
0.011	0.013	reddit.com	0.0163	0.015	0.017
0.018	0.023	netflix.com	0.0251	0.02	0.027
0.018	0.017	microsoft.c	0.0155	0.014	0.017
0.027	0.017	yahoo.com	0.0171	0.013	0.019
0.022	0.017	zoom.us	0.024	0.02	0.023

## DNS Resolver Comparison Using Top 10 Websites



The graph above shows the 3 DNS resolvers and their comparative times (in seconds) of resolving an IP address.

For Experiment 1: blue shows the average (mean), yellow shows the 25th percentile, and dark blue shows the 75th percentile of each domain name.

For Experiment 2: orange shows the average (mean), light blue shows the 25th percentile, and brown shows the 75th percentile of each domain name.

For Experiment 3: gray shows the average (mean), green shows the 25th percentile, and dark gray shows the 75th percentile of each domain name.

In general, my own DNS resolver was by far the slowest, oftentimes by about .3 seconds for any given comparative value. This is largely due to lack of optimization, as the code is recursive and needs more runtime than the clearly optimized library functions used by my local DNS and Google's DNS resolvers.