Joakim Frostegård, 2021-08-18

WebTorrent tracker comparison

This is a performance comparison of several WebTorrent trackers, using *aquatic_ws_load_test*. It is not very realistic, as it simulates a small number of clients, each sending a large number of requests. Nonetheless, I think that it gives a useful indication of relative performance.

Setup

Tested trackers

Tracker	URL	Commit	Multi-threaded
aquatic_ws	https://github.com/greatest-ape/aquatic	f97994b4	Yes
wt-tracker	https://github.com/Novage/wt-tracker	400a4369	No
bittorrent-tracker	https://github.com/webtorrent/bittorrent-tracker	71deb99d	No

Unfortunately, I could not include openwebtorrent-tracker (https://github.com/OpenWebTorrent/openwebtorrent-tracker) since it only runs over TLS, which isn't supported by the load test tool.

Hardware

- Hetzner CCX42: 16 dedicated vCPUs, 64GB RAM, AMD Milan Epyc 7003
- Hetzner CCX52: 32 dedicated vCPUs, 128GB RAM, AMD Milan Epyc 7003

Load test configuration

The default load test configuration was used, apart from the following settings:

Setting	Value
num_connections	128
duration	60
offers_per_request	2

System information

Software	Version
Ubuntu	20.04
Linux	5.4.0-81-generic
rustc	1.54.0

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Results

wt-tracker

The application ran on node v12.22.5, as it wouldn't build on version 16.6.2.

Load test workers	Responses per second (CCX42)	Responses per second (CCX52)
1	**117k**	83k
2	94k	70k

bittorrent-tracker

The application ran on node v16.6.2. Command: *./bin/cmd.js --ws -p 3000 -q*

Load test workers	Responses per second (CCX42)	Responses per second (CCX52)
1	**45k**	40k
2	40k	37k

aquatic_ws

Results are ordered by total number of tracker workers and then by number of responses per second. Best results within a worker number tier are marked in bold.

Results on CCX42 (16 vCPUs)

Tracker workers in total	Tracker socket workers	Tracker request workers	Responses per second	Load test workers
2	1	1	219k	1
2	**1**	**1**	**225k**	**2**
2	1	1	210k	7
3	**2**	**1**	**437k**	**7**
4	2	2	418k	7
4	**3**	**1**	**627k**	**7**
5	3	2	659k	7
5	**4**	**1**	**727k ***	**7**
6	5	1	559k	7
6	**4**	**2**	**709k ***	**7**
7	6	1	586k	7

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Tracker workers in total	Tracker socket workers	Tracker request workers	Responses per second	Load test workers
7	5	2	629k *	7
8	5	3	660k	7
8	6	2	700k *	7

* Faster on CCX52, often by using more load test workers or a different composition of tracker workers

Results on CCX52 (32 vCPUs)

Tracker workers in total	Tracker socket workers	Tracker request workers	Responses per second	Load test workers
2	1	1	225k	2
3	2	1	334k	7
4	3	1	483k	16
4	3	1	552k	7
5	4	1	674k	16
5	4	1	832k	7
6	5	1	831k	16
7	6	1	997k	16
8	6	2	980k	16
8	7	1	1209k	16
10	9	1	1455k	16
12	10	2	1480k	16
12	11	1	1650k	16
14	12	2	1703k	16
14	13	1	1804k	16
16	15	1	1413k	16
16	14	2	1510k	16
16	12	4	1577k	16
16	13	3	1789k	16

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Summary

Single-threaded trackers

Tracker	Responses per second
wt-tracker	117k
bittorrent-tracker	45k

Multi-threaded trackers

aquatic_ws

Number of worker threads	Responses per second
1	n/a
2	225k
3	437k
4	627k
5	832k *
6	831k *
7	997k *
8	1209k *
10	1455k *
12	1650k *
14	1804k *
16	1789k *

* Using a VPS with 32 vCPUs. The other measurements were made using a 16 vCPU VPS.