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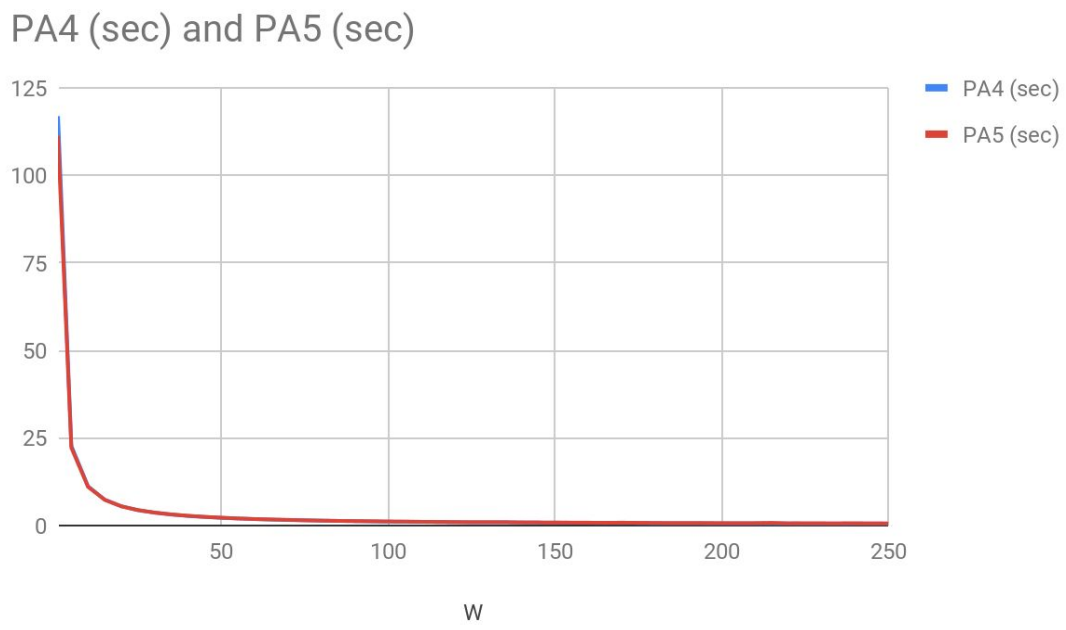
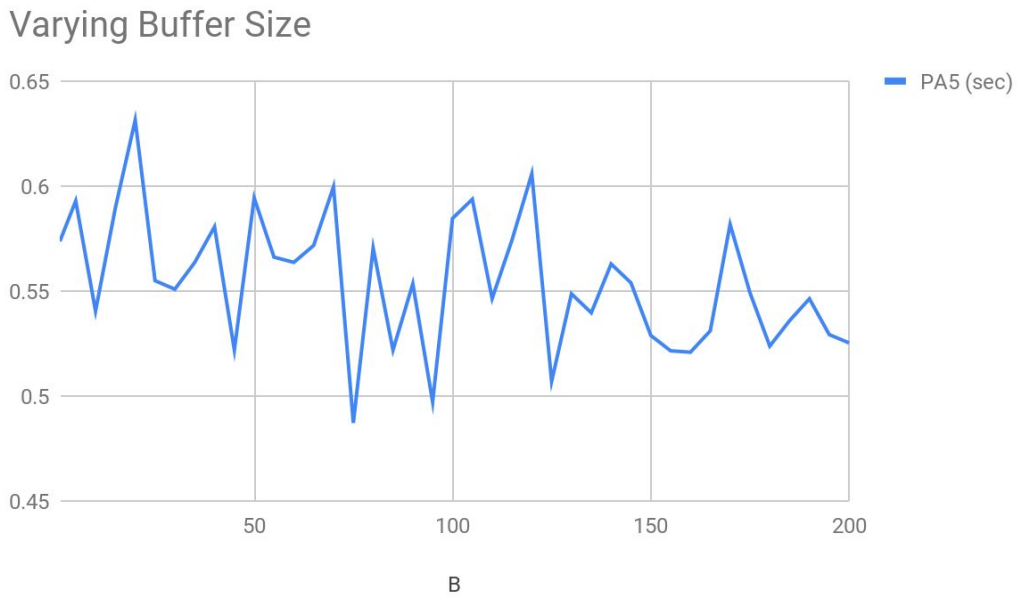
PA4 vs PA5

As shown below and in Table 1, the time between PA4 and PA5 is roughly the same except the range for w of [1,10].



Varying Buffer Size

As shown below, the time is not affected by much when the buffer size is changed. See Table 2 for the data.



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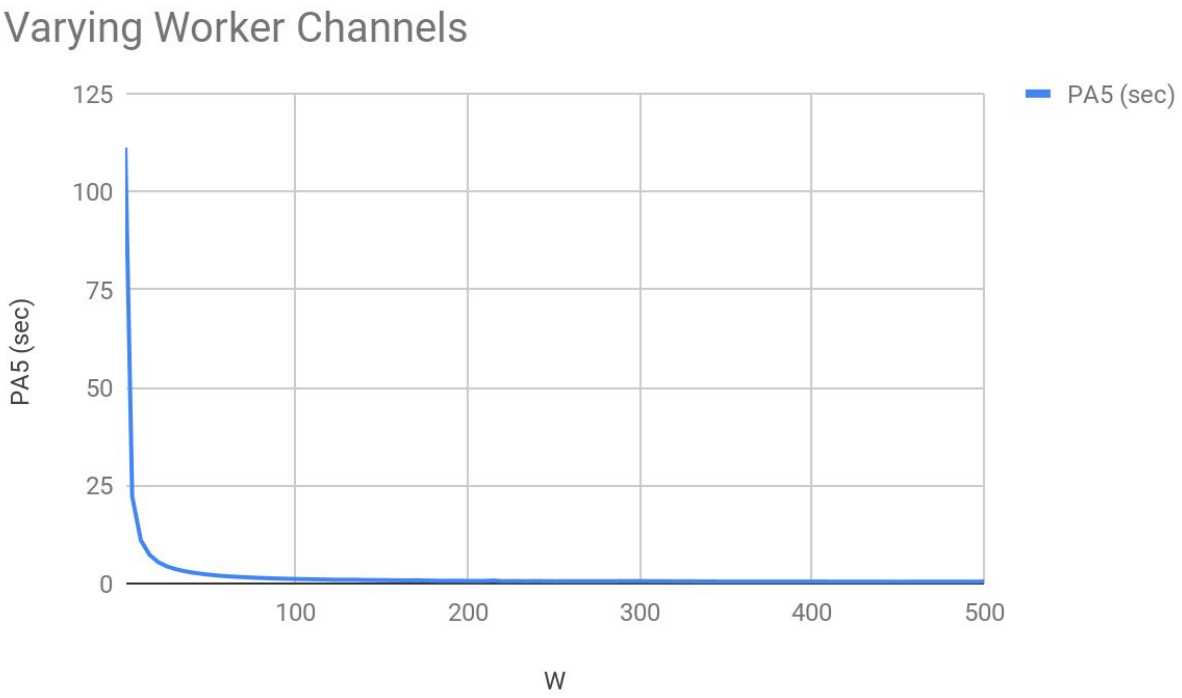
Varying Worker Thread

Similar to PA4, the performance drops logarithmically around [1,60]. See Table 1 for more of the data.



Appendix
Table 1
N = 10000
B = 300

W	PA4 (sec)	PA5 (sec)	Percent Difference
1	116.915	111.214	145.3925424
5	22.7533	22.2136	13.76396336
10	11.2006	11.0505	3.827998704
15	7.36633	7.35412	0.3113915002
20	5.49502	5.482	0.3320489216
25	4.38232	4.39516	-0.3274583835
30	3.66064	3.69099	-0.7740157273
35	3.13027	3.16965	-1.004307721
40	2.73214	2.77663	-1.134627997
45	2.43802	2.4803	-1.07826639

50	2.20409	2.23297	-0.736526333
55	2.01377	2.00874	0.1282800365
60	1.8309	1.85109	-0.5149053553
65	1.69864	1.71568	-0.4345709388
70	1.58077	1.61064	-0.7617742924
75	1.48365	1.49609	-0.3172571877
80	1.39572	1.40431	-0.2190706787
85	1.31488	1.32771	-0.3272033536
90	1.25879	1.26143	-0.06732789193
95	1.18755	1.21011	-0.5753474401
100	1.1354	1.14016	-0.1213942294
105	1.09459	1.11221	-0.4493626727
110	1.04386	1.06164	-0.453443151
115	0.988563	1.02171	-0.8453475886
120	0.948038	0.976986	-0.7382605362
125	0.927747	0.93676	-0.2298584432
130	0.923476	0.949345	-0.659736832
135	0.912927	0.951362	-0.9802073964
140	0.872516	0.875537	-0.07704453088
145	0.835916	0.873408	-0.9561580774
150	0.809139	0.842463	-0.8498616177
155	0.783755	0.832615	-1.246076061
160	0.778614	0.80807	-0.7512160548
165	0.74518	0.763549	-0.4684644117
170	0.75243	0.812511	-1.532245104
175	0.730593	0.759669	-0.7415249189
180	0.687265	0.719083	-0.8114541157
185	0.684598	0.680336	0.1086937407
190	0.683425	0.697482	-0.3584955215
195	0.666819	0.693586	-0.6826385164
200	0.660248	0.650688	0.2438085784
205	0.646694	0.641046	0.144040884
210	0.652721	0.66539	-0.3230973723

215	0.623531	0.750906	-3.248443271
220	0.619978	0.599777	0.5151858882
225	0.594343	0.613787	-0.4958801253
230	0.57533	0.603236	-0.7116864213
235	0.599538	0.599677	-0.003544915522
240	0.591707	0.613493	-0.5556081264
245	0.581367	0.589977	-0.2195807385
250	0.56429	0.567882	-0.09160673781
300	0.516872	0.613463	-2.463359246
350	0.502316	0.491564	0.2742081417
400	0.516319	0.477896	0.9799013605
450	0.520008	0.436495	2.129831151
500	0.509428	0.472783	0.9345570454

Table 2
N = 10000
W = 300

B	PA5 (sec)
1	0.573681
5	0.59293
10	0.540453
15	0.589624
20	0.631425
25	0.55494
30	0.550864
35	0.563604
40	0.580614
45	0.521931
50	0.594346
55	0.56614
60	0.563659
65	0.571722

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70	0.599654
75	0.48718
80	0.570446
85	0.521872
90	0.553467
95	0.497127
100	0.584574
105	0.593712
110	0.546451
115	0.574243
120	0.605849
125	0.507034
130	0.548682
135	0.539641
140	0.562892
145	0.553922
150	0.528848
155	0.521528
160	0.520878
165	0.531057
170	0.581776
175	0.549215
180	0.523777
185	0.535897
190	0.546324
195	0.529243
200	0.5253