CS550 Advanced Operating Systems

Programming Assignment 2

Performance Evaluation Report

Running single node :
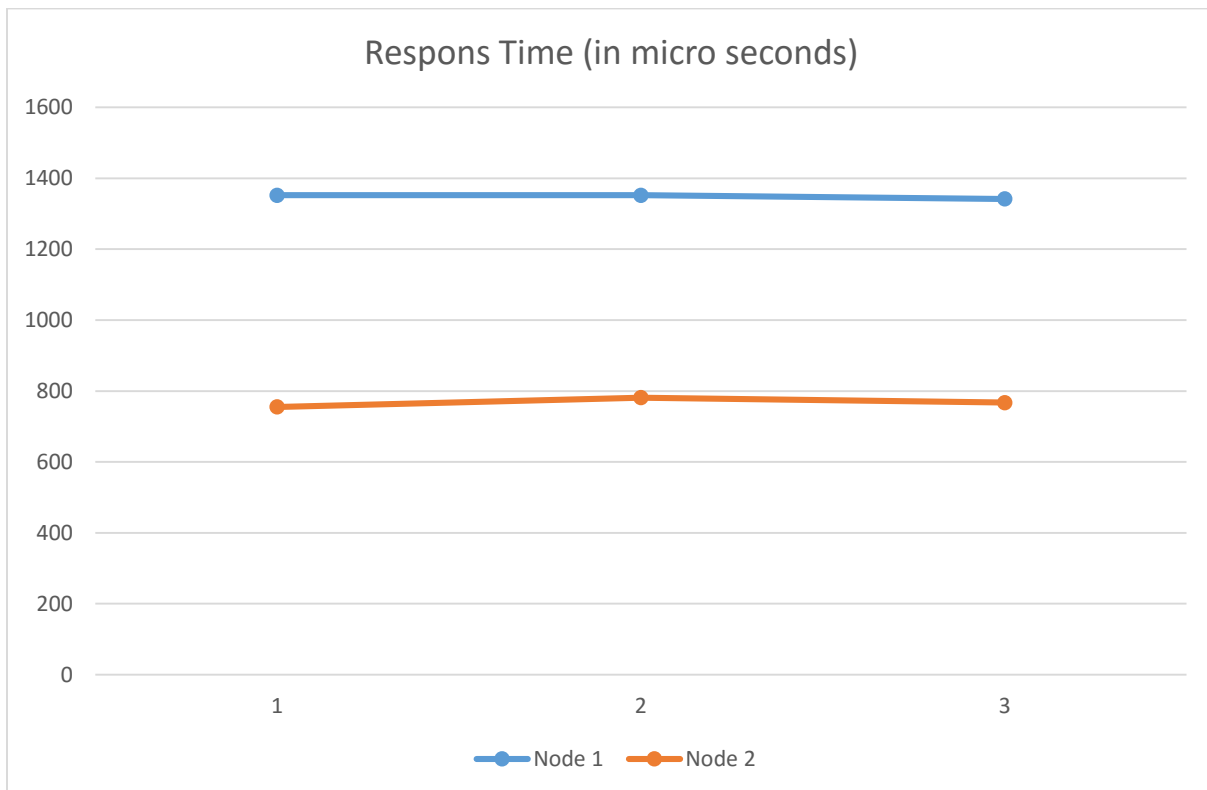
Operation	Test Run			Average Response Time (in micro seconds)
	1	2	3	
Put	414.815	413.729	432.229	420.2576667
Get	2263.833	2302.932	2278.157	2281.640667
Delete	2175.699	2166.221	2173.889	2171.936333

RESPONSE TIME (IN MICRO SECONDS)

■ Test Run1 ■ Test Run 2 ■ Test Run 3

PUT   414.815 413.729 432.229

GET   2263.833 2302.932 2278.157

DELETE 2175.699 2166.221 2173.889
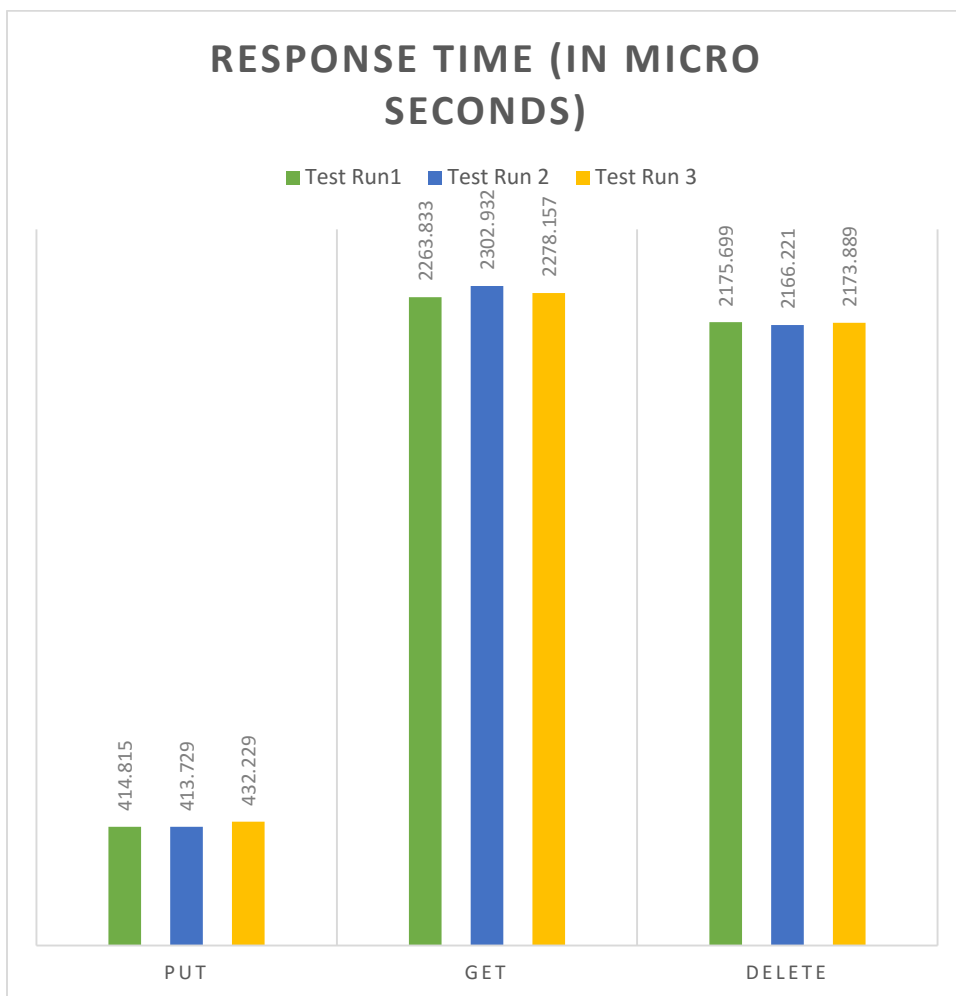
Running 2 nodes concurrently:

Put Operation:
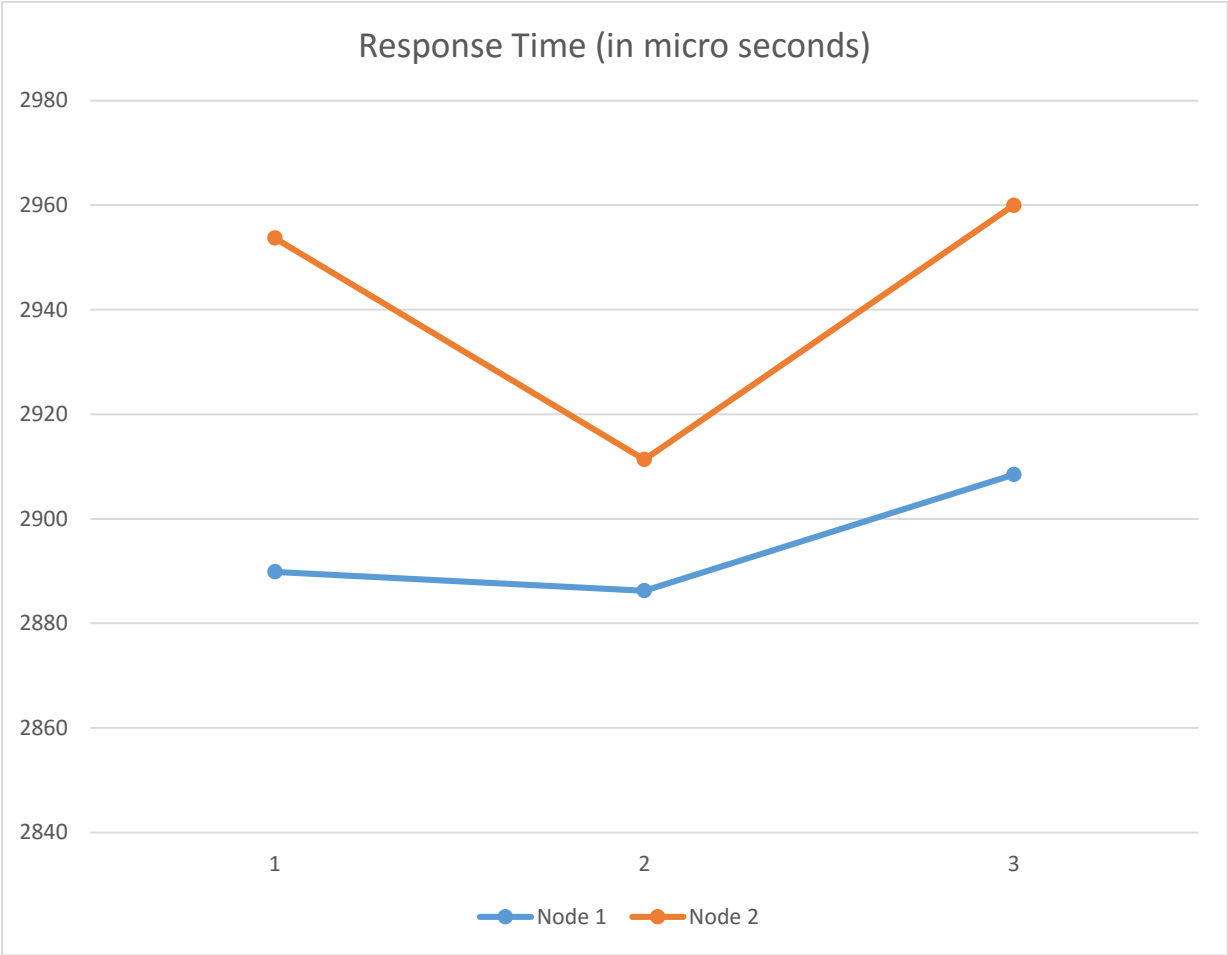
Operation	Node	Test Run			Average Response Time (in micro seconds)
		1	2	3	
Put	Node 1	1352.191	1352.268	1341.719	1348.726
	Node 2	755.317	781.112	767.139	767.856

Respons Time (in micro seconds)

	1	2	3
Node 1	1352.191	1352.268	1341.719
Node 2	755.317	781.112	767.139

Node 1 ⬤ Node 2

Get Operation:

Operation	Node	Test Run			Average Response Time (in micro seconds)
		1	2	3	
Get	Node 1	2889.856	2886.247	2908.481	2894.861333
	Node 2	2953.695	2911.334	2959.978	2941.669

Delete Operation:

Operation	Node	Test Run			Average Response Time (in micro seconds)
		1	2	3	
Delete	Node 1	2835.48	2844.163	2831.987	2837.21
	Node 2	2818.952	2843.911	2827.771	2830.211333

Response Time (in micro seconds)
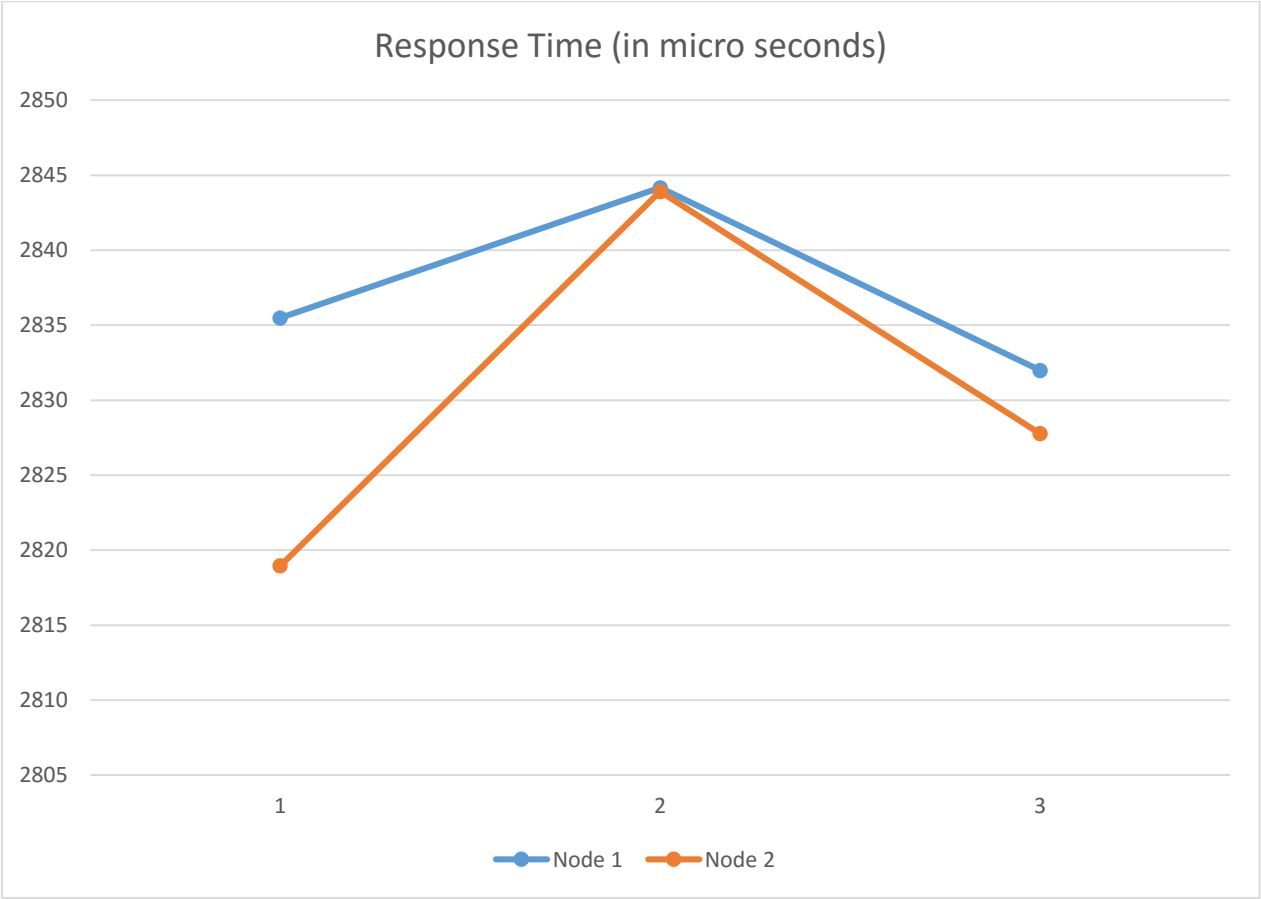
Running 4 Nodes Concurrently:

Put Operation:

Operation	Node	Test Run			Average Response Time (in micro seconds)
		1	2	3	
Put	Node 1	1664.102	1688.312	1671.719	1674.711
	Node 2	1652.892	1699.917	1613.231	1655.346667
	Node 3	1641.954	1673.181	1644.477	1653.204
	Node 4	801.228	909.667	801.158	837.351
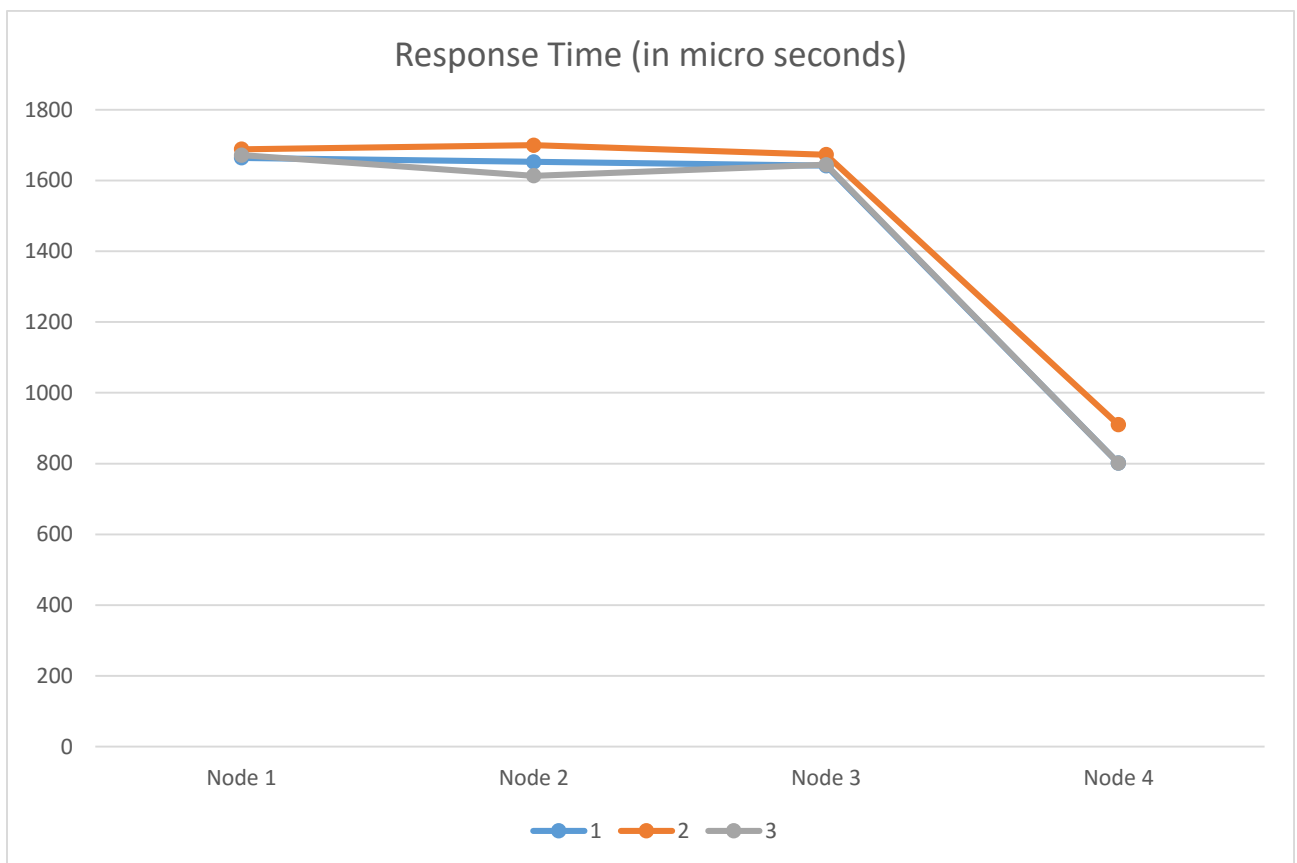
Get Operation:

Operation	Node	Test Run			Average Response Time (in micro seconds)
		1	2	3	
Get	Node 1	3958.645	3997.245	3957.732	3971.207333
	Node 2	3991.199	3982.661	3971.755	3981.871667
	Node 3	3959.964	3942.112	3947.618	3949.898
	Node 4	3634.301	3655.12	3667.608	3652.343
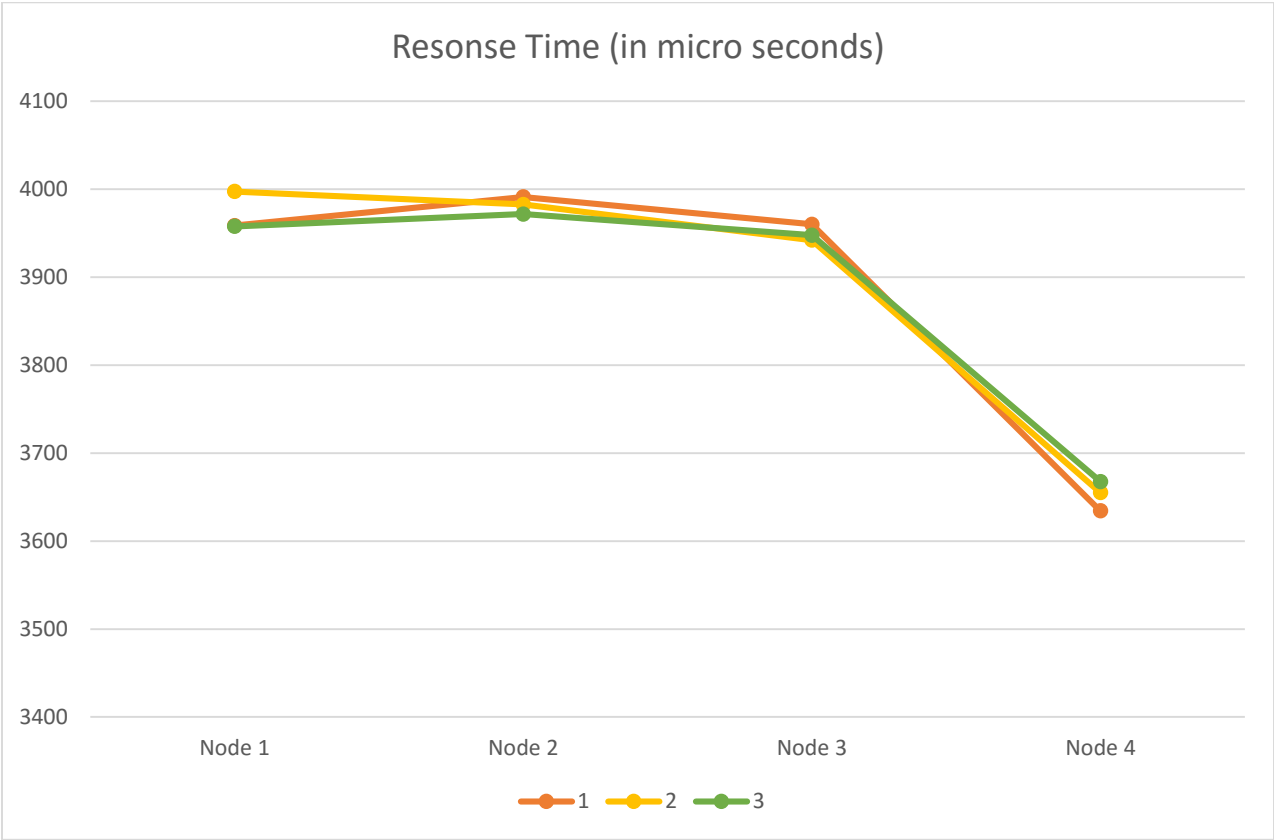
Resonse Time (in micro seconds)

Delete Operation:

Operation	Node	Test Run			Average Response Time (in micro seconds)
		1	2	3	
Delete	Node 1	3476.621	3448.288	3458.192	3461.033667
	Node 2	3974.406	3972.902	3961.821	3969.709667
	Node 3	3960.776	3951.118	3991.501	3967.798333
	Node 4	3960.657	3972.781	3961.108	3964.848667

Response Time (in micro seconds)
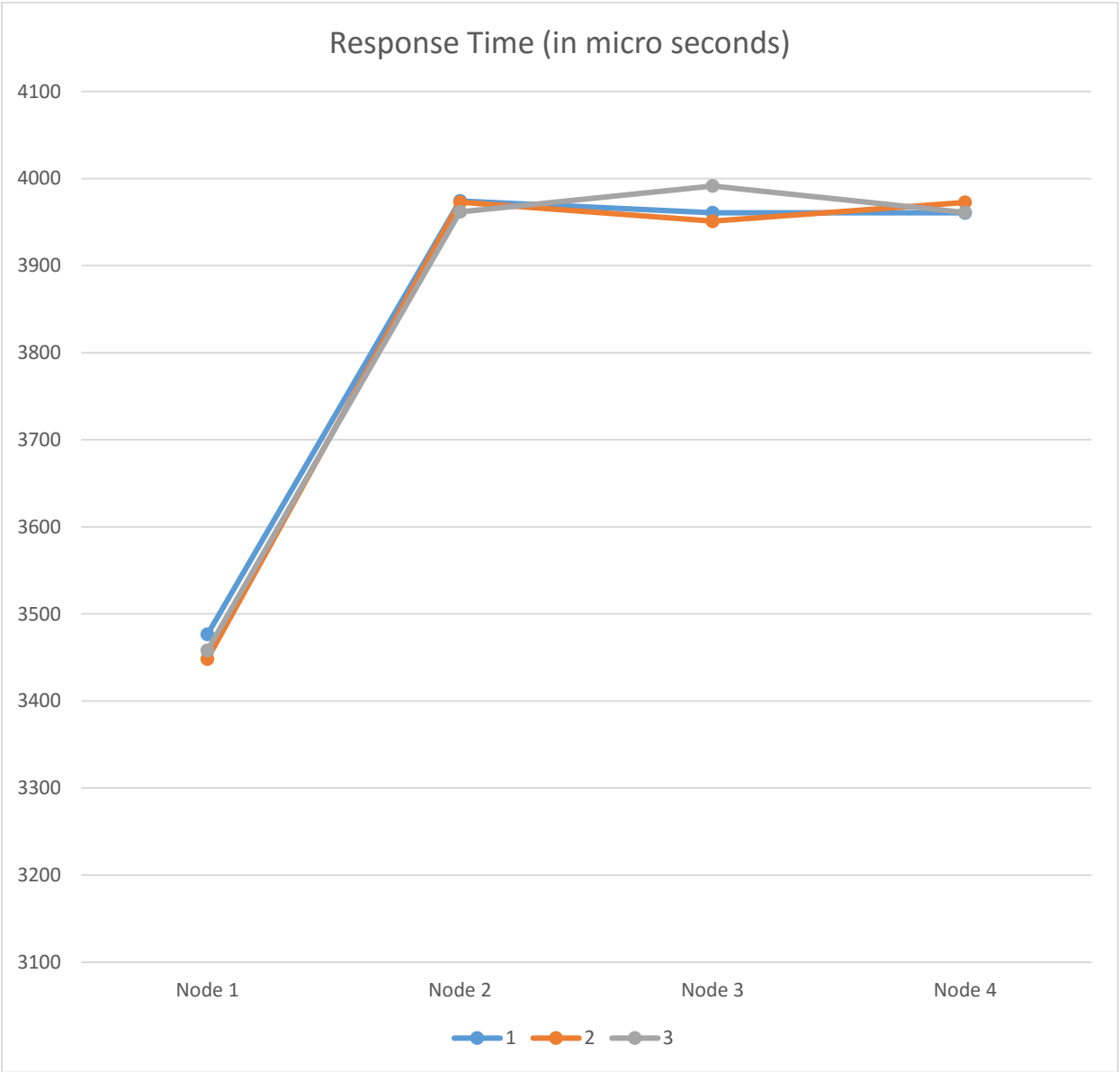
Running 8 nodes concurrently:

Put operation:

Operation	Node	Test Run			Average Response Time (in micro seconds)
		1	2	3	
Put	Node 1	3914.504	3923.123	3938.651	3925.426
	Node 2	3947.134	3958.312	3901.051	3935.499
	Node 3	3920.742	3900.212	3948.712	3923.222
	Node 4	3911.359	3941.357	3930.201	3927.639
	Node 5	3882.505	3937.551	3901.325	3907.127
	Node 6	3906.43	3881.668	3956.132	3914.743333
	Node 7	3922.291	3913.141	3911.191	3915.541
	Node 8	905.187	956.188	917.881	926.4186667
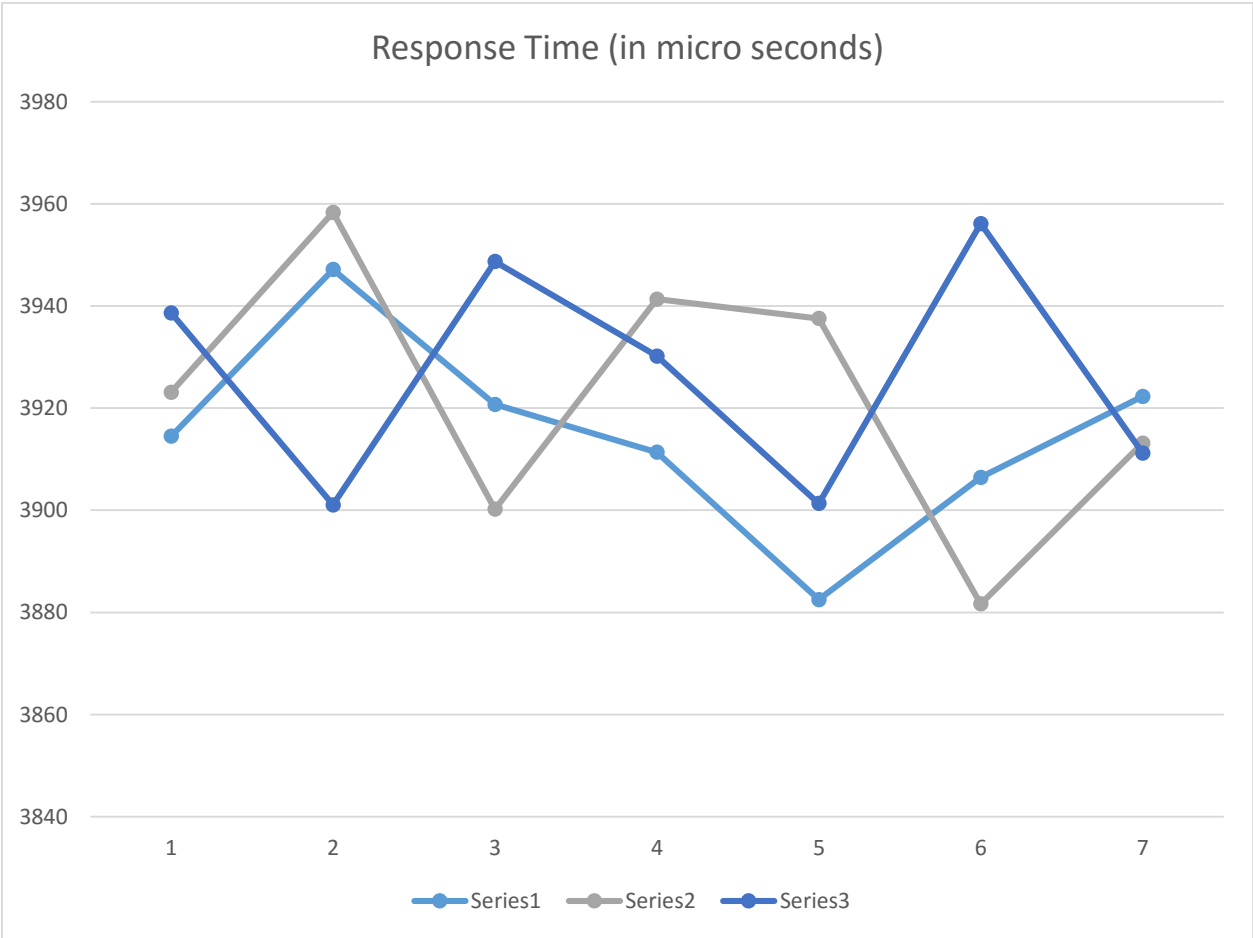
Get operation:

Operation	Node	Test Run			Average Response Time (in micro seconds)
		1	2	3	
Get	Node 1	6379.09	7212.013	6801.399	6797.500667
	Node 2	7253.768	7135.619	6781.289	7056.892
	Node 3	7275.333	6391.837	6661.372	6776.180667
	Node 4	7280.721	6708.268	7112.346	7033.778333
	Node 5	7266.781	7283.558	7201.298	7250.545667
	Node 6	7223.79	6801.351	7021.239	7015.46
	Node 7	7229.713	7221.592	6771.399	7074.234667
	Node 8	6743.76	6801.922	6801.201	6782.294333
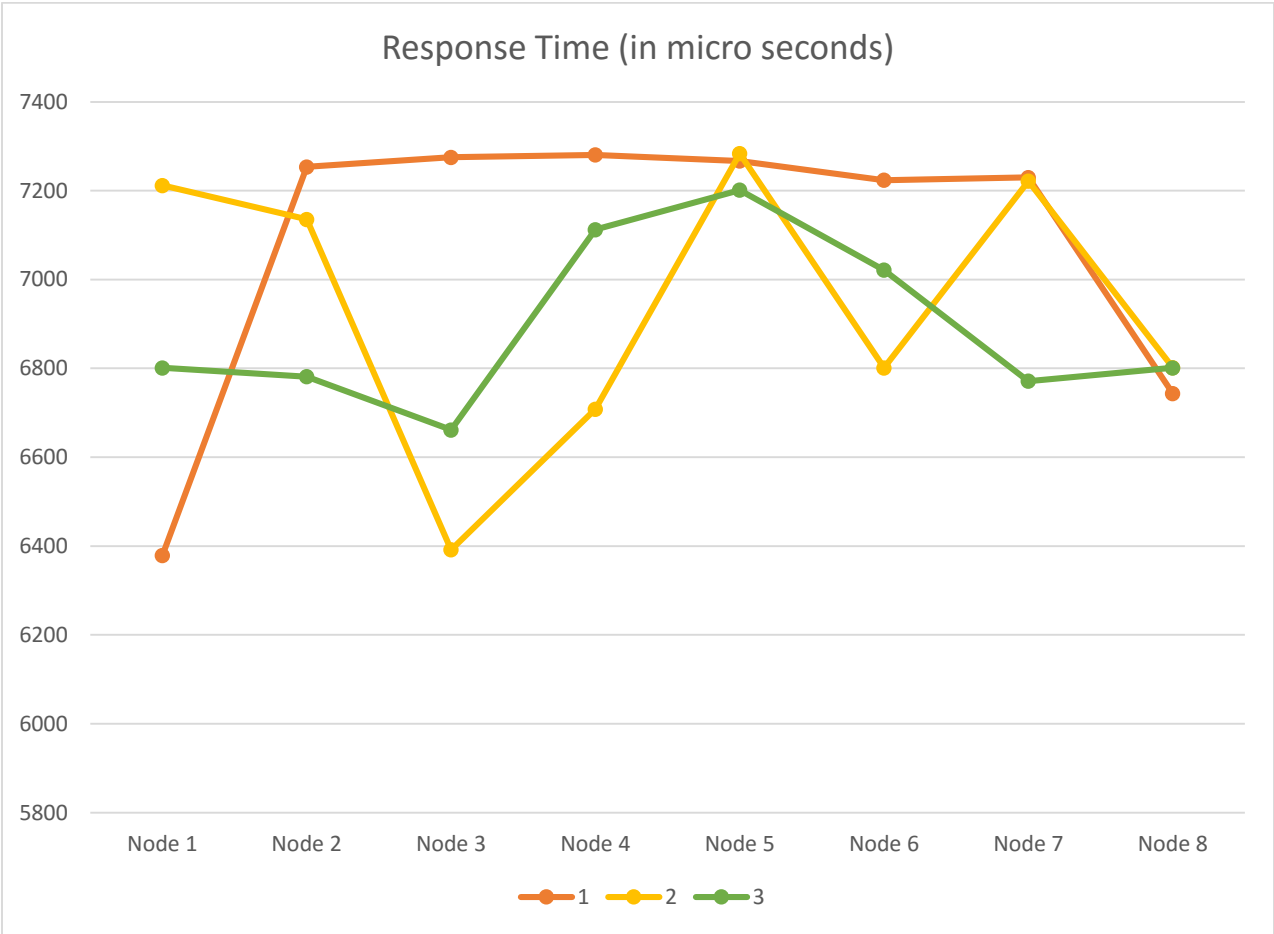
Response Time (in micro seconds)

Delete operation:

Operation	Node	Test Run			Average Response Time (in micro seconds)
		1	2	3	
Delete	Node 1	7484.107	7810.219	7413.991	7569.439
	Node 2	7492.271	7761.249	7562.419	7605.313
	Node 3	7479.405	7760.911	7610.394	7616.903333
	Node 4	7502.717	7800.957	7502.954	7602.209333
	Node 5	7521.779	7613.955	7568.537	7568.090333
	Node 6	7502.849	7881.381	7607.843	7664.024333
	Node 7	7501.357	7689.554	7551.791	7580.900667
	Node 8	5100.589	7661.394	7481.973	6747.985333
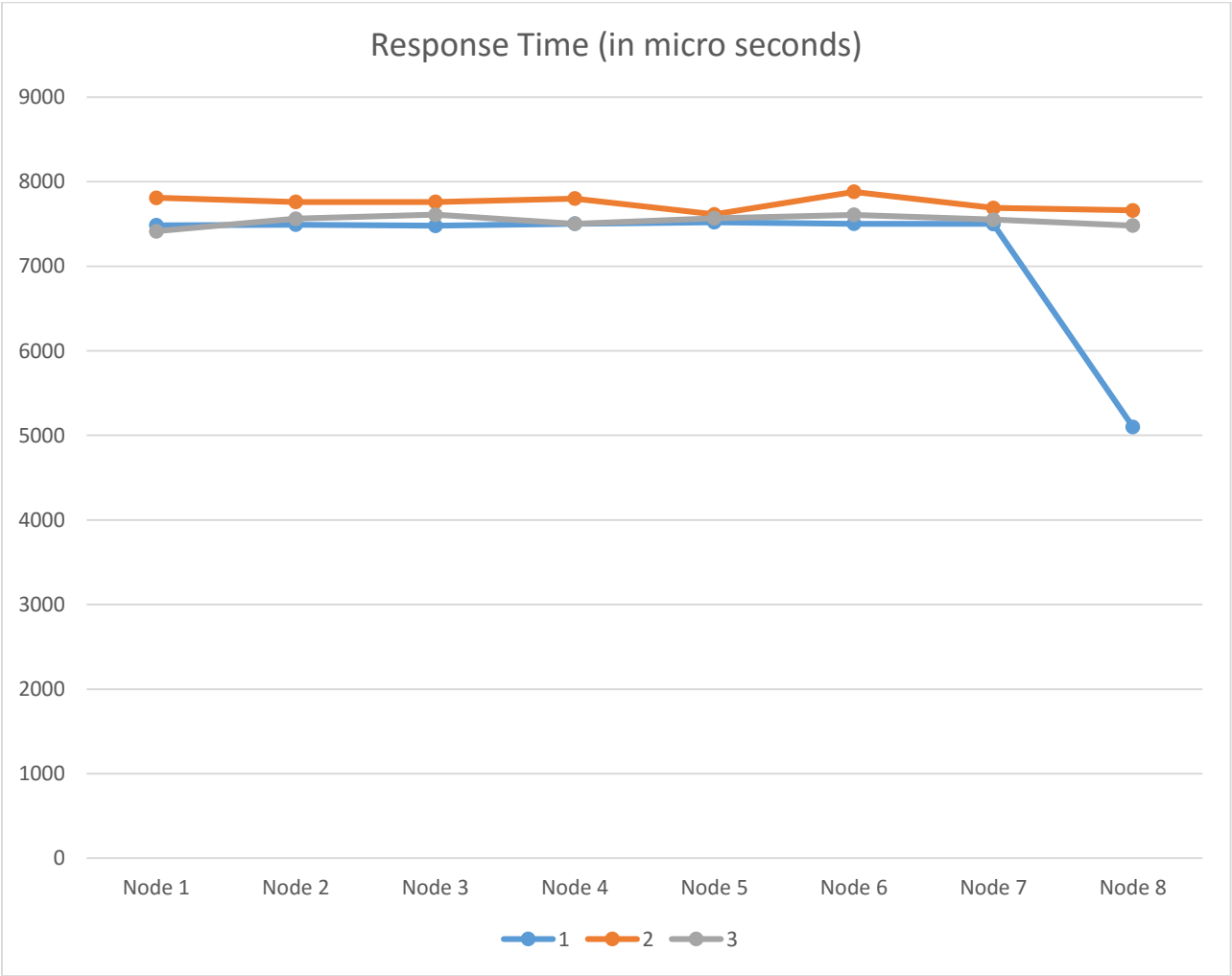
Summary:

Put Operation:

Concurrent Nodes	Average Response Time (in micro seconds)
1	420.25
2	1058.291
4	1455.153
8	3546.952

Average Response Time (in micro seconds)
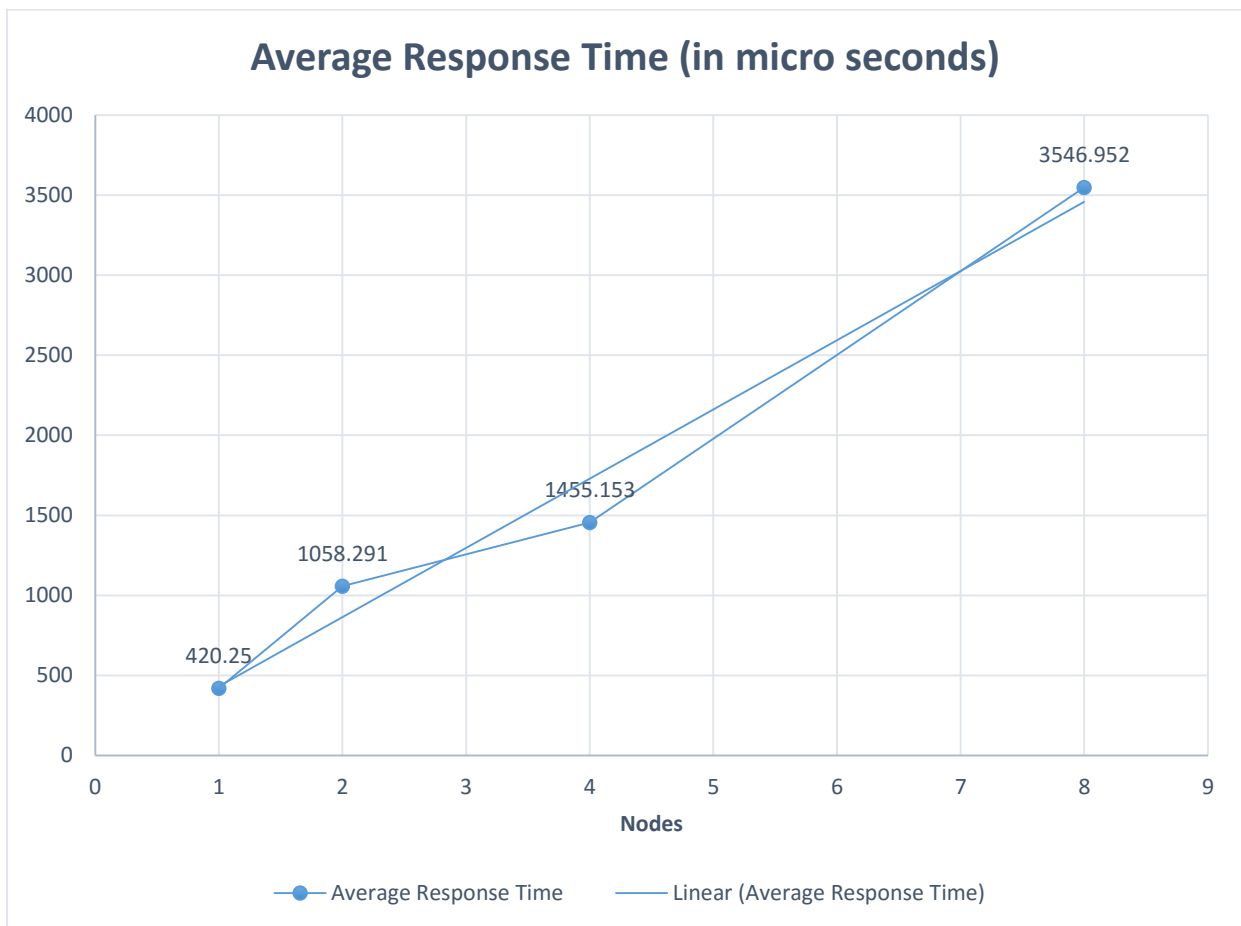
NODES

Get Operation:

Concurrent Nodes	Average Response Time (in micro seconds)
1	2281.64
2	2918.265
4	3888.83
8	6973.36

Average Response Time (in micro seconds)
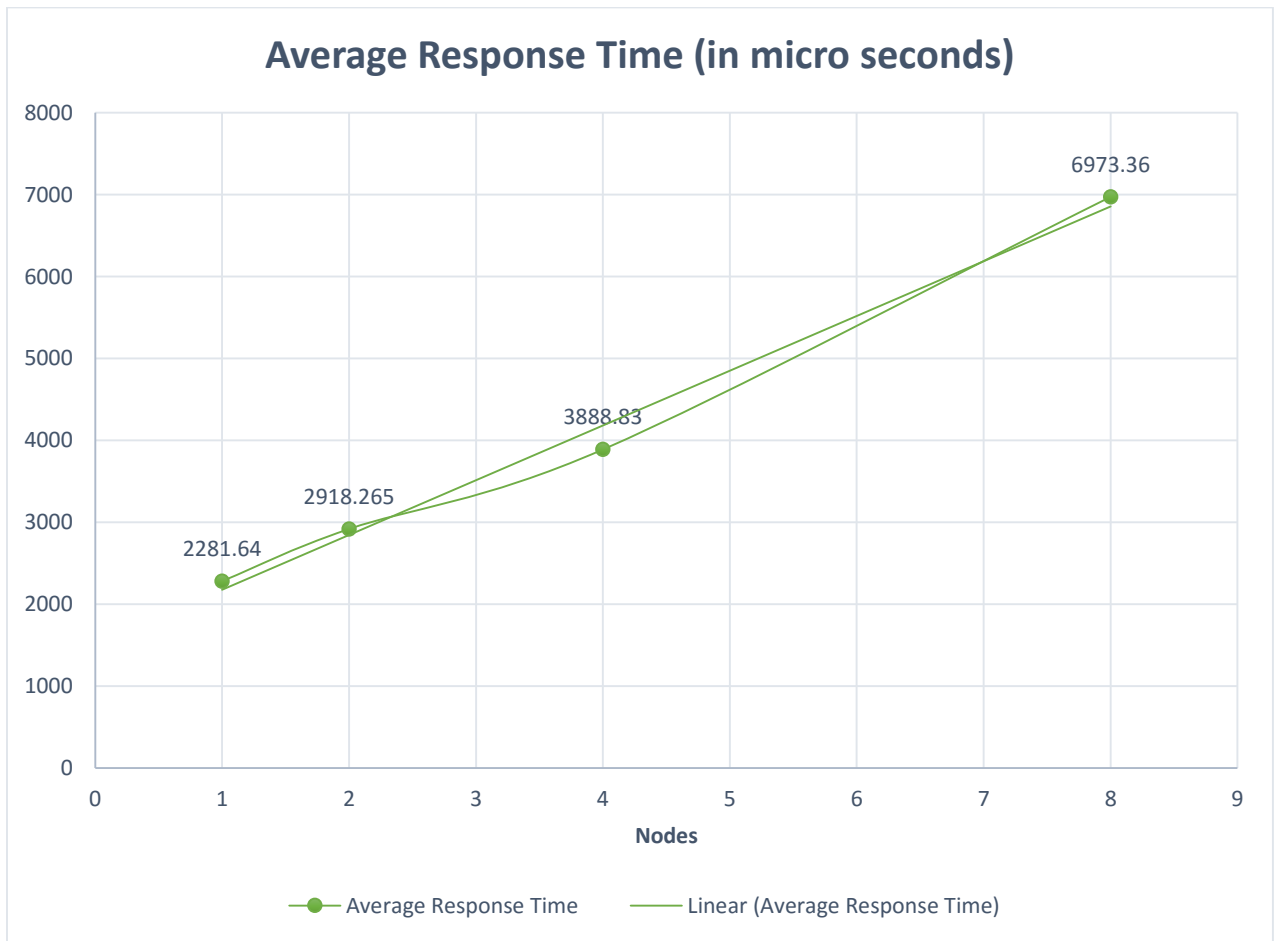
NODES

Delete Operation:

Concurrent Nodes	Average Response Time (in micro seconds)
1	2171.936
2	2833.71
4	3840.84
8	7494.358

Average Response Time (in micro seconds)
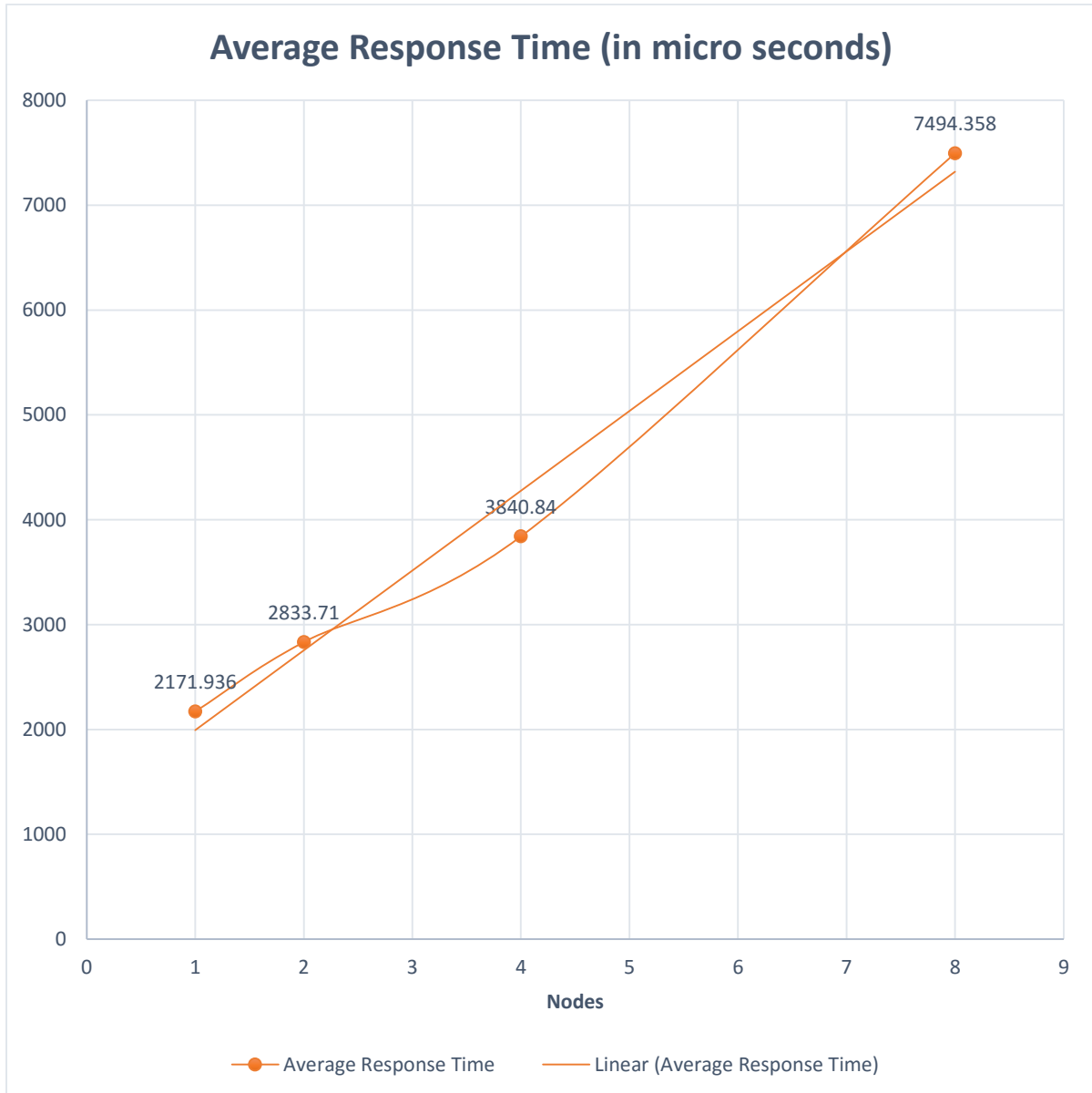
Putting all into perspective:

Concurrent Nodes	PUT ART (in micro seconds)	GET ART (in micro seconds)	DEL ART (in micro seconds)
1	420.25	2281.64	2171.936
2	1058.291	2918.265	2833.71
4	1455.153	3888.83	3840.84
8	3546.952	6973.36	7494.358

All Run Average Response Time Plot