

Appendix

Table: Runtime vs The number of nodes in the system (without failures)

Test Run	Imm Node 6	Imm Node 7	Imm Node 8	Imm Node 9	Imm Node 10	Imm Node 11	Imm Node 12	Imm Node 13	Imm Node 14	Imm Node 15	Imm Node 20	Imm Node 25	Imm Node 30	Imm Node 35	Imm Node 40
1	15482	21227	20732	21739	21542	21972	23175	19466	10790	23935	10538	23730	12770	21318	19564
2	19273	18008	30590	20981	21800	14702	16127	18420	13152	17647	24192	19655	19588	29488	12211
3	12888	17512	20114	20781	14247	17147	15193	17577	19800	12048	13627	17180	28252	21919	15256
4	18960	20910	18192	19968	10003	15854	20722	23175	16828	16904	18581	16973	16707	19575	15481
5	30454	15049	18143	19506	23283	21475	13590	15375	16508	16492	18314	22223	17596	11751	24041
6	21292	19504	17557	20402	14410	14596	15491	20128	27169	24156	12123	15624	15198	13168	21455
7	13892	22977	13767	17070	18114	14746	13339	10348	14493	21006	18091	19598	15949	20486	15665
8	23779	18545	19436	21551	19763	22381	21246	14236	19631	11014	17821	15710	17026	12015	13330
9	23629	22995	15653	16841	19657	17376	13706	14919	18372	14473	21683	12552	20675	17914	23433
10	17711	16866	18710	10874	9203	16040	21264	19322	16857	18047	15862	13470	16035	11483	18294
Average	19736	19359	19289	18971	17202	17629	17385	17297	17360	17572	17083	17672	17980	17912	17873

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1	115	162	161	200	297	310	341	348	247	462	437	744	783	1131	1131
2	145	162	315	184	225	250	253	372	325	518	779	600	899	956	976
3	125	150	203	232	189	230	297	324	325	322	513	600	1479	1443	819
4	125	210	161	232	170	230	253	396	247	406	589	600	841	975	1131
5	245	126	203	168	297	290	253	276	299	462	703	936	783	819	1443
6	155	138	175	232	189	190	275	324	663	462	437	504	609	897	975
7	135	234	146	200	225	230	297	228	273	434	475	888	783	897	895
8	205	150	203	248	279	290	341	252	403	322	437	552	725	819	897
9	205	198	147	200	297	210	297	324	351	322	475	600	841	897	1287
10	145	174	217	216	89	250	253	300	273	294	437	552	667	897	1053
Average	160	170	193	211	226	248	286	314	341	400	528	658	841	973	1061
Throughput	8	9	10	11	13	14	16	18	20	23	31	37	47	54	59

Note: Throughput (msg/sec) = ave.Total_data_transaction/ave.(Runtime/1000)

Table: Runtime vs The number of nodes in the system (without failures)

Test Run	DefNode 6	DefNode 7	DefNode 8	DefNode 9	DefNode 10	DefNode 11	DefNode 12	DefNode 13	DefNode 14	DefNode 15	DefNode 30	DefNode 40
1	25088	19756	22354	25229	19081	14378	20710	16295	13910	13549	23820	31276
2	41988	24715	19085	24470	26541	11651	16441	18135	11625	17266	21598	15895
3	12706	24782	28891	21751	10996	19479	20074	20729	22939	15559	13494	17614
4	23664	21494	26259	11597	22487	17410	12113	17204	21997	22453	17519	14644
5	31656	25690	27532	16122	20772	25456	23858	14766	14130	14917	17243	20370
6	23771	18185	19743	21964	13940	13327	14783	12499	15628	12619	15138	12896
7	27100	28874	30092	25279	22497	26157	18875	17535	18829	29371	15613	12064
8	31259	28206	16652	35065	16091	16772	16635	26141	20970	17503	19234	15734
9	45456	19810	21469	16459	23737	20858	15108	24144	20141	16978	12629	13900
10	28352	24933	14771	19753	21158	13649	21582	10583	15041	20479	19805	21432
Average	29104	23645	22685	21769	19730	17914	18018	17803	17521	18069	17609	17583

Table: Total data transaction vs The number of nodes in the system (without failures)

Test Run	DefNode 6	DefNode 7	DefNode 8	DefNode 9	DefNode 10	DefNode 11	DefNode 12	DefNode 13	DefNode 14	DefNode 15	DefNode 30	DefNode 40
1	169	136	323	316	238	209	273	295	346	346	952	2052
2	237	195	198	305	325	226	293	298	298	322	1070	1045
3	104	189	278	275	189	290	267	251	297	347	603	1051
4	203	126	231	179	306	208	291	415	423	404	664	965
5	216	184	296	254	272	398	360	295	342	320	607	1279
6	199	160	215	241	166	247	352	273	273	291	717	969
7	174	264	342	213	294	289	231	365	349	514	665	1197
8	233	278	196	383	241	227	229	486	449	371	607	1051
9	282	160	200	181	328	250	226	321	347	455	662	815
10	194	223	143	286	273	239	292	246	320	484	953	1279

Test Run	DefNode 6	DefNode 7	DefNode 8	DefNode 9	DefNode 10	DefNode 11	DefNode 12	DefNode 13	DefNode 14	DefNode 15	DefNode 30	DefNode 40
Average	201	192	242	263	263	258	281	325	344	385	750	1170
Through put	7	8	11	12	13	14	16	18	20	21	43	67

Note: Throughput (msg/sec) = ave.Total_data_transaction/ave.(Runtime/1000)