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Gossip-Based Aggregation in Large Dynamic Networks

ANEXOS

Unidade Curricular: Sistemas Distribuídos

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1 Convergência do protocolo

	Random	n sensores	Ciclo	Erro ABS	Media		
1	Ciclo - 2000 ms	4	8	0,7174	7,6		
2			5	0,51			
3			17	0,072			
4			8	0,07			
5					8	0,21	Desvio
6					3	0	0,34594
7					8	0,37	
8					4	0,82	
9					14	0,69	
10					1	0	
	Random	n sensores	Ciclo	Erro ABS	Media		
1	Ciclo - 2000 ms	9	22	0,47	17,7		
2			21	0,17			
3			11	0,14			
4			17	0,04			
5					17	0,35	Desvio
6					16	0,17	0,283
7					18	0,76	
8					16	0,29	
9					15	0,01	
10					24	0,43	
	Random	n sensores	Ciclo	Erro ABS	Media		
1	Ciclo - 2000 ms	16	30	0,36	23,4		
2			14	0,2			
3			20	0,3			
4			28	0,34			
5					11	0,08	Desvio
6					25	0,77	0,305
7					23	0,28	
8					28	0,08	
9					25	0,08	
10					30	0,56	
	Random	n sensores	Ciclo	Erro ABS	Media		
1	Ciclo - 2000 ms	25	30	0,19	25,3		
2			34	0,39			
3			20	0,22			
4			15	0,42			
5					25	0,005	Desvio

6			15	0,43	0,4255
7			30	0,19	
8			20	0,99	
9			27	0,07	
10			37	1,35	
	Random	n sensores	Ciclo	Erro ABS	Media
1	Ciclo - 2000 ms	36	24	0,11	21,6
2			24	0,45	
3			14	0,42	Desvio
4			20	0,3	0,264
5			26	0,04	
	Random	n sensores	Ciclo	Erro ABS	Media
1	Ciclo - 2000 ms	49	16	0,93	20,4
2			35	0,18	
3			14	0,01	Desvio
4			20	0,15	0,292
5			17	0,19	

Tabela 1 Random Choice

	Distributed uniforme	n sensores	Ciclo	Erro(%)	Media
1	Ciclo - 1000ms	4	2	1	2,6
2			6	1	
3			2	1	
4			2	1	
5			3	1	Desvio
6			3	1	1
7			2	1	
8			2	1	
9			2	1	
10			2	1	
	Distributed uniforme	n sensores	Ciclo	Erro(%)	
1	Ciclo - 2000ms	9	15	1	12,7
2			15	1	
3			5	1	
4			10	1	
5			14	1	Desvio
6			12	1	1
7			11	1	
8			13	1	
9			19	1	
10			13	1	
	Distributed uniforme	n sensores	Ciclo	Erro(%)	
1	Ciclo - 2000ms	16	35	1	32
2			41	1	

3			25	1	
4			36	1	
5			27	1	Desvio
6			29	1	1
7			35	1	
8			28	1	
9			34	1	
10			30	1	
	Distributed uniforme	n sensores	Ciclo	Erro(%)	Media
1	Ciclo - 2500ms	25	43	1	37,2
2			32	1	
3			30	1	
4			29	1	
5			34	1	Desvio
6			37	1	1
7			45	1	
8			45	1	
9			36	1	
10			41	1	
	Distributed uniforme	n sensores	Ciclo	Erro(%)	Media
1	Ciclo - 2500ms	36	54	1	61,6
2			53	1	
3			66	1	Desvio
4			68	1	1
5			67	1	
	Distributed uniforme	n sensores	Ciclo	Erro(%)	Media
1	Ciclo - 2500ms	49	71	1	66,8
2			63	1	
3			77	1	Desvio
4			38	1	1
5			85	1	

Tabela 2 Distributed Uniform

	Distributed Peak	n sensores	Ciclo	Erro(%)	Media
1	Ciclo - 1000ms	4	2	1	3
2			2	1	
3			3	1	
4			2	1	
5			2	1	Desvio
6			6	1	1
7			2	1	
8			3	1	
9			6	1	
10			2	1	
	Distributed Peak	n sensores	Ciclo	Erro(%)	Media

1	Ciclo - 2000ms	9	17	1	18,5
2			21	1	
3			20	1	
4			19	1	
5			24	1	Desvio
6			21	1	1
7			15	1	
8			16	1	
9			15	1	
10			17	1	
	Distributed Peak	n sensores	Ciclo	Erro(%)	Media
1	Ciclo - 2000ms	16	40	1	44,7
2			45	1	
3			49	1	
4			46	1	
5			44	1	Desvio
6			44	1	1
7			58	1	
8			39	1	
9			38	1	
10			44	1	
	Distributed Peak	n sensores	Ciclo	Erro(%)	Media
1	Ciclo - 2500ms	25	67	1	72,4
2			82	1	
3			63	1	Desvio
4			71	1	1
5			79	1	
	Distributed Peak	n sensores	Ciclo	Erro(%)	Media
1	Ciclo - 2500ms	36	75	5	71,4
2			67	5	
3			62	5	Desvio
4			77	5	5
5			76	5	
	Distributed Peak	n sensores	Ciclo	Erro(%)	Media
1	Ciclo - 2500ms	49	81	5	93,2
2			90	5	
3			100	5	Desvio
4			100	5	5
5			95	5	

Tabela 3 Distributed Peak

2 Variância

2.1 Rede de 4 sensores

Random Choice - Variância 4 sensores					
id	5	10	15	20	30
0	15,0700	16,5043	16,9847	17,2248	17,4650
1	24,7767	27,7844	28,7917	29,2953	29,7987
2	4,5919	5,1423	5,3317	5,4266	5,5216
3	11,3731	12,6016	13,0025	13,2029	13,4033
Distributed Uniform - Variância 4 sensores					
id	5	10	15	20	30
0	2,1041	2,1042	2,1042	2,1042	2,1042
1	0,9197	1,4539	1,6320	1,7210	1,8100
2	3,7656	5,0118	5,4272	5,6349	5,8426
3	0,3980	0,5410	0,5887	0,6125	0,6364
Distributed Peak - Variância 4 sensores					
id	5	10	15	20	30
0	1,2000	1,6000	1,7333	1,8000	1,8667
1	6,8000	8,4000	8,9333	9,2000	9,4667
2	0,8000	0,9000	0,9333	0,9500	0,9667
3	0,8000	0,9000	0,9333	0,9500	0,9667

Tabela 4 Variância 4 sensores

2.2 Rede de 9 sensores

Random Choice - Variância 9 sensores					
id	5	10	15	20	30
0	19,4687	43,6259	54,7314	58,0608	61,9485
1	25,1630	26,6259	27,0151	27,7936	27,9508
2	3,9041	4,2550	4,3709	4,5333	4,6025
3	0,0952	0,1499	0,2236	0,6845	1,3827
4	2,0979	2,2762	2,2974	2,6488	3,0423
5	21,4607	33,4593	41,2094	45,0243	48,5015
6	1,0874	1,2692	1,3022	1,3609	1,5644
7	29,5784	30,0685	30,1727	30,2419	30,2611
8	13,7001	16,5321	18,2306	18,5287	19,0182
Distributed Uniform - Variância 9 sensores					
id	5	10	15	20	30
0	12,2496	18,4681	21,3904	23,6856	25,8563
1	3,1698	5,3727	5,5383	5,6046	5,6678
2	3,2228	18,0726	24,9454	28,9046	33,0499
3	6,3326	15,3679	20,3008	24,0195	28,1992
4	2,0466	2,9203	3,9615	4,8600	5,8230
5	5,2182	10,8546	15,2861	18,0234	21,1844

6	6,8042	10,3322	12,0531	12,8800	13,7165
7	5,8802	6,7419	7,0841	7,3047	7,6350
8	5,1800	8,2861	8,4519	8,4526	8,4584
Distributed Peak - Variância 9 sensores					
id	5	10	15	20	30
0	1,3289	1,9500	2,0721	2,1093	2,1328
1	43,4109	57,7974	63,6150	66,8596	70,3760
2	2,9109	3,2462	3,2506	3,2573	3,2751
3	0,5695	1,9591	2,5598	2,8910	3,2855
4	4,0500	4,0923	4,0937	4,0981	4,1002
5	0,3797	1,1315	1,7975	2,2135	2,7027
6	11,6437	13,4424	14,1719	14,4746	14,7830
7	1,0125	1,6243	1,8112	1,9218	2,0355
8	0,5695	1,6011	2,3589	2,7607	3,2527

Tabela 5 Variância 9 sensores

2.3 Rede de 16 sensores

Random Choice - Variância 16 sensores					
id	5	10	15	20	30
0	11,4560	15,2802	17,2012	18,4171	19,8435
1	0,1193	0,1316	0,1705	0,3464	0,6133
2	2,6455	3,8486	4,6569	4,8615	5,0269
3	3,3782	3,7806	3,8906	4,1258	4,3554
4	3,5045	4,6858	5,4754	5,8981	6,5111
5	7,2084	7,7263	7,8229	7,8334	7,8884
6	15,6042	19,3585	20,9731	21,9800	23,7190
7	1,0378	1,3764	1,5691	1,8669	2,5772
8	15,5219	20,5582	21,9585	22,3803	22,5873
9	16,9646	18,7260	19,1266	19,2120	19,2700
10	0,2061	0,3312	0,3991	0,4614	0,5266
11	16,6393	23,9258	26,4196	26,9927	28,2017
12	6,1222	6,9774	7,1964	7,2995	7,3427
13	11,0771	12,7249	13,4100	13,7408	14,0711
14	16,7779	18,4105	18,9846	19,1309	19,1442
15	3,8309	5,6677	6,5939	7,2057	8,0724
Distributed Uniform - Variância 16 sensores					
id	5	10	15	20	30
0	30,0935	31,0680	31,1269	31,3043	31,9758
1	3,3810	4,7628	4,9371	5,1163	5,4361
2	11,3862	16,5287	20,1331	22,6532	24,9608
3	9,2028	10,5845	11,5539	12,2411	13,0412
4	8,8731	9,9214	10,0476	10,3439	10,8568
5	11,9132	18,4665	21,7243	24,6365	30,1072
6	11,5947	13,3835	14,0991	14,1989	14,2201

7	6,4814	11,3194	15,9678	19,6204	25,0044
8	1,7231	2,8038	4,8004	6,8588	10,3337
9	2,7139	4,8097	4,9560	4,9808	4,9903
10	7,5013	8,2079	8,4207	8,5957	8,8734
11	8,6301	13,8084	17,7528	21,1266	25,6644
12	7,0371	11,8610	14,8325	16,8280	20,0702
13	8,5359	10,7155	12,7317	14,8730	18,9804
14	17,7778	18,3272	18,6515	18,9043	19,1663
15	10,3723	11,9023	13,7102	13,9431	14,0189
Distributed Peak - Variância 16 sensores					
id	5	10	15	20	30
0	4,2625	4,5687	5,3187	5,8117	6,8156
1	124,8000	163,2474	185,9815	199,8576	217,4102
2	0,3125	6,2069	6,4560	6,6202	6,6480
3	6,0500	9,2606	9,3874	9,5040	9,5953
4	0,0000	0,1112	0,4316	1,4203	3,8431
5	9,7000	10,6853	13,7247	16,1277	20,3104
6	0,0000	2,9573	3,3720	3,6832	4,4360
7	0,0000	0,9204	2,2272	2,8124	4,0079
8	0,0000	0,3071	1,3601	2,0069	3,5586
9	0,0000	0,8855	3,3408	4,6599	5,9079
10	0,0000	0,1662	0,5066	1,5296	3,7773
11	4,2625	4,4449	4,9387	5,8247	7,1277
12	12,0500	17,7724	20,5959	22,4583	25,6701
13	0,0000	0,9634	3,3738	4,1659	5,3104
14	0,0000	0,2738	1,2140	1,9575	3,7128
15	0,3125	2,2220	3,4194	3,9985	4,3260

Tabela 6 Variância 16 sensores

2.4 Rede de 25 sensores

Random Choice - Variância 25 sensores					
id	5	10	15	20	30
0	5,2645	12,8795	23,1993	33,3107	46,8581
1	4,9434	5,4818	5,8874	7,4710	9,4993
2	0,0811	0,3431	0,6045	0,9157	1,7293
3	2,4731	7,1476	7,6605	8,2258	10,8688
4	4,1069	4,2687	5,2875	6,5055	7,9046
5	4,7392	16,6914	23,1967	27,7413	32,7877
6	5,1147	6,1371	7,1235	8,8631	11,6026
7	6,4008	10,7760	12,3513	16,6078	23,1139
8	7,6447	12,7157	21,6279	29,3436	41,3491
9	42,5789	43,8886	44,3426	45,7731	49,0209
10	13,1758	17,3361	17,9668	19,2580	19,7101
11	2,7915	6,6287	7,5633	7,5901	8,0279
12	2,5153	3,5234	3,8360	3,9635	4,5714

13	8,4376	11,7573	13,2901	14,3723	15,6365
14	7,2386	21,3583	27,6290	31,0893	36,5741
15	0,6369	4,6805	5,8136	6,7320	11,3437
16	3,6103	5,7439	7,7193	9,3619	12,7098
17	23,8400	43,6979	45,7217	48,4144	49,5733
18	8,4392	10,0882	10,2811	11,0472	13,0856
19	1,5613	3,7841	4,1906	5,0843	8,5540
20	3,5282	6,7411	8,8229	9,7489	10,5566
21	5,9898	7,0474	9,1201	9,7091	11,4763
22	3,7852	6,2884	9,4057	12,8382	16,0128
23	3,6059	4,3469	4,9101	7,0279	8,7990
24	2,7677	4,2917	5,3356	6,5103	9,6226
Distributed Uniform - Variancia 25 sensores					
id	5	10	15	20	30
0	10,9682	17,5801	21,0971	23,1129	25,2781
1	3,5655	3,6622	3,8470	4,0385	4,5258
2	3,5849	5,4242	6,6268	7,4478	8,2887
3	0,3306	2,4246	4,2759	6,1277	8,5388
4	2,0209	2,4356	2,9342	3,4208	4,2488
5	7,2979	7,6205	7,6399	7,6745	7,6866
6	2,6119	2,9238	3,0747	3,1305	3,1720
7	5,3524	6,9490	7,6536	8,0701	8,5955
8	0,4793	0,6868	0,9209	0,9763	1,1364
9	13,7317	17,5469	19,1612	19,8748	20,3749
10	2,2191	2,2935	2,3069	2,3204	2,3477
11	9,6682	10,3024	10,3244	10,3875	10,5002
12	1,9213	2,2850	2,5362	3,0141	3,7040
13	1,2736	1,3597	1,4433	1,4622	1,4676
14	0,2376	0,6675	1,0997	1,1864	1,2616
15	0,3117	0,3344	0,3672	0,4160	0,5021
16	12,4164	17,8738	21,4988	24,4954	28,1432
17	0,8392	1,0543	1,1069	1,1092	1,1386
18	2,4367	3,4705	4,5368	5,7160	7,2373
19	1,0707	3,0335	4,4234	5,5451	7,2200
20	7,0087	7,7335	8,2395	8,6473	9,0781
21	16,4723	17,0524	17,1388	17,1648	17,1815
22	5,6744	8,3780	11,0663	12,4475	13,9100
23	2,7946	6,0753	6,2334	6,2450	6,2596
24	1,6902	1,7990	1,8789	1,8865	1,9108
Distributed Peak - Variancia 25 sensores					
id	5	10	15	20	30
0	0,0458	2,3849	4,4800	5,5138	6,0291
1	362,0911	490,4870	541,2355	563,9526	586,8825
2	0,0000	0,3163	1,1755	2,0510	3,5504
3	1,6479	5,5751	5,8066	5,8341	5,8472

4	27,3438	40,0043	48,7746	52,3575	56,7533
5	12,2375	14,2259	15,2197	16,2953	17,7673
6	0,0000	1,3170	2,2691	2,9979	4,0045
7	5,6152	6,0331	6,0596	6,3214	6,7907
8	5,4626	5,8529	6,0597	6,3011	6,8860
9	23,5291	30,1918	32,9508	35,1783	38,4394
10	1,3428	2,7901	3,5949	3,7750	3,8202
11	1,9531	4,8850	5,4016	5,4543	5,4700
12	0,0000	0,8287	1,7131	2,5514	3,8300
13	0,4883	1,7327	1,8928	2,5570	3,3300
14	1,6479	4,6753	5,1817	5,2115	5,2216
15	0,0000	0,7637	1,4239	2,1573	3,6402
16	1,9531	5,8483	5,9312	5,9411	6,0070
17	0,0000	0,9381	1,8881	2,6392	3,6844
18	0,4883	1,1537	1,6747	2,1099	2,9417
19	0,0458	2,6554	4,7128	5,6464	6,1629
20	1,4954	2,7437	2,9036	3,3157	3,9916
21	7,3242	7,4901	7,5216	7,5636	7,6886
22	0,0000	0,2537	1,2608	2,2177	3,8111
23	11,7188	12,5914	12,7768	13,0772	13,6048
24	0,0000	2,3496	3,1645	3,6731	4,4844

Tabela 7 Variância 25 sensores

2.5 Rede de 36 sensores

Random Choice - Variância 36 sensores					
id	5	10	15	20	30
0	11,1964	20,1107	22,7748	23,6869	24,3243
1	2,0725	3,0230	3,2059	3,3920	3,5508
2	4,9951	5,6512	7,2587	8,2240	10,0506
3	0,5975	0,9566	1,2436	2,0200	3,0163
4	2,2334	6,5753	7,7378	8,0975	9,0866
5	0,3235	3,1835	4,6087	6,8305	13,0605
6	7,1678	9,0955	9,8477	10,0043	10,1097
7	5,7213	14,2959	20,9601	24,5588	28,9297
8	4,8966	7,7370	9,0038	9,9602	12,0671
9	6,6294	10,3225	12,9060	14,5328	17,3466
10	4,3314	7,4666	9,1256	11,7468	20,4433
11	14,1005	14,7714	14,9005	15,0426	15,5468
12	1,4601	1,6705	1,8611	1,9592	2,3541
13	1,2053	1,4297	4,6834	9,4897	18,3905
14	7,0329	8,7426	13,3316	17,3821	18,3308
15	3,5279	3,6437	5,2208	7,4016	11,8284
16	2,4496	3,3633	3,4611	3,6974	4,9726
17	24,7206	24,8543	25,3048	26,2379	29,9541
18	2,0310	4,6798	5,9142	6,7182	7,3090

19	1,5105	2,2358	2,8274	2,9794	3,5922
20	6,0932	6,3579	6,6513	6,8252	7,0969
21	4,6472	4,8348	4,9661	7,0001	12,4058
22	7,8941	11,0929	11,5403	11,5503	11,9612
23	5,9599	9,6774	11,3186	13,2205	18,4389
24	1,2789	4,0446	6,0091	7,1320	8,3871
25	0,6185	4,3685	6,7683	8,2872	11,6187
26	8,6178	8,8657	9,3073	9,5003	10,2853
27	8,5874	9,8687	14,1789	14,2324	15,5721
28	3,9872	7,2383	11,0244	18,3574	21,0501
29	35,9407	40,2422	41,1095	41,2200	42,2454
30	5,4185	5,9154	6,1835	6,3496	7,3175
31	0,5104	1,1352	3,4408	8,7295	19,0260
32	0,3537	0,6712	0,7459	0,8069	0,9661
33	2,1254	5,2893	5,9939	6,9387	8,1344
34	1,1796	1,2681	1,2907	1,3354	1,8381
35	0,5538	2,7994	3,7812	4,5465	4,9713
Distributed Uniform - Variancia 36 sensores					
id	5	10	15	20	30
0	10,4612	12,1949	14,2731	16,8863	22,2630
1	4,0934	5,6215	8,4625	11,4073	16,0292
2	0,8558	1,0232	1,2158	1,3084	1,4465
3	22,3771	24,5212	24,8972	25,0469	25,7359
4	11,7921	12,6061	12,6232	12,6401	12,6530
5	1,5409	2,6267	6,1215	8,0203	13,2062
6	4,6681	11,4558	13,6952	14,5234	15,1241
7	3,7738	6,4728	7,3972	9,3862	13,2714
8	6,8158	8,8857	9,7511	11,2342	12,2408
9	8,3639	18,8118	24,8609	27,3830	29,7322
10	8,8402	13,0426	15,7214	18,9722	22,1881
11	9,5866	14,8606	21,7842	25,9127	30,0981
12	12,8421	19,2068	21,9471	23,1641	24,1552
13	13,7837	17,5377	19,7644	21,3539	22,3901
14	23,1736	25,9934	26,1804	26,2336	26,2867
15	4,8462	8,7489	15,1052	20,5806	30,5008
16	16,1275	21,4624	29,3441	31,0846	33,0030
17	7,8338	11,4168	12,6930	13,7550	15,0761
18	2,4159	3,7163	8,1189	12,5545	20,8552
19	1,8007	5,7334	10,4183	12,6124	15,4336
20	2,0252	5,7288	12,8414	15,6575	23,3254
21	1,5813	3,0438	6,7761	9,5098	14,9988
22	10,4915	13,6475	14,8643	16,3400	19,1550
23	2,5584	2,9124	2,9300	2,9627	3,0446
24	4,3235	4,9172	5,2409	5,3237	5,7554
25	9,4815	11,7357	12,2061	12,5390	13,1232

26	2,8797	3,2690	3,7108	4,3726	7,6849
27	6,8024	9,9488	12,2531	13,4987	14,7529
28	4,9245	5,4987	5,9787	6,0214	6,0590
29	1,6586	3,9694	8,1670	10,9998	13,8303
30	17,4762	22,1397	24,0922	25,1347	26,2581
31	2,9137	3,2913	3,3803	3,3927	3,4585
32	0,2989	0,7749	0,8422	0,8966	0,9248
33	1,9361	6,5383	11,6180	15,4628	20,6861
34	0,1232	0,1356	0,3323	0,5305	0,8106
35	2,9357	7,6063	13,8149	20,7050	32,3381
Distributed Peak - Variancia 36 sensores					
id	5	10	15	20	30
0	0,0000	10,4269	13,9131	15,6625	15,9910
1	490,0500	968,6238	1195,8313	1330,6436	1486,5061
2	0,0000	14,3440	16,6277	17,5178	17,8333
3	0,0000	0,0011	0,0285	0,4419	1,8209
4	16,2000	17,3726	17,8322	18,6106	20,0548
5	9,1125	21,6572	22,4527	22,6517	23,8198
6	0,0000	0,0025	0,0693	0,3551	1,5003
7	4,0500	10,4550	11,2474	11,4635	11,8188
8	0,0000	0,0320	0,1717	0,6200	1,8080
9	0,0000	0,3873	1,9104	2,8248	3,7515
10	0,0000	0,0025	0,1061	0,4362	1,4659
11	0,0000	0,0077	0,1966	0,7248	1,8991
12	9,1125	17,4007	18,1900	18,4143	18,8689
13	56,7000	60,4473	62,5422	65,8151	69,9879
14	231,8625	322,0078	386,6953	430,2416	485,8708
15	9,1125	19,3300	20,0840	20,1467	21,2498
16	0,0000	0,1791	4,3704	5,9295	8,2696
17	0,0000	1,8975	3,5072	4,4281	7,7253
18	0,0000	0,0011	0,0211	0,0780	1,1467
19	0,0000	0,0811	0,1461	0,2823	2,1414
20	0,0000	0,0059	0,1830	0,7955	2,1146
21	4,0500	12,6148	14,0963	14,3679	14,5126
22	0,0000	0,3772	1,2631	2,7449	3,6539
23	0,0000	1,4441	1,7002	2,3231	4,1272
24	0,0000	0,0011	0,0114	0,5994	1,9916
25	0,0000	0,0604	0,3102	1,9424	4,9263
26	36,4500	43,9120	44,1356	44,4425	46,4094
27	0,0000	0,0011	0,0114	0,0509	1,1356
28	0,0000	1,3848	2,1958	4,2937	5,1355
29	0,0000	4,7385	9,1243	10,6985	11,6833
30	0,0000	6,8899	10,4228	11,9715	12,1689
31	0,0000	2,9540	5,1870	6,0299	7,7688
32	0,0000	0,0002	0,0325	0,1307	1,3223

33	0,0000	0,0100	4,4876	6,3471	8,7466
34	0,0000	0,0278	0,7377	2,2357	4,8412
35	0,0000	0,0100	0,1646	0,3946	1,3593

Tabela 8 Variância 36 sensores

2.6 Rede de 49 sensores

Random Choice - Variância 49 sensores					
id	5	10	15	20	30
0	6,0641	7,9725	9,2933	10,4726	12,6259
1	21,0666	32,2053	39,1406	43,7298	49,9952
2	19,0698	20,9040	21,1941	21,2229	21,9238
3	15,7361	16,5510	16,8797	17,1253	20,8911
4	5,8501	8,1253	11,4565	13,6686	17,0130
5	4,5933	11,4894	16,7022	18,2192	19,7807
6	10,3982	10,7817	10,9084	11,0961	13,7012
7	4,9879	6,8594	7,7986	7,9529	7,9981
8	7,9985	8,2669	8,6947	9,7168	13,2533
9	8,2108	10,8883	10,8983	11,0217	12,0427
10	1,0846	1,5298	2,1632	3,1751	3,5572
11	4,6642	6,0390	6,3249	6,3803	7,2564
12	5,3524	7,7554	8,8434	10,0455	12,1396
13	4,8468	6,1354	6,2896	6,3138	6,6963
14	2,0604	3,8095	6,1306	8,5788	18,4229
15	2,2062	4,2545	4,8409	5,2789	6,5513
16	2,1859	5,8136	7,6894	8,6263	9,1030
17	9,0515	13,9892	15,1940	15,4905	16,1674
18	7,2757	13,9383	15,5272	15,8639	15,9640
19	1,1631	3,6885	4,4436	5,0953	5,3653
20	6,2016	15,6600	16,8821	17,7771	19,3017
21	14,4168	15,3283	17,0133	17,5437	18,7895
22	9,2085	16,0975	18,7734	19,6158	20,7507
23	1,4006	6,9075	7,3620	7,9421	8,3798
24	5,7058	8,5797	10,5787	12,1768	14,5726
25	38,3667	56,4556	66,5166	68,1784	71,5977
26	17,0581	24,1485	26,5024	29,4378	32,6884
27	10,8116	11,2756	12,8700	13,6692	15,6709
28	10,2031	13,5762	19,8925	22,9130	26,3795
29	11,4114	13,3409	13,5107	13,6383	14,8448
30	8,2758	19,9077	28,8579	34,3043	41,2306
31	6,9344	8,2594	10,1432	11,4047	12,3542
32	5,2550	6,0423	8,3247	11,3190	20,7915
33	5,7515	11,1798	14,6987	16,8916	21,0768
34	7,0487	11,0980	11,3633	11,6932	12,0677
35	3,2516	3,9435	4,9575	5,9415	7,8397
36	5,7422	6,5949	7,1144	7,2383	7,3655

37	9,0584	21,7530	22,6367	25,3805	28,7433
38	28,9286	31,5156	31,9458	32,5674	33,8875
39	11,1037	14,6292	15,0144	16,3932	17,6583
40	8,7442	13,8367	15,2480	15,6860	16,8125
41	0,4761	0,5491	1,2819	1,4764	3,0194
42	1,4410	2,2452	2,6912	2,8134	3,0646
43	46,6279	48,2033	49,0848	49,2176	50,1139
44	0,8901	3,2604	3,9546	4,3058	4,5130
45	9,0548	10,0327	11,2090	11,5525	12,1396
46	19,6287	22,9504	25,0417	27,2612	30,2667
47	8,2621	9,4166	10,3889	11,8017	11,9183
48	6,7705	7,4666	7,8421	7,9961	8,9925
Distributed Uniform - Variancia 49 sensores					
id	5	10	15	20	30
0	5,7115	9,0081	14,8429	20,0416	29,3923
1	4,1819	5,1066	5,1724	5,1943	5,2220
2	0,9560	2,7304	4,6951	6,2059	7,6859
3	1,1410	7,6178	13,1042	18,0968	26,4314
4	5,6300	9,9125	12,7089	15,4232	17,7088
5	22,4379	24,5574	25,7237	26,2599	26,4226
6	2,3110	2,5268	2,5433	2,5793	2,8171
7	8,1503	11,6865	12,9995	13,1503	13,5127
8	5,5385	5,5631	5,5814	5,5878	5,5993
9	2,4064	2,9437	3,8577	4,5843	5,8945
10	8,9246	11,4192	12,2537	13,3198	14,1855
11	2,0561	7,1564	8,9914	10,1164	11,5463
12	15,0477	16,6392	17,2604	17,8293	19,0845
13	1,4440	4,2930	5,9285	6,5802	6,9772
14	5,2462	9,6507	11,4354	14,0358	16,9886
15	2,8897	11,2069	16,5386	18,7867	20,9054
16	13,0932	13,3225	13,3490	13,3748	13,4083
17	1,4121	1,4911	1,5260	1,5617	1,6180
18	8,8517	17,1619	19,5794	20,5298	21,8528
19	14,3044	18,0137	19,4783	19,8790	20,5320
20	4,1611	7,1900	7,6961	7,9407	8,0164
21	0,1155	0,3031	0,3443	0,3730	0,4669
22	1,6216	5,3898	7,5336	9,0889	11,0802
23	1,7695	2,1615	2,1980	2,2058	2,3095
24	6,0317	14,5384	18,6473	20,8112	22,4961
25	5,9827	16,0049	25,6689	31,2606	36,2143
26	2,7634	11,9373	15,6500	18,3142	20,5061
27	2,5162	6,6402	11,4735	14,2514	17,6553
28	1,7017	1,7914	1,8351	1,8440	1,8722
29	7,0079	14,5859	16,9119	18,2103	19,3603
30	28,0275	28,9188	28,9485	29,3380	29,4110

31	4,4213	4,8183	4,8868	4,9335	5,0129
32	2,4414	3,5399	4,2398	4,4420	4,5274
33	2,3744	4,3285	5,6392	7,3111	10,8311
34	1,6191	1,9302	1,9592	2,0076	2,0844
35	0,7274	2,5480	3,4372	3,8799	4,1083
36	14,9195	17,2082	18,0562	18,3809	18,8541
37	27,9038	29,2112	29,6915	30,1813	30,9450
38	1,9184	12,7982	22,0832	27,8734	37,6254
39	1,6986	2,8065	3,6294	4,3072	5,3300
40	9,3679	9,8270	10,2746	11,2762	14,7751
41	4,2440	8,4766	8,8023	8,9973	9,6509
42	6,3882	7,8404	8,7462	9,3662	9,8471
43	5,5124	11,8428	16,9523	19,1301	21,9281
44	7,4796	8,8862	9,9604	10,8152	12,3101
45	6,0465	15,2564	17,3648	18,9110	19,9075
46	1,6673	13,6405	17,7824	21,0537	27,5200
47	1,2048	3,6736	4,8821	5,4573	6,0176
48	2,9258	6,1136	7,0473	7,4720	7,7215
Distributed Peak - Variancia 49 sensores					
id	5	10	15	20	30
0	0,0000	0,0000	0,0000	0,0009	0,0991
1	949,1453	1658,1543	1964,1781	2225,3452	2569,2130
2	0,0000	0,0218	0,3074	0,9524	5,4204
3	0,0000	0,8327	3,5178	5,9022	8,0575
4	0,0000	1,0695	2,2070	2,9309	5,1814
5	46,8945	68,9629	70,2898	71,2574	75,3725
6	0,0000	3,9250	8,8575	14,3076	18,9355
7	0,0000	0,0000	0,1424	0,2108	1,8357
8	14,1856	43,8685	45,2420	47,2064	48,2739
9	0,0000	0,0000	0,0001	0,0806	0,5612
10	0,0000	1,9987	5,9872	7,6521	9,9104
11	0,0000	0,0290	0,1379	0,8014	2,4981
12	0,0000	0,0010	0,0808	0,6304	3,4486
13	0,0000	10,6394	11,0918	11,2677	12,0417
14	0,0000	0,0000	0,0008	0,0945	0,5659
15	11,7236	28,0363	33,3316	33,9368	35,4455
16	14,1856	23,8525	24,4132	26,8432	27,7511
17	0,0000	0,0000	0,0808	0,3415	1,2244
18	0,0000	0,0000	0,0020	0,0837	0,7170
19	0,0000	0,0010	0,0025	0,3960	1,4459
20	176,3234	224,6300	295,6150	370,3647	507,6625
21	0,0000	0,0000	0,4819	1,8457	2,8670
22	0,0000	0,0000	0,0001	0,0009	0,1819
23	0,0000	3,3424	14,2577	22,2636	24,1936
24	0,0000	0,0000	0,2488	0,7501	2,5423

25	0,0000	0,1320	0,4824	1,3003	5,0951
26	0,0000	0,0000	0,0196	0,0762	0,6072
27	0,0000	1,4130	1,8196	2,1957	3,5565
28	0,0000	0,0720	0,5013	0,6631	1,5070
29	0,0000	4,8723	7,6584	9,2821	11,7694
30	0,0000	0,7688	1,1273	1,1843	2,0250
31	0,0000	4,8723	11,5722	15,2245	17,6557
32	0,0000	0,0000	0,0000	0,0046	0,1419
33	0,0000	0,0000	0,0001	0,0343	0,3809
34	0,0000	0,0000	0,2904	0,6142	1,9198
35	0,0000	0,0000	0,0000	0,0093	0,3350
36	0,0000	2,2609	8,0715	12,6964	14,4739
37	0,0000	0,0000	0,0003	0,0154	0,2810
38	0,0000	0,0290	1,3266	1,8599	2,9790
39	0,0000	1,0695	2,4562	3,3433	5,7116
40	0,0000	0,0000	0,1001	0,5359	1,9223
41	0,0000	0,0000	0,0429	0,1294	0,9550
42	0,0000	0,0000	0,9741	2,1061	4,3268
43	142,5594	194,8425	259,3657	316,9619	385,7195
44	0,0000	0,0000	0,0027	0,7435	1,3730
45	0,0000	18,3989	25,3177	30,0586	32,0184
46	0,0000	43,9960	59,1983	59,7295	60,8159
47	0,0000	0,9346	1,8325	3,4810	9,9232
48	0,0000	0,0000	0,0057	0,2315	1,2475

Tabela 9 Variância 49 sensores