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LAMPIRAN

Lampiran 1 *Source code* dan data *throughput*

Source code yang digunakan pada penelitian ini dapat dilihat pada pranala berikut

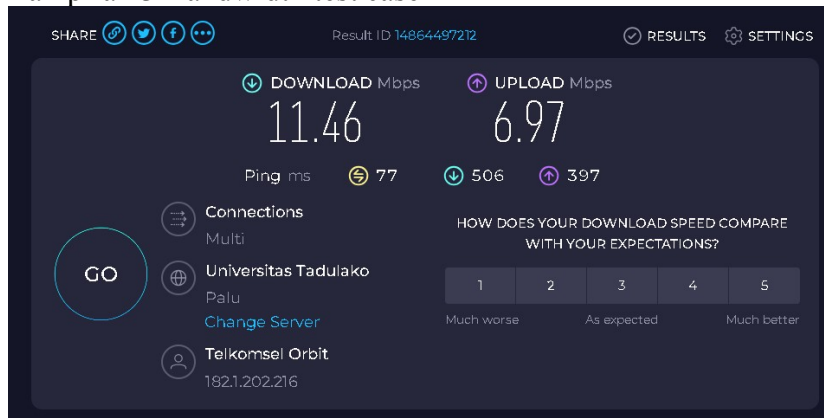
<https://github.com/irhamsahbana/kurento-tutorial-node/tree/refactor/kurento-one2many-call>

<https://github.com/irhamsahbana/webrtc-research>

Lampiran 2 Bandwidth test case 1



Lampiran 3 Bandwidth test case 2



Lampiran 4 Tabel rangkuman penggunaan CPU di sisi server test case 1

Media Stream	Resource	Meetup Min	Meetup Max	Meetup Avg
webcam	CPU (%)	0.01	12.43	7.6
screen	CPU (%)	0.58	40.95	17.12

Lampiran 5 Tabel rangkuman penggunaan CPU di sisi server test case 2

Media Stream	Resource	Meetup Min	Meetup Max	Meetup Avg
webcam	CPU (%)	0	10.17	6.66
screen	CPU (%)	0.65	5.43	2.72

Lampiran 6 Tabel rangkuman penggunaan RAM di sisi server test case 1

Media Stream	Resource	Meetup Min	Meetup Max	Meetup Avg
webcam	memory (MB)	30.02	84.38	61.9
screen	memory (MB)	77.84	101.66	92.84

Lampiran 7 Tabel rangkuman penggunaan RAM di sisi server test case 2

Media Stream	Resource	Meetup Min	Meetup Max	Meetup Avg
webcam	memory (MB)	41	67	58.5
screen	memory (MB)	61	81	72.41

Lampiran 8 Tabel rangkuman Throughput di sisi server test case 1

Media Stream	Type	Meetup Min	Meetup Max	Meetup Avg
webcam	download (kbytes)	0.15	60.21	29.98
webcam	upload (kbytes)	0.46	1103.52	250.86
screen	download (kbytes)	14.41	60.58	39.36
screen	upload (kbytes)	2.25	11176.76	5000.38

Lampiran 9 Tabel rangkuman Throughput di sisi server test case 2

Media Stream	Type	Meetup Min	Meetup Max	Meetup Avg
webcam	download (kbytes)	0	767.94	231.13
webcam	upload (kbytes)	0.01	2.35	1.31
screen	download (kbytes)	108.83	1169.08	210.61
screen	upload (kbytes)	0.01	2.38	0.83

Lampiran 10 Tabel rangkuman penggunaan CPU-RAM di sisi *client test case 1*

User	Media Stream	Resource	Gmeet Min	Zoom Min	Meetup Min	Gmeet Max	Zoom Max	Meetup Max	Gmeet Avg	Zoom Avg	Meetup Avg
presenter	webcam	cpu (%)	42.9	0	32.8	110.4	127.1	81.9	64.14	78.07	53.36
presenter	screen	cpu (%)	17.9	22	6.2	67.2	149	98.3	42.29	44.89	31.04
presenter	webcam	memory (MB)	188.4	545.71	66.84	211.48	605	88.54	200.46	581.88	74.92
presenter	screen	memory (MB)	251.59	465.7	50.43	328.46	578.39	125.28	309.94	521.56	116.81
viewer_1	webcam	cpu (%)	4.6	1.6	3.1	39.8	23.2	15.3	11.91	16.13	10.44
viewer_1	screen	cpu (%)	1.5	6.2	1.5	48.4	88.9	21.7	12.26	18.59	6.97
viewer_1	webcam	memory (MB)	113.24	493.2	38.35	135.53	528.67	44.29	125.64	512.72	41.07
viewer_1	screen	memory (MB)	121.65	466.23	38.68	163.95	583.71	64.88	147.99	486.95	63.67
viewer_2	webcam	cpu (%)	18.7	9.4	6.2	35.9	42.2	28.1	27.82	25.65	15.84
viewer_2	screen	cpu (%)	21.9	14.1	1.6	90.6	34.4	20.3	31.78	25.17	8.93
viewer_2	webcam	memory (MB)	128.38	685.86	31.73	157.7	758.36	44.75	146.45	742.73	40.13
viewer_2	screen	memory (MB)	138.4	474.14	41.49	183.38	778.07	74.38	165.74	714.59	69.32
viewer_3	webcam	cpu (%)	17.2	9.3	1.5	43.7	41.8	23.3	23.96	21.14	10.97
viewer_3	screen	cpu (%)	7	9.2	1.6	115.6	116.4	15.5	26.67	21.07	7.08
viewer_3	webcam	memory (MB)	147.71	498.37	32.09	174.09	620.39	71.72	161.53	523.8	37.48
viewer_3	screen	memory (MB)	133.01	467.26	37.11	177.93	592.19	67.08	157.89	490.22	64.99
viewer_4	webcam	cpu (%)	12.5	1.6	3.1	70.2	40.3	23.3	28.25	18.8	11.88
viewer_4	screen	cpu (%)	7.8	9.3	1.6	54.7	102.2	17.1	21.48	22.17	6.66
viewer_4	webcam	memory (MB)	134.82	496.79	24.59	168.47	584.98	33.27	153.54	520.64	31.01
viewer_4	screen	memory (MB)	133.8	473.83	45.71	171.01	585.59	55.01	154.91	494.37	52.93
viewer_5	webcam	cpu (%)	12.5	1.6	3.1	92	37.2	18.6	30.32	16.98	8.7
viewer_5	screen	cpu (%)	7.8	4.7	1.5	87.3	45.1	9.3	23.81	16.38	4.88
viewer_5	webcam	memory (MB)	149.8	495.82	33.97	178.14	539.14	38.19	162.67	520.5	35.76
viewer_5	screen	memory (MB)	132.39	471.05	48.68	169.74	589.5	58.89	157.38	496.23	56.04
viewer_6	webcam	cpu (%)	10.9	1.5	1.6	29.7	82.7	17.1	17.83	16.57	10.64
viewer_6	screen	cpu (%)	3.1	3.1	1.5	59.5	114	10.9	15.99	14.08	4.6
viewer_6	webcam	memory (MB)	139.97	501.83	36.67	165.12	628.88	42.68	153.06	522.75	39.84

viewer_6	screen	memory (MB)	169.79	222.8	39.34	191.71	548.41	60.29	182.32	469.53	57.91
viewer_7	webcam	cpu (%)	7.7	12.4	1.5	85.8	31	14	18.32	19.2	8.41
viewer_7	screen	cpu (%)	4.6	9.3	0	26.5	80.8	12.4	13.74	19.46	5.69
viewer_7	webcam	memory (MB)	113.59	503.97	35.32	140.47	667.49	39.37	130.45	530.84	36.75
viewer_7	screen	memory (MB)	138.93	450.51	36.86	168	580.56	61.61	154.59	489.05	58.91
viewer_8	webcam	cpu (%)	3.1	0	1.4	42.2	37.2	12.4	11.44	19.37	7.9
viewer_8	screen	cpu (%)	0	0	1.5	74.9	47.4	12.4	11.78	15.95	4.72
viewer_8	webcam	memory (MB)	154.01	461.19	38.4	171.04	599.97	44	162.08	528.8	40.02
viewer_8	screen	memory (MB)	151.86	463.54	53.92	173.55	594.48	61.52	163.22	490.31	60.46
viewer_9	webcam	cpu (%)	3.1	0	3.1	81.2	43.5	20.1	17.72	12.24	10.94
viewer_9	screen	cpu (%)	1.6	1.6	1.5	53.2	88.4	7.8	14.8	14.22	3.38
viewer_9	webcam	memory (MB)	146.59	510.17	37.5	168.24	574.39	42.71	158.02	551.33	38.77
viewer_9	screen	memory (MB)	147.82	465.12	38.09	184.57	558.94	55.19	167.5	488.37	53.49
viewer_10	webcam	cpu (%)	12.5	0	1.5	98.4	24.9	7.7	30.74	10.94	4.38
viewer_10	screen	cpu (%)	17.2	0	0	51.6	24.7	6.2	29.58	8.75	2.6
viewer_10	webcam	memory (MB)	145.68	497.49	36.78	165.43	579.29	41.21	155.36	523.86	38.58
viewer_10	screen	memory (MB)	150.44	229.04	39.91	179.41	615.01	59.29	167.43	479.48	56.49

Lampiran 11 Tabel rangkuman penggunaan CPU-RAM di sisi *client test case 2*

User	Media Stream	Resource	Gmeet Min	Zoom Min	Meetup Min	Gmeet Max	Zoom Max	Meetup Max	Gmeet Avg	Zoom Avg	Meetup Avg
presenter	webcam	cpu (%)	23	32.7	31	174.3	114.5	86.1	56.97	64.87	53.15
presenter	screen	cpu (%)	0	16.6	0	97.7	88.9	109.3	19.98	33.61	62.13
presenter	webcam	memory (MB)	188.39	553.45	92.37	221.26	717.37	109.5	202.02	571.5	99.35
presenter	screen	memory (MB)	296.32	389.52	129.06	335.52	630.27	147.11	317.3	568.06	141.69
viewer_1	webcam	cpu (%)	0	1.6	0	15.6	20.3	14.1	7.01	8.41	4.54
viewer_1	screen	cpu (%)	0	0	0	17.2	12.5	9.4	6.74	5.45	3.76
viewer_1	webcam	memory (MB)	111.63	431.1	32.23	142.33	537.51	47.97	127.44	453.37	41.28
viewer_1	screen	memory (MB)	157.39	446.43	56.78	1779.73	560.58	63.37	234.37	483.63	60.31

viewer_2	webcam	cpu (%)	23.4	9.4	1.6	45.3	37.4	18.8	33.35	22.44	8.11
viewer_2	screen	cpu (%)	20.3	14	3.1	49.9	31.2	40.6	32.65	22.28	19.68
viewer_2	webcam	memory (MB)	0.15	669.54	32.98	182.36	723.04	37.87	147.27	705.78	35.35
viewer_2	screen	memory (MB)	150.52	679.59	45.53	181.83	706.35	60.33	167.93	693.45	57.87
viewer_3	webcam	cpu (%)	7.7	9.3	0	48	35.6	20.3	16.39	17.92	7.24
viewer_3	screen	cpu (%)	7.7	3.1	1.6	23.3	35.7	31.2	12.75	17.19	13.98
viewer_3	webcam	memory (MB)	142.71	426.54	39.35	179.27	505.15	44.04	157.68	493.08	42.17
viewer_3	screen	memory (MB)	126.31	418.38	53.43	159.97	683.33	66.14	145.92	516.91	62.27
viewer_4	webcam	cpu (%)	7.8	4.7	6.2	79.6	196.6	48.4	17.17	20.73	31.22
viewer_4	screen	cpu (%)	1.6	3.1	3.1	15.6	98.3	40.6	9.44	14.77	17.66
viewer_4	webcam	memory (MB)	134.38	430.56	40.71	154.19	497.71	46.17	145.75	473.91	44.25
viewer_4	screen	memory (MB)	150.99	412.27	49.05	175.8	701.87	62.77	164.72	466.99	59.15
viewer_5	webcam	cpu (%)	9.3	9.3	3.1	49.7	35.7	10.9	26.36	21.42	7.15
viewer_5	screen	cpu (%)	4.7	9.3	1.6	24.8	105.4	10.9	11.51	20	5.03
viewer_5	webcam	memory (MB)	137.33	436.16	35.3	160.27	507.37	40.1	144.46	492.41	37.78
viewer_5	screen	memory (MB)	131.26	459.53	35.82	161.04	764.71	65.23	147	684.98	62.26
viewer_6	webcam	cpu (%)	4.6	3.1	3.1	21.7	115.4	10.9	13.46	15.6	6.74
viewer_6	screen	cpu (%)	3.1	4.7	1.6	18.6	29.5	15.5	11.21	11.15	6.49
viewer_6	webcam	memory (MB)	122.35	440.56	35.82	153.22	486.42	42.14	142.79	471.44	39.51
viewer_6	screen	memory (MB)	136.04	382.14	42.02	165.15	479.47	60.34	149.66	425.67	52.64
viewer_7	webcam	cpu (%)	4.7	0	1.6	23.4	25	12.5	10.92	7.72	6.14
viewer_7	screen	cpu (%)	1.6	0	1.6	44.9	63.9	29.7	11.06	7.87	12.18
viewer_7	webcam	memory (MB)	139.46	407.34	35.79	165.75	484.35	40.47	153.04	444.2	38.7
viewer_7	screen	memory (MB)	140.55	291.23	54.35	186.15	524.37	67.38	157.92	436.98	59.07
viewer_8	webcam	cpu (%)	4.7	6.2	1.6	81.1	26.6	14	17.78	15.53	6.13
viewer_8	screen	cpu (%)	7.8	6.2	1.6	25	25	12.5	12.58	14.84	5.52
viewer_8	webcam	memory (MB)	134.86	407.79	33.54	169.58	501.83	38.84	149.67	488.82	36
viewer_8	screen	memory (MB)	129.7	484.98	31.02	152.27	555.05	61.81	141.3	543.52	54.38
viewer_9	webcam	cpu (%)	4.7	4.7	1.6	118.6	15.6	17.2	19.29	8.54	6.6

viewer_9	screen	cpu (%)	3.1	1.6	1.6	15.6	23.4	46.9	8.36	9.09	19.3
viewer_9	webcam	memory (MB)	122.12	416.53	34.72	160.01	527.82	39.24	146.73	465.65	37.48
viewer_9	screen	memory (MB)	139.57	416.2	51.02	164.95	524.48	63.3	147.4	459.76	58.22
viewer_10	webcam	cpu (%)	7.8	6.2	1.6	20.3	35.8	14	13.07	16.58	7.92
viewer_10	screen	cpu (%)	4.7	9.4	1.6	14	90.6	37.5	8.09	21.87	21.74
viewer_10	webcam	memory (MB)	148.25	411.15	35.27	179.15	482.03	40.05	161.79	457.68	38.42
viewer_10	screen	memory (MB)	139.22	419.32	47.93	164.77	545.69	60.86	153.91	486.6	54.46

Lampiran 12 Tabel rangkuman *Throughput* di sisi *client test case 1*

User	Media	Type	Gmeet Min	Zoom Min	Meetup Min	Gmeet Max	Zoom Max	Meetup Max	Gmeet Avg	Zoom Avg	Meetup Avg
presenter	webcam	download (kbytes)	0	0	0	9.5	34.65	1.79	2.07	7.63	0.42
presenter	screen	download (kbytes)	0.1	0	0.16	8.52	3.42	3.17	1.41	0.23	0.6
presenter	webcam	upload (kbytes)	3.69	0	0.55	124.54	152.44	265.67	25.44	36.65	27.41
presenter	screen	upload (kbytes)	0	0	3.97	167.09	3.02	116.54	24.29	0.35	29.54
viewer_1	webcam	download (kbytes)	0	0	0	144.17	796.08	533.27	23.6	35.24	27.12
viewer_1	screen	download (kbytes)	0	0	0.13	189.57	610.7	302.16	23.55	14.28	62.84
viewer_1	webcam	upload (kbytes)	0.35	0	0	27.54	38.92	6.81	2.52	4.35	0.64
viewer_1	screen	upload (kbytes)	0.21	0	0	80.41	57.02	4.17	2.04	1.18	1.04
viewer_2	webcam	download (kbytes)	0	0	0.41	156.07	640.93	115.78	22.3	35.5	25.09
viewer_2	screen	download (kbytes)	0	0	0	185.96	530.02	166.02	22.73	16.73	48.65
viewer_2	webcam	upload (kbytes)	0	0	0	5.07	55.6	3.47	2.46	4.43	0.61
viewer_2	screen	upload (kbytes)	0	0	0	3.6	78.2	3.72	1.89	1.25	1.38
viewer_3	webcam	download (kbytes)	0	0	0	159.55	441.07	127.91	21.07	30.82	25.92
viewer_3	screen	download (kbytes)	0	0	0	212.47	324.11	176.14	23.35	12.75	49.88
viewer_3	webcam	upload (kbytes)	0	0	0.11	11.38	23.53	3.35	2.56	4.26	0.61
viewer_3	screen	upload (kbytes)	0.42	0	0	31.98	29.59	3.97	2.01	0.97	1.39
viewer_4	webcam	download (kbytes)	0	0	7.43	157.22	541.86	138.53	20.17	34.71	25.99
viewer_4	screen	download (kbytes)	0	0	0.06	189.1	552.83	227.32	21.66	16.21	61.2
viewer_4	webcam	upload (kbytes)	0.78	0	0.22	14.1	25.64	3.83	2.62	4.48	0.69

viewer_4	screen	upload (kbytes)	0.5	0	0	11.75	25.63	4.43	1.98	1.16	0.93
viewer_5	webcam	download (kbytes)	0	0	3.84	212.11	355.38	134.22	19.7	22.19	26.84
viewer_5	screen	download (kbytes)	0	0	0	161.41	537.39	140.77	21.31	12.89	37.16
viewer_5	webcam	upload (kbytes)	0.8	0	0.22	130.12	16.61	2.69	2.73	2.1	0.74
viewer_5	screen	upload (kbytes)	0.64	0	0	10.86	27.63	4.27	1.95	1.07	1.33
viewer_6	webcam	download (kbytes)	0	0	0	249.54	587.36	173.44	19.3	37.46	26.8
viewer_6	screen	download (kbytes)	0	0	0.12	226.82	497.91	193.81	22.23	15.97	19.1
viewer_6	webcam	upload (kbytes)	0.82	0.18	0	121.4	28.67	3.33	2.65	4.38	0.71
viewer_6	screen	upload (kbytes)	0.21	0	0	14.41	32.45	3.19	1.98	1.12	0.96
viewer_7	webcam	download (kbytes)	0	0	0	181.68	527.45	131.87	19.29	34.9	24.7
viewer_7	screen	download (kbytes)	0	0	0	219.4	445.69	165.31	21.48	21.79	46.34
viewer_7	webcam	upload (kbytes)	0.21	0	0.11	61.83	26.34	3.33	2.58	4.42	0.59
viewer_7	screen	upload (kbytes)	0.21	0	0	49.2	30.13	3.89	2.02	1.49	1.51
viewer_8	webcam	download (kbytes)	0	0.1	0	191.94	415.5	125.55	19.31	32.42	25.45
viewer_8	screen	download (kbytes)	0	0	0	223.01	525	166.32	21.06	20.56	39.95
viewer_8	webcam	upload (kbytes)	0.9	0.1	0	85.5	21.81	3.37	2.63	4.26	0.71
viewer_8	screen	upload (kbytes)	0.59	0	0	8.23	28.22	3.92	1.95	1.41	1.31
viewer_9	webcam	download (kbytes)	0	0.1	4.22	162.26	497.18	125.5	19.14	36.47	26.45
viewer_9	screen	download (kbytes)	0	0	0	207.85	514.92	165.33	21.19	25	17.12
viewer_9	webcam	upload (kbytes)	0.89	0	0.28	42.19	319.75	3.1	2.6	10.06	0.85
viewer_9	screen	upload (kbytes)	0.72	0	0	28.36	24.27	4.06	2.03	1.56	1.08
viewer_10	webcam	download (kbytes)	0	0	0.5	179.88	469.76	127.17	19.22	34.88	26.06
viewer_10	screen	download (kbytes)	0	0	0	189.96	527.42	180.08	19.68	13.31	35.52
viewer_10	webcam	upload (kbytes)	0.21	0.1	0	5.69	23.9	2.88	2.57	4.35	0.69
viewer_10	screen	upload (kbytes)	0	0	0	4.01	24.4	3.72	1.92	1.01	1.29

Lampiran 13 Tabel rangkuman *Throughput* di sisi *client test case 2*

User	Media	Type	Gmeet Min	Zoom Min	Meetup Min	Gmeet Max	Zoom Max	Meetup Max	Gmeet Avg	Zoom Avg	Meetup Avg
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presenter	webcam	download (kbytes)	0.67	0	0	54.93	24.68	8.23	2.66	7.1	0.47
presenter	screen	download (kbytes)	0	0	0	36.09	365.61	11.85	2.18	1.6	0.48
presenter	webcam	upload (kbytes)	11.53	0	2.22	124.6	201.96	321.36	35.02	39.29	30.33
presenter	screen	upload (kbytes)	7.13	0	0.21	152.03	14.54	248.97	19.79	0.42	18.13
viewer_1	webcam	download (kbytes)	0	0	0	202.14	224.81	233.46	32.22	26.34	24.55
viewer_1	screen	download (kbytes)	0	0	0	149.68	976.01	259.63	17.07	9.26	15.78
viewer_1	webcam	upload (kbytes)	1.13	0.1	0.11	20.57	15.96	2.47	2.39	3.66	0.54
viewer_1	screen	upload (kbytes)	0.31	0	0	10.61	66.53	2.64	1.74	0.82	0.45
viewer_2	webcam	download (kbytes)	0	0	0	162.45	280.66	190.22	28.33	31.99	23.11
viewer_2	screen	download (kbytes)	0	0	0	159.7	89.88	265.62	17.19	0.53	16.01
viewer_2	webcam	upload (kbytes)	0	0	0.11	6.24	35.45	2.59	2.59	3.62	0.54
viewer_2	screen	upload (kbytes)	0.69	0.16	0	4.08	8.25	3.25	1.51	0.69	0.45
viewer_3	webcam	download (kbytes)	1.64	0.31	0	154.41	217.06	74.42	30.29	25.99	22.25
viewer_3	screen	download (kbytes)	0	0	0	195.11	963.48	496.85	16.38	35.91	15.56
viewer_3	webcam	upload (kbytes)	1.08	0.1	0	17.95	14.4	3.01	2.47	3.62	0.43
viewer_3	screen	upload (kbytes)	0.46	0	0	10.61	44.51	3.07	1.7	2.15	0.42
viewer_4	webcam	download (kbytes)	9.16	0.31	0	128.51	189.04	214.96	26.8	32.42	23.27
viewer_4	screen	download (kbytes)	0.12	0	0	190.35	624.14	262.16	11.37	4.81	17.02
viewer_4	webcam	upload (kbytes)	1.35	0.39	0	6.03	19.08	6.89	2.25	4.2	0.58
viewer_4	screen	upload (kbytes)	0.46	0	0	2.8	52.53	6.93	1.14	0.68	0.46
viewer_5	webcam	download (kbytes)	11.61	0.6	0	121.82	194.24	185.09	24.7	33.14	21.57
viewer_5	screen	download (kbytes)	0.12	0	0	117.24	678.95	334.42	11.34	2.16	19.23
viewer_5	webcam	upload (kbytes)	1.38	0.3	0.11	5.17	16.47	2.55	2.26	4.25	0.55
viewer_5	screen	upload (kbytes)	0.44	0	0	3.92	46.41	9.49	1.16	0.47	0.54
viewer_6	webcam	download (kbytes)	11.03	0.14	0	113.55	191.87	255.11	21.65	33.76	26.29
viewer_6	screen	download (kbytes)	0.12	0	0	190.41	511.34	97.38	11.21	2.16	13.33
viewer_6	webcam	upload (kbytes)	1.26	0	0	5.06	12.33	4.4	2.24	4.3	0.5
viewer_6	screen	upload (kbytes)	0.44	0	0	3.49	24.93	6.38	1.17	0.45	0.53
viewer_7	webcam	download (kbytes)	4.6	0	0	153.81	252.09	278.15	23.7	27.02	20.87

viewer_7	screen	download (kbytes)	0	0	0	191.67	1073.74	216.31	17.42	65.82	13.94
viewer_7	webcam	upload (kbytes)	0.84	0.09	0.11	3.63	16.03	2.48	2.07	3.87	0.56
viewer_7	screen	upload (kbytes)	0.41	0	0	4.27	49.67	2.48	1.35	3.67	0.47
viewer_8	webcam	download (kbytes)	4.29	0	0	145.16	161.29	164.09	23.49	24.39	20.53
viewer_8	screen	download (kbytes)	0	0	0	166.01	350.12	182.11	17.34	5.72	14.24
viewer_8	webcam	upload (kbytes)	0.98	0.1	0.11	6.13	13.38	2.59	2.27	3.57	0.55
viewer_8	screen	upload (kbytes)	0.46	0	0	8.41	16.29	4.37	1.78	0.62	0.49
viewer_9	webcam	download (kbytes)	5.42	0	0	129.54	185.35	159.26	23.25	24.58	20.86
viewer_9	screen	download (kbytes)	0	0	0	145.64	660.66	148.04	13.56	8.19	14.01
viewer_9	webcam	upload (kbytes)	1.33	0.18	0.11	10.44	14.13	2.59	2.42	3.73	0.56
viewer_9	screen	upload (kbytes)	0.44	0	0	8.37	31.47	2.65	1.79	0.74	0.47
viewer_10	webcam	download (kbytes)	8.08	0	0	121.56	49.24	417.41	25.29	15.35	21.25
viewer_10	screen	download (kbytes)	0	0	0	110.74	182.92	170.99	13.98	1.3	13.63
viewer_10	webcam	upload (kbytes)	1.09	0.09	0.11	8.43	13	2.47	2.71	3.54	0.55
viewer_10	screen	upload (kbytes)	0.53	0	0.11	9.17	11.69	2.59	1.87	0.44	0.48

Lampiran 14 Lembar Perbaikan Skripsi

LEMBAR PERBAIKAN SKRIPSI

“IMPLEMENTASI VIDEO CONFERENCE ONE-TO-MANY BERBASIS
TEKNOLOGI WEBRTC MENGGUNAKAN MEDIA SERVER UNTUK
PEMBELAJARAN ONLINE”



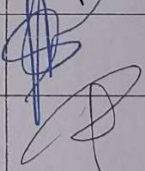
OLEH:

IRHAM SAHBANA
D42116513


Skripsi ini telah dipertahankan pada Ujian Akhir Sarjana tanggal 1 Agustus 2023.

Telah dilakukan perbaikan penulisan dan isi skripsi berdasarkan usulan dari penguji dan pembimbing skripsi.

Persetujuan perbaikan oleh tim penguji:

Jabatan	Nama	Tanda Tangan
Ketua	Dr. Ir. Muhammad Niswar, S.T., M.IT.	
Sekretaris	Iqra Aswad. S.T., M.T.	
Anggota	Dr. Ir. Amil Ahmad Ilham, S.T., M.IT.	
	Dr. Eng. Ady Wahyudi Paundu. S.T., M.T.	

Persetujuan Perbaikan oleh pembimbing:

Pembimbing	Nama	Tanda Tangan
I	Dr. Ir. Muhammad Niswar, S.T., M.IT.	
II	Iqra Aswad. S.T., M.T.	