
SUPPLEMENTARY MATERIAL FOR: COMPARATIVE ANALYSIS OF DEEP LEARNING MODELS FOR REAL-WORLD ISP NETWORK TRAFFIC FORECASTING

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ABSTRACT

Supplementary material for article which contains results of forecasting on all time series metric in the dataset.

1 Results for average_n_dest_asn

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	Training window	Prediction window	Mean	GRU	LSTM	GRU-FCN	LSTM-FCN	InceptionTime	ResNet	RC-LSTM
Inst.	24	1	21.4 (12)	15.3 (19)	15.9 (19)	15.5 (19)	16.2 (20)	16.9 (21)	16.7 (20)	16.5 (18)
	168	1	24.5 (13)	16.0 (19)	16.1 (19)	18.0 (22)	18.2 (21)	23.2 (23)	21.0 (23)	17.2 (21)
	168	24	24.7 (14)	32.8 (31)	32.7 (30)	25.3 (22)	29.5 (26)	52.5 (37)	47.4 (40)	36.0 (23)
	744	1	25.9 (15)	16.1 (19)	16.1 (19)	25.9 (26)	28.9 (25)	34.9 (29)	38.5 (36)	16.4 (18)
	744	168	26.1 (14)	37.1 (33)	37.3 (33)	32.3 (24)	38.2 (31)	51.2 (36)	56.2 (50)	182.4 (10)
Inst. subnets	24	1	23.1 (22)	22.3 (31)	23.1 (31)	22.2 (32)	23.1 (32)	23.6 (32)	24.5 (32)	23.7 (30)
	168	1	26.2 (24)	22.9 (32)	23.3 (31)	22.9 (33)	25.0 (33)	31.0 (33)	30.1 (34)	23.6 (30)
	168	24	26.5 (24)	38.5 (38)	38.5 (38)	32.4 (33)	35.8 (35)	57.5 (39)	51.6 (42)	43.2 (33)
	744	1	28.2 (24)	22.4 (31)	23.4 (32)	31.0 (36)	35.3 (33)	42.5 (37)	45.6 (40)	23.1 (30)
	744	168	28.6 (24)	42.9 (40)	43.1 (40)	39.6 (33)	44.9 (38)	56.7 (39)	61.1 (50)	181.9 (10)
IP addr.	24	1	55.7 (36)	168.6 (55)	168.6 (55)	167.6 (56)	167.4 (56)	167.6 (54)	168.3 (54)	144.8 (66)
	168	1	118.9 (62)	168.7 (55)	168.4 (55)	169.5 (55)	169.3 (54)	169.5 (51)	169.9 (52)	148.4 (64)
	168	24	119.2 (62)	173.9 (53)	173.8 (53)	171.5 (53)	171.7 (52)	171.4 (44)	176.3 (48)	172.0 (50)
	744	1	145.3 (63)	169.0 (55)	169.1 (55)	172.2 (52)	171.8 (51)	172.1 (48)	174.3 (45)	156.1 (61)
	744	168	145.6 (62)	175.2 (50)	175.2 (51)	171.8 (51)	174.2 (50)	171.1 (44)	177.9 (46)	195.6 (7)

Table 1: SMAPE for average_n_dest_asn

	Training window	Prediction window	Mean	GRU	LSTM	GRU-FCN	LSTM-FCN	InceptionTime	ResNet	RC-LSTM
Inst.	24	1	0.24 (0.2)	0.57 (0.5)	0.53 (0.6)	0.54 (0.7)	0.53 (0.7)	0.41 (0.9)	0.36 (1.2)	0.39 (0.6)
	168	1	0.12 (0.1)	0.54 (0.8)	0.51 (0.9)	0.42 (1.0)	0.35 (1.2)	-0.37 (2.2)	-0.14 (2.2)	0.32 (1.1)
	168	24	0.1 (0.1)	-0.78 (2.0)	-0.83 (2.0)	-0.31 (1.6)	-0.61 (1.8)	-3.4 (3.7)	-2.14 (2.9)	-1.48 (2.5)
	744	1	0.05 (0.1)	0.55 (0.7)	0.53 (0.8)	-0.2 (1.8)	-0.57 (2.1)	-1.5 (3.1)	-2.27 (4.0)	0.38 (0.9)
	744	168	0.01 (0.1)	-1.0 (2.1)	-1.11 (2.2)	-1.13 (2.4)	-1.3 (2.6)	-3.23 (3.7)	-2.43 (3.3)	-7.92 (3.0)
Inst. subnets	24	1	0.29 (0.2)	0.36 (0.8)	0.32 (0.9)	0.36 (0.8)	0.33 (1.0)	0.16 (1.2)	0.02 (1.4)	0.17 (0.9)
	168	1	0.17 (0.2)	0.36 (0.7)	0.3 (0.9)	0.35 (0.8)	0.15 (1.3)	-0.96 (2.7)	-0.86 (2.8)	0.17 (0.9)
	168	24	0.14 (0.2)	-1.04 (1.9)	-1.03 (1.9)	-0.67 (1.8)	-0.84 (1.8)	-4.12 (4.0)	-2.54 (3.2)	-2.14 (2.9)
	744	1	0.07 (0.1)	0.35 (0.9)	0.3 (0.9)	-0.26 (1.8)	-0.86 (2.2)	-2.07 (3.4)	-2.76 (4.0)	0.21 (0.8)
	744	168	0.02 (0.1)	-1.28 (2.1)	-1.33 (2.1)	-1.68 (2.7)	-1.84 (2.8)	-3.99 (3.9)	-3.18 (3.6)	-7.92 (3.1)
IP addr.	24	1	0.12 (0.2)	-0.21 (1.5)	-0.24 (1.6)	0.11 (0.5)	-0.03 (1.1)	-0.78 (2.2)	-0.18 (1.2)	0.06 (1.0)
	168	1	0.08 (0.1)	-0.23 (1.5)	-0.25 (1.6)	0.02 (0.6)	-0.09 (1.1)	-1.33 (2.7)	-1.31 (3.0)	0.04 (1.0)
	168	24	0.06 (0.1)	-0.41 (1.3)	-0.36 (1.2)	-0.28 (1.1)	-0.52 (1.8)	-8.55 (3.0)	-0.73 (1.9)	-0.9 (2.1)
	744	1	0.01 (0.4)	-0.2 (1.5)	-0.31 (1.7)	-0.44 (1.6)	-0.74 (2.2)	-1.98 (3.2)	-1.81 (3.3)	-0.08 (1.4)
	744	168	-0.02 (0.5)	-0.6 (1.6)	-0.49 (1.4)	-1.55 (2.7)	-0.85 (2.0)	-8.53 (3.0)	-1.15 (2.4)	-1.78 (3.0)

Table 2: R2-score for average_n_dest_asn

	Training window	Prediction window	Mean	GRU	LSTM	GRU-FCN	LSTM-FCN	InceptionTime	ResNet	RC-LSTM
Inst.	24	1	0.109 (0.08)	0.064 (0.06)	0.066 (0.06)	0.066 (0.06)	0.067 (0.06)	0.073 (0.08)	0.072 (0.07)	0.077 (0.06)
	168	1	0.118 (0.09)	0.065 (0.06)	0.066 (0.06)	0.071 (0.06)	0.073 (0.07)	0.103 (0.1)	0.089 (0.09)	0.111 (0.59)
	168	24	0.119 (0.09)	0.127 (0.08)	0.129 (0.08)	0.108 (0.08)	0.122 (0.09)	0.219 (0.11)	0.171 (0.09)	0.189 (0.59)
	744	1	0.123 (0.1)	0.065 (0.06)	0.066 (0.06)	0.102 (0.1)	0.117 (0.09)	0.151 (0.12)	0.181 (0.18)	0.074 (0.06)
	744	168	0.125 (0.1)	0.131 (0.08)	0.134 (0.08)	0.136 (0.09)	0.139 (0.08)	0.218 (0.11)	0.18 (0.11)	0.411 (0.17)
Inst. subnets	24	1	0.11 (0.15)	0.075 (0.1)	0.078 (0.11)	0.077 (0.11)	0.08 (0.12)	0.086 (0.12)	0.089 (0.12)	0.089 (0.12)
	168	1	0.123 (0.2)	0.077 (0.11)	0.078 (0.11)	0.079 (0.12)	0.087 (0.12)	0.12 (0.13)	0.114 (0.13)	0.089 (0.12)
	168	24	0.126 (0.22)	0.134 (0.12)	0.136 (0.12)	0.12 (0.12)	0.129 (0.13)	0.232 (0.13)	0.177 (0.14)	0.238 (0.85)
	744	1	0.134 (0.24)	0.076 (0.11)	0.079 (0.11)	0.104 (0.13)	0.125 (0.11)	0.167 (0.15)	0.19 (0.18)	0.085 (0.11)
	744	168	0.138 (0.26)	0.14 (0.12)	0.142 (0.12)	0.147 (0.12)	0.151 (0.12)	0.232 (0.13)	0.192 (0.14)	0.403 (0.46)
IP addr.	24	1	0.139 (0.49)	0.084 (0.07)	0.086 (0.07)	0.082 (0.07)	0.083 (0.07)	0.098 (0.08)	0.09 (0.08)	0.087 (0.1)
	168	1	0.148 (0.5)	0.085 (0.07)	0.085 (0.07)	0.087 (0.08)	0.087 (0.08)	0.115 (0.1)	0.131 (0.15)	0.086 (0.1)
	168	24	0.15 (0.51)	0.103 (0.09)	0.103 (0.09)	0.097 (0.08)	0.099 (0.08)	0.445 (0.09)	0.114 (0.1)	0.15 (0.58)
	744	1	0.156 (0.52)	0.086 (0.07)	0.088 (0.07)	0.102 (0.09)	0.108 (0.11)	0.134 (0.12)	0.152 (0.16)	0.082 (0.07)
	744	168	0.159 (0.53)	0.111 (0.09)	0.109 (0.09)	0.122 (0.08)	0.114 (0.09)	0.448 (0.09)	0.124 (0.1)	0.169 (0.58)

Table 3: RMSE for average_n_dest_asn

	Training window	Prediction window	Mean	GRU	LSTM	GRU-FCN	LSTM-FCN	InceptionTime	ResNet	RC-LSTM
Inst.	24	1	0.18303	0.10204	0.10545	0.10579	0.10806	0.12052	0.11858	0.12728
	168	1	0.19956	0.10413	0.1068	0.11614	0.12055	0.17834	0.1519	0.16308
	168	24	0.2022	0.22543	0.22976	0.18811	0.21522	0.40598	0.31208	0.31542
	744	1	0.2088	0.10466	0.10607	0.17603	0.20646	0.2718	0.33091	0.12213
	744	168	0.21322	0.23317	0.23898	0.24173	0.24899	0.4017	0.32851	0.77616
Inst. subnets	24	1	0.16687	0.12266	0.12686	0.12572	0.13069	0.14318	0.14871	0.14735
	168	1	0.18736	0.12489	0.1284	0.13004	0.14458	0.20981	0.19863	0.14719
	168	24	0.19123	0.23577	0.23951	0.20963	0.22719	0.4289	0.32144	0.37504
	744	1	0.20362	0.12386	0.12916	0.17876	0.22021	0.30063	0.34589	0.14068
	744	168	0.21081	0.24752	0.25086	0.26211	0.27021	0.42678	0.3497	0.74446
IP addr.	24	1	0.17569	0.14831	0.1509	0.14379	0.14625	0.17496	0.15873	0.14971
	168	1	0.18576	0.14894	0.1503	0.15343	0.15329	0.20806	0.23885	0.14757
	168	24	0.18856	0.18484	0.18441	0.1733	0.17577	0.84252	0.206	0.22463
	744	1	0.19594	0.15243	0.15468	0.1827	0.19572	0.24619	0.27755	0.14286
	744	168	0.20074	0.20015	0.19576	0.22158	0.20536	0.84636	0.22555	0.26408

Table 4: Harmonic Score for average_n_dest_asn

	Training window	Prediction window	Mean	GRU	LSTM	GRU-FCN	LSTM-FCN	InceptionTime	ResNet	RC-LSTM
Inst.	24	1	35.9 (18)	20.7 (21)	21.9 (23)	20.6 (24)	22.7 (22)	22.6 (26)	22.0 (24)	22.1 (22)
	168	1	43.0 (23)	21.2 (22)	23.3 (23)	24.6 (28)	25.0 (24)	30.6 (28)	28.2 (30)	21.4 (19)
	168	24	43.3 (23)	45.2 (36)	46.9 (36)	36.9 (30)	43.1 (36)	73.6 (41)	69.9 (48)	46.8 (26)
	744	1	45.3 (24)	23.0 (24)	22.8 (22)	34.8 (32)	40.3 (30)	49.8 (36)	52.7 (48)	21.3 (20)
	744	168	45.3 (24)	60.8 (46)	60.4 (45)	40.7 (28)	60.2 (43)	72.8 (41)	80.9 (55)	175.7 (14)
Inst. subnets	24	1	33.2 (24)	27.3 (32)	28.1 (32)	26.5 (34)	27.9 (32)	28.8 (34)	28.6 (34)	27.2 (31)
	168	1	38.9 (28)	27.4 (32)	28.4 (32)	29.3 (34)	31.0 (34)	37.1 (35)	34.6 (34)	26.8 (30)
	168	24	39.4 (28)	49.1 (42)	50.4 (42)	41.1 (36)	46.6 (41)	74.8 (42)	68.9 (49)	51.0 (33)
	744	1	41.8 (29)	27.9 (33)	28.7 (32)	38.3 (37)	43.1 (35)	52.5 (39)	57.5 (47)	26.1 (30)
	744	168	42.2 (28)	61.2 (48)	61.1 (48)	46.1 (35)	61.2 (44)	74.3 (42)	80.4 (55)	176.7 (13)
IP addr.	24	1	56.3 (35)	169.9 (54)	169.6 (54)	168.4 (54)	168.7 (54)	168.2 (53)	169.0 (53)	147.2 (65)
	168	1	119.6 (61)	170.1 (54)	169.8 (54)	170.5 (53)	169.8 (54)	169.0 (51)	170.6 (51)	150.1 (64)
	168	24	119.9 (61)	176.4 (50)	176.5 (50)	173.0 (52)	173.6 (50)	175.3 (39)	178.4 (45)	173.0 (48)
	744	1	146.0 (61)	170.6 (54)	170.2 (54)	173.6 (50)	172.8 (50)	172.2 (47)	174.8 (46)	156.1 (62)
	744	168	146.3 (61)	178.3 (46)	178.4 (46)	173.2 (47)	176.5 (46)	175.1 (39)	180.9 (41)	194.6 (9)

Table 5: SMAPE for average_n_dest_ip

2 Results for average_n_dest_ip

	Training window	Prediction window	Mean	GRU	LSTM	GRU-FCN	LSTM-FCN	InceptionTime	ResNet	RC-LSTM
Inst.	24	1	0.22 (0.2)	0.66 (0.7)	0.63 (0.7)	0.65 (0.8)	0.65 (0.7)	0.59 (0.8)	0.6 (0.8)	0.62 (0.7)
	168	1	0.1 (0.2)	0.68 (0.4)	0.64 (0.6)	0.57 (1.0)	0.56 (1.0)	0.21 (1.5)	0.21 (1.6)	0.64 (0.7)
	168	24	0.08 (0.2)	-0.32 (1.8)	-0.36 (1.8)	0.06 (1.2)	-0.06 (1.3)	-3.01 (3.4)	-1.26 (2.2)	-0.66 (1.7)
	744	1	0.04 (0.1)	0.64 (0.7)	0.63 (0.7)	0.18 (1.4)	-0.1 (1.7)	-0.78 (2.4)	-1.69 (3.7)	0.65 (0.7)
	744	168	0.01 (0.1)	-0.42 (1.8)	-0.45 (1.8)	-0.4 (1.8)	-0.51 (1.9)	-2.93 (3.4)	-1.54 (2.7)	-4.88 (3.5)
Inst. subnets	24	1	0.28 (0.2)	0.52 (0.7)	0.5 (0.7)	0.52 (0.8)	0.49 (0.8)	0.39 (1.0)	0.39 (0.8)	0.48 (0.8)
	168	1	0.14 (0.2)	0.48 (0.9)	0.49 (0.7)	0.43 (1.0)	0.41 (0.9)	-0.23 (2.0)	-0.25 (2.0)	0.5 (0.8)
	168	24	0.12 (0.2)	-0.48 (1.6)	-0.51 (1.6)	-0.16 (1.3)	-0.31 (1.5)	-3.86 (3.8)	-1.79 (2.7)	-1.05 (1.9)
	744	1	0.06 (0.2)	0.49 (0.8)	0.45 (0.9)	0.04 (1.4)	-0.26 (1.5)	-1.35 (2.8)	-2.22 (3.8)	0.55 (0.6)
	744	168	0.01 (0.2)	-0.64 (1.6)	-0.64 (1.7)	-0.72 (1.8)	-0.96 (2.1)	-3.8 (3.8)	-2.01 (2.8)	-5.58 (3.6)
IP addr.	24	1	0.11 (0.2)	-0.24 (1.6)	-0.27 (1.7)	0.11 (0.4)	-0.02 (1.0)	-0.86 (2.3)	-0.23 (1.4)	0.12 (0.7)
	168	1	0.07 (0.1)	-0.21 (1.5)	-0.25 (1.6)	0.04 (0.5)	-0.0 (0.7)	-1.16 (2.5)	-1.07 (2.7)	0.09 (0.8)
	168	24	0.06 (0.1)	-0.27 (1.0)	-0.26 (0.9)	-0.22 (1.0)	-0.39 (1.5)	-8.78 (2.8)	-0.72 (1.9)	-0.82 (2.1)
	744	1	-0.0 (0.6)	-0.26 (1.5)	-0.31 (1.7)	-0.35 (1.4)	-0.64 (2.1)	-1.82 (3.1)	-1.39 (2.9)	-0.01 (1.2)
	744	168	-0.03 (0.6)	-0.53 (1.5)	-0.39 (1.2)	-1.77 (2.9)	-0.89 (2.2)	-8.77 (2.8)	-1.03 (2.2)	-1.61 (2.7)

Table 6: R2-score for average_n_dest_ip

	Training window	Prediction window	Mean	GRU	LSTM	GRU-FCN	LSTM-FCN	InceptionTime	ResNet	RC-LSTM
Inst.	24	1	0.163 (0.22)	0.084 (0.15)	0.088 (0.15)	0.085 (0.16)	0.089 (0.17)	0.093 (0.19)	0.091 (0.18)	0.128 (0.61)
	168	1	0.174 (0.23)	0.085 (0.15)	0.089 (0.15)	0.094 (0.17)	0.094 (0.16)	0.119 (0.19)	0.115 (0.2)	0.092 (0.15)
	168	24	0.176 (0.23)	0.163 (0.18)	0.167 (0.17)	0.144 (0.18)	0.149 (0.18)	0.288 (0.17)	0.212 (0.19)	0.224 (0.61)
	744	1	0.18 (0.24)	0.088 (0.15)	0.091 (0.16)	0.128 (0.19)	0.146 (0.19)	0.183 (0.2)	0.221 (0.26)	0.091 (0.16)
	744	168	0.182 (0.25)	0.166 (0.18)	0.168 (0.18)	0.166 (0.19)	0.172 (0.19)	0.288 (0.17)	0.218 (0.19)	0.385 (0.22)
Inst. subnets	24	1	0.176 (0.5)	0.098 (0.26)	0.101 (0.26)	0.099 (0.27)	0.102 (0.26)	0.107 (0.28)	0.108 (0.28)	0.125 (0.51)
	168	1	0.192 (0.53)	0.099 (0.26)	0.102 (0.26)	0.105 (0.27)	0.108 (0.27)	0.139 (0.28)	0.135 (0.28)	0.106 (0.27)
	168	24	0.195 (0.53)	0.167 (0.27)	0.17 (0.27)	0.151 (0.28)	0.157 (0.28)	0.296 (0.26)	0.216 (0.28)	0.269 (0.88)
	744	1	0.203 (0.54)	0.1 (0.26)	0.104 (0.26)	0.133 (0.28)	0.152 (0.27)	0.198 (0.28)	0.234 (0.32)	0.102 (0.27)
	744	168	0.209 (0.55)	0.173 (0.27)	0.174 (0.27)	0.176 (0.28)	0.183 (0.27)	0.296 (0.26)	0.222 (0.28)	0.389 (0.51)
IP addr.	24	1	0.164 (0.62)	0.084 (0.17)	0.085 (0.17)	0.082 (0.18)	0.083 (0.18)	0.097 (0.18)	0.089 (0.18)	0.088 (0.21)
	168	1	0.178 (0.68)	0.085 (0.17)	0.085 (0.17)	0.086 (0.18)	0.085 (0.17)	0.105 (0.17)	0.118 (0.2)	0.087 (0.2)
	168	24	0.181 (0.69)	0.1 (0.18)	0.101 (0.18)	0.096 (0.18)	0.097 (0.18)	0.46 (0.16)	0.113 (0.19)	0.147 (0.61)
	744	1	0.191 (0.74)	0.086 (0.17)	0.087 (0.16)	0.098 (0.18)	0.102 (0.18)	0.125 (0.19)	0.127 (0.2)	0.081 (0.18)
	744	168	0.196 (0.77)	0.108 (0.18)	0.106 (0.18)	0.123 (0.18)	0.112 (0.18)	0.461 (0.16)	0.122 (0.19)	0.165 (0.61)

Table 7: RMSE for average_n_dest_ip

	Training window	Prediction window	Mean	GRU	LSTM	GRU-FCN	LSTM-FCN	InceptionTime	ResNet	RC-LSTM
Inst.	24	1	0.24501	0.11374	0.12007	0.1147	0.12159	0.12973	0.12504	0.14869
	168	1	0.26603	0.11493	0.12279	0.13177	0.13315	0.17845	0.1708	0.12702
	168	24	0.26919	0.26155	0.26969	0.22496	0.23613	0.50765	0.35914	0.33209
	744	1	0.27593	0.12061	0.12576	0.19527	0.23117	0.30281	0.37527	0.12565
	744	168	0.28078	0.26777	0.27158	0.26751	0.2791	0.50685	0.36912	0.69377
Inst. subnets	24	1	0.21503	0.13372	0.13856	0.1347	0.14048	0.15066	0.1518	0.15835
	168	1	0.24098	0.1359	0.14046	0.14684	0.15273	0.21065	0.20402	0.14448
	168	24	0.24585	0.26389	0.27033	0.23405	0.24538	0.51721	0.36011	0.37187
	744	1	0.2584	0.13758	0.14366	0.1992	0.23748	0.32656	0.39646	0.13963
	744	168	0.26651	0.27651	0.27755	0.28223	0.29427	0.5165	0.37157	0.68217
IP addr.	24	1	0.17345	0.14174	0.14266	0.13801	0.13998	0.1659	0.15002	0.14263
	168	1	0.18457	0.14288	0.14359	0.14492	0.14279	0.18327	0.20671	0.14197
	168	24	0.18762	0.17245	0.17312	0.16345	0.16526	0.86274	0.19744	0.20589
	744	1	0.19503	0.14552	0.14663	0.16784	0.17663	0.22149	0.2248	0.1348
	744	168	0.2001	0.18669	0.18344	0.21767	0.19468	0.86521	0.215	0.2417

Table 8: Harmonic Score for average_n_dest_ip

	Training window	Prediction window	Mean	GRU	LSTM	GRU-FCN	LSTM-FCN	InceptionTime	ResNet	RC-LSTM
Inst.	24	1	19.8 (12)	35.1 (35)	33.1 (29)	35.5 (36)	32.6 (28)	51.4 (48)	32.0 (29)	23.8 (21)
	168	1	23.7 (15)	33.4 (31)	32.2 (27)	36.6 (35)	32.9 (29)	54.0 (40)	40.9 (32)	23.5 (21)
	168	24	24.2 (15)	113.4 (69)	108.4 (66)	76.3 (54)	89.3 (51)	129.9 (56)	108.5 (58)	45.0 (29)
	744	1	27.4 (18)	34.6 (32)	31.9 (27)	54.0 (42)	54.3 (38)	64.1 (41)	65.9 (41)	23.2 (22)
	744	168	28.4 (18)	108.0 (54)	107.6 (56)	75.6 (46)	89.2 (51)	128.3 (57)	132.7 (64)	158.5 (20)
Inst. subnets	24	1	23.5 (21)	40.0 (41)	38.0 (36)	44.4 (44)	40.6 (37)	63.0 (54)	37.1 (35)	30.0 (32)
	168	1	27.5 (24)	38.0 (37)	37.4 (35)	43.3 (40)	38.0 (37)	61.2 (44)	48.5 (39)	29.8 (31)
	168	24	28.0 (24)	115.3 (70)	110.3 (67)	81.7 (55)	85.3 (51)	130.8 (58)	113.0 (62)	51.4 (36)
	744	1	31.1 (25)	37.8 (37)	38.8 (36)	64.8 (52)	60.3 (43)	69.4 (44)	72.6 (46)	29.0 (31)
	744	168	32.1 (25)	107.1 (56)	106.7 (57)	80.4 (50)	83.9 (51)	128.7 (60)	135.3 (66)	160.6 (21)
IP addr.	24	1	56.1 (35)	169.7 (53)	169.6 (53)	169.7 (52)	168.3 (53)	170.5 (49)	168.2 (52)	148.8 (64)
	168	1	119.5 (61)	169.6 (53)	169.7 (53)	171.1 (52)	170.1 (52)	171.4 (47)	171.0 (48)	149.0 (63)
	168	24	119.8 (61)	180.2 (43)	179.7 (43)	174.9 (47)	175.1 (46)	176.5 (38)	180.5 (42)	172.7 (49)
	744	1	146.0 (62)	170.0 (53)	169.9 (53)	175.2 (47)	173.5 (48)	174.5 (44)	175.2 (44)	156.0 (61)
	744	168	146.4 (61)	179.8 (42)	179.8 (42)	175.5 (45)	176.5 (46)	176.1 (39)	182.3 (40)	194.1 (12)

Table 9: SMAPE for average_n_dest_ports

3 Results for average_n_dest_ports

	Training window	Prediction window	Mean	GRU	LSTM	GRU-FCN	LSTM-FCN	InceptionTime	ResNet	RC-LSTM
Inst.	24	1	0.27 (0.2)	-0.25 (1.4)	-0.28 (1.4)	-0.52 (2.3)	-0.51 (2.2)	-1.87 (3.7)	-0.61 (2.2)	0.15 (0.8)
	168	1	0.15 (0.2)	-0.31 (1.6)	-0.29 (1.5)	-0.38 (1.8)	-0.41 (1.8)	-2.32 (3.6)	-1.21 (2.7)	0.15 (0.8)
	168	24	0.12 (0.3)	-3.0 (3.6)	-2.92 (3.5)	-1.88 (2.9)	-2.59 (3.3)	-7.89 (3.7)	-3.87 (3.8)	-1.21 (2.0)
	744	1	0.02 (0.2)	-0.38 (1.7)	-0.3 (1.6)	-1.44 (2.8)	-1.51 (2.7)	-3.23 (3.8)	-2.93 (3.8)	0.11 (0.9)
	744	168	-0.04 (0.3)	-3.19 (3.5)	-3.13 (3.5)	-2.99 (3.5)	-2.78 (3.2)	-7.71 (3.9)	-4.05 (3.7)	-6.67 (3.7)
Inst. subnets	24	1	0.29 (0.2)	-0.45 (1.7)	-0.42 (1.6)	-1.0 (2.8)	-0.92 (2.6)	-2.65 (4.2)	-0.73 (2.1)	0.03 (0.9)
	168	1	0.17 (0.2)	-0.47 (1.7)	-0.43 (1.6)	-0.59 (1.9)	-0.42 (1.7)	-3.13 (4.0)	-1.9 (3.3)	0.03 (0.9)
	168	24	0.14 (0.2)	-3.17 (3.7)	-3.13 (3.6)	-2.19 (2.9)	-2.55 (3.0)	-7.82 (3.6)	-4.05 (3.8)	-1.57 (2.3)
	744	1	0.04 (0.2)	-0.43 (1.8)	-0.45 (1.7)	-1.7 (3.0)	-1.74 (2.8)	-3.82 (4.1)	-3.33 (3.8)	-0.02 (1.1)
	744	168	-0.02 (0.2)	-3.25 (3.4)	-3.17 (3.4)	-3.66 (3.9)	-3.08 (3.3)	-7.53 (3.9)	-4.46 (3.8)	-7.0 (3.7)
IP addr.	24	1	0.11 (0.2)	-0.26 (1.7)	-0.3 (1.7)	0.02 (0.9)	-0.05 (1.1)	-1.14 (2.8)	-0.27 (1.4)	0.09 (0.8)
	168	1	0.07 (0.1)	-0.23 (1.5)	-0.27 (1.6)	-0.04 (0.8)	-0.14 (1.3)	-1.47 (2.9)	-1.32 (2.9)	0.05 (1.0)
	168	24	0.05 (0.1)	-0.52 (1.6)	-0.52 (1.6)	-0.34 (1.4)	-0.58 (1.9)	-8.37 (3.1)	-0.65 (1.8)	-0.82 (2.1)
	744	1	0.0 (0.4)	-0.3 (1.6)	-0.31 (1.7)	-0.49 (1.6)	-0.8 (2.3)	-2.06 (3.4)	-1.84 (3.4)	-0.09 (1.3)
	744	168	-0.02 (0.5)	-0.66 (1.8)	-0.55 (1.6)	-1.78 (3.1)	-1.06 (2.5)	-8.3 (3.1)	-1.15 (2.5)	-1.76 (3.0)

Table 10: R2-score for average_n_dest_ports

	Training window	Prediction window	Mean	GRU	LSTM	GRU-FCN	LSTM-FCN	InceptionTime	ResNet	RC-LSTM
Inst.	24	1	0.076 (0.14)	0.095 (0.6)	0.096 (0.6)	0.096 (0.6)	0.097 (0.6)	0.108 (0.6)	0.102 (0.6)	0.108 (0.6)
	168	1	0.085 (0.17)	0.095 (0.6)	0.096 (0.6)	0.099 (0.6)	0.101 (0.6)	0.124 (0.6)	0.12 (0.6)	0.104 (0.6)
	168	24	0.087 (0.18)	0.129 (0.6)	0.129 (0.6)	0.119 (0.6)	0.128 (0.6)	0.416 (0.58)	0.152 (0.6)	0.173 (0.84)
	744	1	0.094 (0.21)	0.097 (0.6)	0.096 (0.6)	0.115 (0.6)	0.123 (0.6)	0.15 (0.6)	0.162 (0.61)	0.093 (0.6)
	744	168	0.097 (0.22)	0.142 (0.6)	0.14 (0.6)	0.145 (0.6)	0.142 (0.6)	0.417 (0.58)	0.163 (0.6)	0.221 (0.61)
Inst. subnets	24	1	0.106 (0.46)	0.08 (0.44)	0.082 (0.44)	0.082 (0.44)	0.083 (0.44)	0.1 (0.44)	0.089 (0.44)	0.118 (0.63)
	168	1	0.116 (0.47)	0.081 (0.44)	0.081 (0.44)	0.085 (0.44)	0.086 (0.44)	0.115 (0.44)	0.11 (0.44)	0.096 (0.46)
	168	24	0.118 (0.47)	0.11 (0.44)	0.112 (0.44)	0.105 (0.44)	0.11 (0.44)	0.399 (0.43)	0.13 (0.44)	0.205 (0.96)
	744	1	0.127 (0.48)	0.081 (0.44)	0.082 (0.44)	0.097 (0.44)	0.109 (0.44)	0.142 (0.45)	0.148 (0.45)	0.077 (0.44)
	744	168	0.131 (0.49)	0.123 (0.44)	0.122 (0.44)	0.133 (0.44)	0.126 (0.44)	0.398 (0.43)	0.147 (0.44)	0.23 (0.62)
IP addr.	24	1	0.193 (0.75)	0.114 (0.47)	0.114 (0.47)	0.112 (0.47)	0.113 (0.47)	0.128 (0.47)	0.118 (0.47)	0.12 (0.45)
	168	1	0.202 (0.78)	0.114 (0.47)	0.114 (0.47)	0.118 (0.47)	0.116 (0.47)	0.142 (0.47)	0.156 (0.48)	0.13 (0.56)
	168	24	0.204 (0.79)	0.133 (0.47)	0.134 (0.47)	0.127 (0.47)	0.129 (0.47)	0.482 (0.45)	0.14 (0.47)	0.182 (0.73)
	744	1	0.208 (0.8)	0.115 (0.47)	0.116 (0.47)	0.132 (0.47)	0.138 (0.47)	0.161 (0.47)	0.18 (0.49)	0.112 (0.47)
	744	168	0.211 (0.8)	0.143 (0.47)	0.141 (0.47)	0.154 (0.47)	0.145 (0.47)	0.484 (0.45)	0.153 (0.47)	0.195 (0.74)

Table 11: RMSE for average_n_dest_ports

	Training window	Prediction window	Mean	GRU	LSTM	GRU-FCN	LSTM-FCN	InceptionTime	ResNet	RC-LSTM
Inst.	24	1	0.1132	0.10565	0.10792	0.10786	0.11018	0.13262	0.12003	0.12029
	168	1	0.12528	0.1064	0.10767	0.11317	0.1183	0.16321	0.15584	0.11472
	168	24	0.12816	0.17256	0.17315	0.15288	0.17048	0.72586	0.21881	0.21991
	744	1	0.13925	0.11037	0.10889	0.14526	0.16101	0.21386	0.23631	0.10136
	744	168	0.14432	0.19469	0.19097	0.2018	0.19564	0.72259	0.2366	0.34974
Inst. subnets	24	1	0.1259	0.10668	0.11147	0.11118	0.11305	0.14549	0.12491	0.14553
	168	1	0.14076	0.10874	0.11005	0.11621	0.11882	0.1755	0.16622	0.12312
	168	24	0.14414	0.16657	0.16901	0.15568	0.16669	0.72199	0.20639	0.27086
	744	1	0.15751	0.10854	0.11123	0.1401	0.1632	0.22853	0.23978	0.10132
	744	168	0.1641	0.18759	0.18601	0.2074	0.19447	0.71621	0.23637	0.37979
IP addr.	24	1	0.20264	0.15496	0.1561	0.15181	0.15297	0.18289	0.16396	0.16454
	168	1	0.21223	0.15563	0.15643	0.16267	0.16064	0.21064	0.23842	0.16964
	168	24	0.21513	0.19146	0.19317	0.18001	0.18289	0.86239	0.20505	0.23256
	744	1	0.22091	0.15804	0.15981	0.19112	0.20226	0.24835	0.28195	0.14997
	744	168	0.22516	0.20899	0.20482	0.23124	0.2146	0.86506	0.23002	0.25666

Table 12: Harmonic Score for average_n_dest_ports

	Training window	Prediction window	Mean	GRU	LSTM	GRU-FCN	LSTM-FCN	InceptionTime	ResNet	RC-LSTM
Inst.	24	1	25.4 (20)	28.3 (33)	28.8 (32)	28.4 (30)	29.0 (31)	33.0 (35)	31.8 (32)	27.9 (30)
	168	1	28.6 (20)	28.8 (33)	29.0 (31)	29.9 (30)	32.0 (33)	39.2 (38)	35.8 (35)	27.4 (28)
	168	24	29.1 (20)	42.2 (38)	43.5 (37)	38.6 (35)	40.0 (35)	51.3 (38)	55.6 (45)	43.0 (31)
	744	1	31.0 (21)	28.5 (31)	29.5 (32)	42.0 (39)	45.0 (39)	49.2 (42)	54.9 (47)	27.7 (29)
	744	168	31.9 (22)	47.5 (38)	47.5 (38)	48.5 (38)	48.9 (40)	51.4 (39)	73.8 (59)	184.9 (8)
Inst. subnets	24	1	39.5 (36)	44.3 (46)	44.9 (45)	44.2 (44)	44.8 (44)	49.3 (47)	47.9 (44)	43.0 (43)
	168	1	43.6 (38)	43.9 (45)	45.3 (46)	46.7 (45)	48.2 (45)	57.8 (49)	54.6 (48)	43.3 (44)
	168	24	44.1 (38)	63.7 (53)	64.3 (52)	54.7 (47)	57.9 (47)	70.2 (53)	72.6 (53)	58.6 (44)
	744	1	46.4 (38)	44.4 (45)	45.9 (45)	59.4 (50)	62.4 (49)	68.1 (52)	75.5 (55)	43.1 (43)
	744	168	47.4 (38)	67.7 (51)	68.0 (51)	65.8 (49)	68.4 (52)	70.3 (53)	94.1 (63)	181.8 (11)
IP addr.	24	1	62.2 (40)	179.6 (40)	179.4 (39)	178.2 (41)	177.2 (41)	178.5 (38)	178.0 (39)	162.5 (54)
	168	1	124.2 (56)	179.8 (40)	179.4 (39)	180.0 (39)	180.0 (39)	179.7 (37)	180.5 (37)	163.1 (53)
	168	24	124.5 (56)	186.1 (33)	185.9 (33)	183.1 (36)	182.7 (35)	183.7 (31)	184.3 (33)	181.3 (37)
	744	1	151.7 (55)	179.9 (40)	179.8 (39)	183.5 (34)	182.4 (35)	181.5 (34)	181.6 (34)	169.7 (48)
	744	168	152.1 (55)	186.1 (31)	186.4 (31)	182.6 (32)	184.9 (31)	183.3 (32)	189.2 (27)	194.5 (9)

Table 13: SMAPE for avg_duration

4 Results for avg_duration

	Training window	Prediction window	Mean	GRU	LSTM	GRU-FCN	LSTM-FCN	InceptionTime	ResNet	RC-LSTM
Inst.	24	1	0.37 (0.2)	0.38 (0.4)	0.36 (0.4)	0.31 (0.7)	0.33 (0.5)	0.13 (0.8)	0.17 (0.5)	0.38 (0.4)
	168	1	0.2 (0.2)	0.38 (0.4)	0.35 (0.4)	0.26 (0.6)	0.16 (0.8)	-0.31 (1.4)	-0.15 (1.4)	0.38 (0.4)
	168	24	0.16 (0.2)	-0.4 (0.9)	-0.56 (1.1)	-0.22 (0.9)	-0.34 (1.1)	-2.31 (3.2)	-1.43 (2.1)	-0.85 (1.8)
	744	1	0.07 (0.2)	0.37 (0.3)	0.33 (0.4)	-0.47 (1.6)	-0.88 (1.9)	-1.16 (2.2)	-1.84 (3.0)	0.35 (0.4)
	744	168	0.0 (0.2)	-0.84 (1.5)	-0.88 (1.6)	-0.88 (1.4)	-0.79 (1.2)	-2.3 (3.2)	-2.22 (2.7)	-7.51 (3.2)
Inst. subnets	24	1	0.33 (0.2)	0.28 (0.6)	0.24 (0.6)	0.25 (0.4)	0.21 (0.6)	-0.04 (1.1)	0.01 (0.9)	0.28 (0.4)
	168	1	0.19 (0.2)	0.28 (0.6)	0.23 (0.6)	0.1 (0.9)	0.05 (0.8)	-0.53 (1.6)	-0.26 (1.2)	0.26 (0.6)
	168	24	0.16 (0.2)	-0.56 (1.2)	-0.67 (1.3)	-0.24 (0.7)	-0.36 (0.9)	-3.09 (3.7)	-1.27 (1.9)	-0.72 (1.6)
	744	1	0.07 (0.2)	0.28 (0.4)	0.19 (0.6)	-0.45 (1.4)	-0.82 (1.8)	-1.38 (2.4)	-1.82 (2.8)	0.24 (0.7)
	744	168	0.02 (0.2)	-0.87 (1.6)	-0.87 (1.5)	-0.91 (1.6)	-0.89 (1.5)	-3.09 (3.7)	-1.97 (2.5)	-6.08 (3.8)
IP addr.	24	1	0.07 (0.2)	-0.19 (1.3)	-0.25 (1.5)	0.03 (0.5)	-0.06 (1.0)	-0.91 (2.4)	-0.26 (1.5)	0.03 (0.9)
	168	1	0.05 (0.1)	-0.27 (1.6)	-0.26 (1.5)	-0.02 (0.6)	-0.12 (1.0)	-1.18 (2.6)	-0.75 (2.3)	0.0 (1.0)
	168	24	0.03 (0.1)	-0.21 (1.0)	-0.23 (1.1)	-0.21 (1.1)	-0.33 (1.4)	-8.82 (2.8)	-0.45 (1.6)	-0.6 (1.9)
	744	1	-0.01 (0.5)	-0.19 (1.3)	-0.23 (1.4)	-0.38 (1.5)	-0.55 (2.0)	-1.71 (3.1)	-0.97 (2.4)	-0.19 (1.6)
	744	168	-0.03 (0.5)	-0.38 (1.4)	-0.32 (1.3)	-2.07 (3.2)	-0.98 (2.5)	-8.76 (2.8)	-0.68 (2.1)	-1.43 (2.8)

Table 14: R2-score for avg_duration

	Training window	Prediction window	Mean	GRU	LSTM	GRU-FCN	LSTM-FCN	InceptionTime	ResNet	RC-LSTM
Inst.	24	1	0.156 (0.59)	0.116 (0.12)	0.119 (0.12)	0.124 (0.13)	0.124 (0.13)	0.138 (0.13)	0.137 (0.13)	0.164 (0.6)
	168	1	0.177 (0.59)	0.118 (0.12)	0.12 (0.12)	0.13 (0.13)	0.138 (0.16)	0.166 (0.18)	0.153 (0.15)	0.13 (0.14)
	168	24	0.181 (0.59)	0.178 (0.16)	0.185 (0.16)	0.169 (0.17)	0.173 (0.16)	0.248 (0.15)	0.226 (0.18)	0.245 (0.61)
	744	1	0.192 (0.59)	0.118 (0.11)	0.122 (0.12)	0.174 (0.18)	0.197 (0.19)	0.209 (0.19)	0.233 (0.21)	0.123 (0.12)
	744	168	0.198 (0.59)	0.207 (0.18)	0.209 (0.18)	0.214 (0.2)	0.209 (0.19)	0.259 (0.18)	0.268 (0.22)	0.534 (0.45)
Inst. subnets	24	1	0.235 (0.88)	0.157 (0.46)	0.161 (0.46)	0.164 (0.46)	0.166 (0.46)	0.184 (0.49)	0.181 (0.47)	0.178 (0.54)
	168	1	0.26 (0.89)	0.157 (0.46)	0.162 (0.46)	0.174 (0.48)	0.181 (0.49)	0.215 (0.5)	0.199 (0.48)	0.178 (0.54)
	168	24	0.265 (0.9)	0.221 (0.47)	0.227 (0.48)	0.207 (0.49)	0.212 (0.49)	0.315 (0.47)	0.256 (0.49)	0.321 (1.0)
	744	1	0.282 (0.92)	0.158 (0.46)	0.165 (0.45)	0.213 (0.5)	0.232 (0.5)	0.253 (0.5)	0.276 (0.5)	0.164 (0.47)
	744	168	0.291 (0.93)	0.243 (0.49)	0.244 (0.49)	0.247 (0.5)	0.245 (0.5)	0.324 (0.48)	0.297 (0.51)	0.511 (0.72)
IP addr.	24	1	0.332 (1.38)	0.094 (0.21)	0.094 (0.21)	0.093 (0.21)	0.094 (0.21)	0.105 (0.24)	0.097 (0.22)	0.103 (0.22)
	168	1	0.339 (1.39)	0.095 (0.21)	0.094 (0.21)	0.097 (0.22)	0.098 (0.24)	0.113 (0.24)	0.116 (0.24)	0.105 (0.25)
	168	24	0.342 (1.4)	0.106 (0.23)	0.106 (0.23)	0.103 (0.22)	0.104 (0.23)	0.478 (0.2)	0.112 (0.24)	0.155 (0.62)
	744	1	0.345 (1.4)	0.095 (0.21)	0.095 (0.21)	0.106 (0.22)	0.109 (0.24)	0.127 (0.24)	0.124 (0.25)	0.091 (0.22)
	744	168	0.348 (1.4)	0.113 (0.23)	0.113 (0.23)	0.136 (0.24)	0.12 (0.24)	0.481 (0.2)	0.121 (0.24)	0.169 (0.63)

Table 15: RMSE for avg_duration

	Training window	Prediction window	Mean	GRU	LSTM	GRU-FCN	LSTM-FCN	InceptionTime	ResNet	RC-LSTM
Inst.	24	1	0.19857	0.18619	0.19208	0.20037	0.20062	0.22817	0.22554	0.21696
	168	1	0.23726	0.18867	0.19344	0.21129	0.2267	0.28179	0.25655	0.20478
	168	24	0.24417	0.30466	0.31938	0.28669	0.29466	0.4414	0.39931	0.37319
	744	1	0.26387	0.1888	0.19732	0.29817	0.34283	0.36562	0.41323	0.19619
	744	168	0.27552	0.35486	0.35848	0.36761	0.35896	0.45543	0.47542	0.95929
Inst. subnets	24	1	0.22018	0.2172	0.22492	0.22896	0.23321	0.26599	0.26287	0.24024
	168	1	0.25842	0.21712	0.2263	0.24878	0.26036	0.32597	0.29631	0.24119
	168	24	0.26603	0.3391	0.34991	0.30943	0.32027	0.52235	0.4063	0.40217
	744	1	0.28951	0.21945	0.23267	0.32321	0.35923	0.4014	0.44721	0.22666
	744	168	0.30287	0.37483	0.37775	0.38144	0.37899	0.53305	0.48074	0.85477
IP addr.	24	1	0.20357	0.15374	0.1544	0.15145	0.15383	0.17401	0.1603	0.16335
	168	1	0.21109	0.15502	0.15476	0.15898	0.1617	0.18937	0.19599	0.16183
	168	24	0.2138	0.17598	0.1766	0.17059	0.172	0.89082	0.18838	0.20228
	744	1	0.22062	0.15638	0.15677	0.17696	0.18358	0.21853	0.21151	0.14784
	744	168	0.2251	0.18882	0.18771	0.23395	0.20144	0.89377	0.20323	0.23336

Table 16: Harmonic Score for avg_duration

	Training window	Prediction window	Mean	GRU	LSTM	GRU-FCN	LSTM-FCN	InceptionTime	ResNet	RC-LSTM
Inst.	24	1	6.7 (7)	8.6 (18)	8.6 (18)	9.0 (18)	8.7 (18)	9.7 (18)	9.5 (19)	11.2 (18)
	168	1	8.3 (8)	8.6 (18)	8.6 (18)	9.6 (18)	9.4 (18)	13.0 (18)	11.9 (18)	12.2 (21)
	168	24	8.5 (8)	13.7 (21)	14.2 (19)	13.1 (18)	15.3 (18)	34.4 (18)	21.7 (21)	19.2 (21)
	744	1	9.1 (10)	8.8 (18)	8.8 (18)	13.2 (19)	14.3 (18)	16.2 (18)	16.3 (19)	12.4 (18)
	744	168	9.4 (10)	18.5 (18)	17.9 (18)	17.9 (18)	19.4 (17)	35.6 (18)	22.3 (21)	192.3 (1)
Inst. subnets	24	1	11.3 (22)	14.5 (31)	14.7 (32)	15.0 (32)	14.5 (31)	16.1 (33)	15.5 (32)	18.1 (34)
	168	1	13.2 (24)	14.5 (31)	15.1 (32)	15.8 (32)	15.9 (32)	18.8 (32)	18.5 (32)	17.2 (31)
	168	24	13.4 (24)	20.0 (33)	20.8 (33)	19.5 (33)	21.7 (32)	38.1 (26)	26.8 (32)	25.5 (33)
	744	1	14.4 (24)	14.6 (31)	14.9 (32)	19.9 (34)	20.7 (32)	22.3 (33)	22.8 (34)	17.4 (30)
	744	168	14.8 (25)	24.1 (31)	23.7 (31)	24.3 (33)	25.1 (31)	39.2 (25)	28.7 (36)	192.4 (1)
IP addr.	24	1	54.4 (37)	166.0 (59)	166.2 (59)	165.2 (59)	164.8 (59)	166.0 (58)	165.9 (58)	158.3 (62)
	168	1	117.8 (64)	166.2 (59)	166.1 (59)	166.9 (59)	167.0 (58)	165.9 (57)	166.5 (57)	159.0 (62)
	168	24	118.1 (64)	169.5 (58)	169.6 (58)	168.4 (58)	168.2 (58)	164.1 (54)	170.9 (57)	168.5 (57)
	744	1	144.2 (65)	166.4 (59)	166.3 (59)	169.6 (57)	169.0 (57)	169.1 (56)	169.1 (55)	161.8 (61)
	744	168	144.5 (65)	169.8 (58)	170.0 (57)	169.9 (57)	169.7 (57)	164.1 (54)	171.5 (56)	198.0 (3)

Table 17: SMAPE for avg_ttl

5 Results for avg_ttl

	Training window	Prediction window	Mean	GRU	LSTM	GRU-FCN	LSTM-FCN	InceptionTime	ResNet	RC-LSTM
Inst.	24	1	0.47 (0.2)	0.4 (0.4)	0.4 (0.4)	0.31 (0.6)	0.35 (0.6)	-0.03 (0.9)	0.12 (0.9)	-0.16 (0.8)
	168	1	0.22 (0.1)	0.4 (0.4)	0.39 (0.4)	0.09 (0.9)	0.15 (0.9)	-1.2 (2.2)	-0.7 (1.8)	-0.26 (1.0)
	168	24	0.17 (0.1)	-0.88 (1.5)	-1.0 (1.4)	-0.99 (1.7)	-2.04 (2.5)	-6.54 (3.5)	-4.63 (4.0)	-2.65 (2.9)
	744	1	0.12 (0.1)	0.36 (0.4)	0.35 (0.5)	-1.25 (2.9)	-1.56 (2.7)	-2.22 (2.8)	-2.17 (3.0)	-0.49 (0.8)
	744	168	0.05 (0.1)	-3.55 (3.5)	-3.17 (3.1)	-2.94 (2.8)	-3.88 (3.3)	-6.75 (3.4)	-4.65 (3.6)	-9.84 (1.2)
Inst. subnets	24	1	0.44 (0.2)	0.27 (0.7)	0.25 (0.6)	0.21 (0.7)	0.28 (0.6)	-0.17 (1.3)	0.04 (0.9)	-0.24 (1.2)
	168	1	0.23 (0.2)	0.26 (0.6)	0.2 (0.8)	-0.05 (1.1)	-0.02 (1.1)	-0.97 (1.9)	-0.78 (1.7)	-0.22 (1.0)
	168	24	0.19 (0.2)	-1.01 (1.9)	-1.09 (1.8)	-0.93 (1.7)	-1.95 (2.4)	-5.84 (3.7)	-4.25 (4.0)	-2.5 (3.0)
	744	1	0.12 (0.1)	0.26 (0.6)	0.21 (0.8)	-1.14 (2.5)	-1.45 (2.5)	-1.98 (2.8)	-2.02 (3.0)	-0.42 (1.0)
	744	168	0.06 (0.2)	-3.04 (3.2)	-2.75 (2.8)	-2.57 (2.6)	-3.27 (3.0)	-6.03 (3.7)	-3.96 (3.6)	-9.58 (1.8)
IP addr.	24	1	0.13 (0.2)	0.05 (0.8)	0.02 (0.9)	0.15 (0.5)	0.1 (0.6)	-0.29 (1.2)	-0.01 (0.9)	0.09 (1.0)
	168	1	0.08 (0.2)	0.07 (0.7)	0.01 (0.9)	0.03 (0.6)	0.01 (0.7)	-0.57 (1.6)	-0.47 (1.8)	0.09 (1.0)
	168	24	0.06 (0.2)	-0.59 (2.0)	-0.62 (2.1)	-0.29 (1.3)	-0.33 (1.3)	-6.61 (4.0)	-0.6 (1.7)	-0.88 (2.3)
	744	1	0.03 (0.1)	0.01 (0.9)	-0.02 (1.0)	-0.72 (2.1)	-0.83 (2.4)	-1.29 (2.6)	-1.67 (3.2)	-0.11 (1.5)
	744	168	0.01 (0.2)	-0.82 (2.3)	-0.76 (2.1)	-1.0 (2.0)	-0.82 (2.1)	-6.62 (4.0)	-1.16 (2.5)	-1.64 (3.1)

Table 18: R2-score for avg_ttl

	Training window	Prediction window	Mean	GRU	LSTM	GRU-FCN	LSTM-FCN	InceptionTime	ResNet	RC-LSTM
Inst.	24	1	0.096 (0.59)	0.059 (0.04)	0.059 (0.04)	0.064 (0.05)	0.062 (0.05)	0.076 (0.07)	0.072 (0.07)	0.084 (0.05)
	168	1	0.108 (0.59)	0.059 (0.04)	0.059 (0.04)	0.071 (0.06)	0.068 (0.05)	0.105 (0.08)	0.091 (0.06)	0.12 (0.59)
	168	24	0.11 (0.59)	0.1 (0.07)	0.106 (0.06)	0.102 (0.07)	0.122 (0.07)	0.223 (0.08)	0.174 (0.09)	0.177 (0.59)
	744	1	0.113 (0.59)	0.06 (0.04)	0.061 (0.04)	0.1 (0.08)	0.111 (0.08)	0.128 (0.09)	0.126 (0.09)	0.09 (0.05)
	744	168	0.116 (0.59)	0.147 (0.07)	0.142 (0.07)	0.141 (0.07)	0.155 (0.07)	0.232 (0.08)	0.18 (0.09)	0.716 (0.1)
Inst. subnets	24	1	0.22 (1.2)	0.079 (0.07)	0.081 (0.08)	0.084 (0.08)	0.081 (0.08)	0.1 (0.1)	0.092 (0.09)	0.174 (0.85)
	168	1	0.232 (1.2)	0.08 (0.07)	0.084 (0.08)	0.093 (0.08)	0.094 (0.1)	0.123 (0.11)	0.119 (0.11)	0.12 (0.43)
	168	24	0.234 (1.2)	0.122 (0.09)	0.128 (0.1)	0.124 (0.1)	0.145 (0.1)	0.236 (0.09)	0.19 (0.11)	0.231 (0.85)
	744	1	0.238 (1.19)	0.081 (0.07)	0.083 (0.08)	0.124 (0.11)	0.134 (0.11)	0.149 (0.12)	0.151 (0.13)	0.105 (0.07)
	744	168	0.242 (1.19)	0.164 (0.09)	0.16 (0.09)	0.161 (0.1)	0.171 (0.09)	0.244 (0.09)	0.195 (0.12)	0.725 (0.42)
IP addr.	24	1	0.7 (2.08)	0.12 (0.08)	0.122 (0.08)	0.12 (0.08)	0.122 (0.08)	0.141 (0.1)	0.13 (0.09)	0.124 (0.08)
	168	1	0.703 (2.07)	0.12 (0.08)	0.122 (0.08)	0.131 (0.09)	0.131 (0.09)	0.154 (0.11)	0.158 (0.14)	0.133 (0.33)
	168	24	0.705 (2.07)	0.152 (0.09)	0.154 (0.1)	0.145 (0.1)	0.147 (0.1)	0.435 (0.09)	0.164 (0.12)	0.204 (0.57)
	744	1	0.708 (2.07)	0.123 (0.08)	0.124 (0.08)	0.167 (0.12)	0.167 (0.12)	0.183 (0.12)	0.233 (0.22)	0.12 (0.08)
	744	168	0.71 (2.07)	0.166 (0.1)	0.165 (0.1)	0.171 (0.1)	0.168 (0.11)	0.438 (0.09)	0.184 (0.12)	0.254 (0.59)

Table 19: RMSE for avg_ttl

	Training window	Prediction window	Mean	GRU	LSTM	GRU-FCN	LSTM-FCN	InceptionTime	ResNet	RC-LSTM
Inst.	24	1	0.1081	0.10387	0.10491	0.11476	0.11046	0.13671	0.12974	0.1518
	168	1	0.13422	0.10466	0.10443	0.12774	0.1235	0.19468	0.16771	0.19351
	168	24	0.13857	0.18526	0.19591	0.1897	0.22868	0.42802	0.33273	0.30501
	744	1	0.14834	0.10697	0.10757	0.18607	0.20659	0.24129	0.23652	0.16529
	744	168	0.15544	0.27927	0.2691	0.26767	0.29545	0.44474	0.34413	1.3398
Inst. subnets	24	1	0.1325	0.13818	0.14198	0.14793	0.14149	0.17772	0.16243	0.25869
	168	1	0.15963	0.13913	0.14635	0.16517	0.16764	0.22429	0.21619	0.20048
	168	24	0.16466	0.22302	0.23445	0.22523	0.26751	0.44626	0.35685	0.37252
	744	1	0.18367	0.14066	0.14515	0.22688	0.24784	0.27509	0.27897	0.18869
	744	168	0.19431	0.30487	0.29738	0.29885	0.31919	0.4611	0.36675	1.33969
IP addr.	24	1	0.32038	0.1988	0.20275	0.19772	0.20243	0.23835	0.21716	0.20387
	168	1	0.3357	0.19955	0.20301	0.2194	0.21897	0.26437	0.27169	0.20337
	168	24	0.34034	0.26027	0.26439	0.24698	0.24957	0.80511	0.28385	0.31199
	744	1	0.35016	0.20412	0.20663	0.28847	0.29009	0.32057	0.41518	0.19954
	744	168	0.35727	0.28697	0.28505	0.29544	0.28981	0.80991	0.32163	0.40914

Table 20: Harmonic Score for avg_ttl

	Training window	Prediction window	Mean	GRU	LSTM	GRU-FCN	LSTM-FCN	InceptionTime	ResNet	RC-LSTM
Inst.	24	1	28.4 (9)	13.4 (22)	13.5 (22)	12.8 (19)	12.9 (20)	14.6 (20)	14.7 (21)	14.1 (18)
	168	1	31.4 (10)	13.0 (19)	13.0 (19)	13.7 (20)	14.2 (20)	17.6 (22)	16.8 (23)	14.2 (18)
	168	24	31.9 (10)	15.8 (19)	16.3 (20)	16.0 (21)	17.2 (23)	37.9 (18)	23.7 (20)	25.7 (20)
	744	1	34.9 (11)	13.0 (19)	13.3 (19)	18.9 (24)	19.7 (23)	20.9 (24)	25.7 (32)	14.7 (19)
	744	168	35.7 (12)	17.8 (19)	17.5 (18)	20.9 (19)	19.1 (18)	38.3 (17)	30.1 (29)	191.8 (2)
Inst. subnets	24	1	28.5 (12)	19.1 (32)	19.4 (32)	19.2 (33)	19.2 (33)	21.1 (33)	21.7 (34)	20.0 (31)
	168	1	31.0 (12)	19.4 (33)	19.4 (32)	20.3 (33)	20.9 (33)	24.9 (34)	23.6 (34)	19.8 (30)
	168	24	31.5 (12)	22.6 (34)	23.0 (35)	22.7 (35)	23.8 (35)	38.0 (25)	30.1 (34)	29.6 (33)
	744	1	33.6 (13)	19.3 (32)	19.7 (32)	26.5 (37)	27.9 (36)	29.5 (37)	35.0 (44)	20.4 (31)
	744	168	34.4 (14)	24.4 (34)	24.3 (34)	27.5 (34)	25.9 (34)	38.4 (25)	36.0 (39)	191.4 (2)
IP addr.	24	1	10.4 (15)	168.3 (56)	168.4 (56)	167.3 (56)	167.2 (56)	168.6 (54)	168.5 (55)	133.0 (72)
	168	1	12.7 (20)	168.4 (56)	168.5 (55)	169.3 (56)	168.9 (55)	169.2 (53)	169.3 (54)	136.9 (71)
	168	24	12.7 (20)	172.0 (55)	172.2 (55)	170.7 (55)	170.7 (55)	165.4 (53)	173.7 (54)	170.0 (55)
	744	1	15.6 (27)	168.7 (56)	168.8 (56)	172.0 (53)	171.4 (53)	171.1 (52)	173.8 (50)	145.7 (67)
	744	168	15.5 (26)	172.6 (54)	172.9 (54)	171.9 (53)	172.5 (54)	165.3 (53)	175.2 (52)	197.3 (4)

Table 21: SMAPE for dir_ratio_bytes

6 Results for dir_ratio_bytes

	Training window	Prediction window	Mean	GRU	LSTM	GRU-FCN	LSTM-FCN	InceptionTime	ResNet	RC-LSTM
Inst.	24	1	0.4 (0.2)	0.32 (0.7)	0.29 (0.7)	0.34 (0.3)	0.34 (0.7)	-0.02 (0.6)	0.04 (0.8)	-0.0 (0.7)
	168	1	0.26 (0.1)	0.33 (0.3)	0.31 (0.4)	0.14 (0.8)	0.11 (0.8)	-0.64 (1.4)	-0.32 (1.0)	0.02 (0.3)
	168	24	0.23 (0.1)	-0.23 (0.7)	-0.29 (1.0)	-0.27 (0.9)	-0.5 (1.0)	-5.3 (4.0)	-2.55 (2.8)	-3.08 (3.5)
	744	1	0.05 (0.1)	0.31 (0.3)	0.27 (0.4)	-0.94 (2.2)	-0.94 (1.6)	-1.17 (1.8)	-1.74 (2.5)	-0.07 (0.8)
	744	168	-0.02 (0.1)	-0.86 (1.4)	-0.77 (1.2)	-1.89 (2.4)	-1.22 (1.5)	-5.32 (4.0)	-3.58 (3.1)	-9.65 (1.4)
Inst. subnets	24	1	0.34 (0.2)	0.25 (0.4)	0.22 (0.4)	0.26 (0.4)	0.25 (0.5)	-0.07 (0.7)	-0.09 (0.9)	-0.01 (0.7)
	168	1	0.21 (0.1)	0.24 (0.6)	0.21 (0.5)	0.08 (0.8)	0.02 (0.8)	-0.68 (1.4)	-0.44 (1.2)	0.01 (0.5)
	168	24	0.19 (0.1)	-0.26 (1.0)	-0.31 (1.1)	-0.26 (0.9)	-0.47 (1.1)	-4.12 (3.9)	-2.29 (2.8)	-2.23 (3.2)
	744	1	0.05 (0.1)	0.22 (0.5)	0.18 (0.5)	-0.98 (2.2)	-1.11 (1.8)	-1.31 (2.0)	-1.84 (2.6)	-0.07 (0.7)
	744	168	-0.01 (0.1)	-0.79 (1.4)	-0.73 (1.2)	-1.64 (2.3)	-1.13 (1.7)	-4.17 (3.9)	-3.17 (3.1)	-9.36 (2.1)
IP addr.	24	1	0.02 (0.1)	0.0 (0.8)	-0.0 (0.9)	0.12 (0.5)	0.07 (0.7)	-0.34 (1.2)	-0.06 (0.9)	0.07 (0.8)
	168	1	0.02 (0.1)	-0.04 (0.9)	-0.03 (0.9)	0.04 (0.5)	-0.01 (0.7)	-0.61 (1.6)	-0.67 (2.2)	0.06 (0.9)
	168	24	0.02 (0.1)	-0.48 (1.7)	-0.49 (1.8)	-0.23 (1.1)	-0.23 (1.1)	-7.05 (3.9)	-0.43 (1.5)	-0.7 (2.1)
	744	1	0.01 (0.1)	-0.06 (0.9)	-0.08 (1.0)	-0.59 (1.9)	-0.75 (2.3)	-1.03 (2.3)	-1.19 (2.6)	-0.06 (1.2)
	744	168	0.0 (0.1)	-0.65 (1.9)	-0.59 (1.8)	-0.85 (1.8)	-0.53 (1.6)	-7.07 (3.9)	-0.95 (2.3)	-1.39 (2.7)

Table 22: R2-score for dir_ratio_bytes

	Training window	Prediction window	Mean	GRU	LSTM	GRU-FCN	LSTM-FCN	InceptionTime	ResNet	RC-LSTM
Inst.	24	1	0.147 (0.03)	0.084 (0.05)	0.086 (0.05)	0.084 (0.05)	0.084 (0.05)	0.106 (0.06)	0.102 (0.07)	0.103 (0.05)
	168	1	0.166 (0.03)	0.084 (0.04)	0.085 (0.04)	0.093 (0.05)	0.096 (0.06)	0.129 (0.08)	0.118 (0.08)	0.103 (0.04)
	168	24	0.17 (0.03)	0.112 (0.05)	0.115 (0.06)	0.115 (0.06)	0.123 (0.07)	0.246 (0.08)	0.172 (0.07)	0.214 (0.59)
	744	1	0.191 (0.04)	0.085 (0.04)	0.087 (0.04)	0.128 (0.08)	0.138 (0.08)	0.148 (0.1)	0.17 (0.12)	0.103 (0.05)
	744	168	0.199 (0.05)	0.13 (0.05)	0.129 (0.05)	0.155 (0.06)	0.14 (0.05)	0.248 (0.08)	0.201 (0.08)	0.71 (0.13)
Inst. subnets	24	1	0.144 (0.03)	0.098 (0.06)	0.1 (0.06)	0.099 (0.06)	0.098 (0.06)	0.118 (0.08)	0.118 (0.08)	0.113 (0.06)
	168	1	0.159 (0.03)	0.098 (0.06)	0.1 (0.06)	0.106 (0.07)	0.11 (0.07)	0.142 (0.09)	0.132 (0.09)	0.113 (0.06)
	168	24	0.163 (0.04)	0.123 (0.07)	0.127 (0.08)	0.126 (0.08)	0.132 (0.08)	0.23 (0.08)	0.177 (0.08)	0.244 (0.84)
	744	1	0.178 (0.04)	0.099 (0.06)	0.102 (0.06)	0.144 (0.09)	0.155 (0.09)	0.164 (0.1)	0.184 (0.12)	0.113 (0.06)
	744	168	0.183 (0.05)	0.139 (0.07)	0.139 (0.07)	0.16 (0.07)	0.149 (0.07)	0.232 (0.08)	0.206 (0.09)	0.683 (0.43)
IP addr.	24	1	0.074 (0.06)	0.116 (0.07)	0.116 (0.07)	0.113 (0.07)	0.115 (0.07)	0.134 (0.09)	0.123 (0.09)	0.139 (0.47)
	168	1	0.075 (0.06)	0.117 (0.07)	0.117 (0.07)	0.12 (0.08)	0.121 (0.08)	0.144 (0.1)	0.157 (0.14)	0.127 (0.33)
	168	24	0.075 (0.06)	0.137 (0.08)	0.139 (0.08)	0.132 (0.08)	0.132 (0.08)	0.434 (0.09)	0.145 (0.1)	0.181 (0.57)
	744	1	0.076 (0.06)	0.118 (0.07)	0.119 (0.07)	0.145 (0.1)	0.149 (0.1)	0.157 (0.1)	0.182 (0.15)	0.125 (0.33)
	744	168	0.076 (0.06)	0.146 (0.09)	0.145 (0.09)	0.149 (0.08)	0.144 (0.09)	0.436 (0.09)	0.161 (0.11)	0.225 (0.58)

Table 23: RMSE for dir_ratio_bytes

	Training window	Prediction window	Mean	GRU	LSTM	GRU-FCN	LSTM-FCN	InceptionTime	ResNet	RC-LSTM
Inst.	24	1	0.23165	0.14748	0.15037	0.14748	0.14599	0.18931	0.18212	0.18216
	168	1	0.26835	0.14664	0.14817	0.16339	0.17024	0.23499	0.21329	0.18327
	168	24	0.27578	0.20079	0.20785	0.20681	0.22346	0.46537	0.3203	0.372
	744	1	0.31607	0.14835	0.15306	0.23461	0.25252	0.27367	0.31551	0.1829
	744	168	0.33051	0.2368	0.23486	0.28677	0.25797	0.46965	0.37866	1.32931
Inst. subnets	24	1	0.23189	0.16987	0.17423	0.17193	0.17129	0.20926	0.20957	0.19944
	168	1	0.26139	0.17147	0.17428	0.18659	0.19533	0.25772	0.2385	0.19914
	168	24	0.2675	0.21989	0.22691	0.22481	0.23836	0.4294	0.32733	0.39384
	744	1	0.2961	0.17234	0.17779	0.26154	0.28353	0.3014	0.34041	0.19965
	744	168	0.30756	0.25144	0.25165	0.29361	0.2713	0.43421	0.38426	1.26555
IP addr.	24	1	0.13232	0.19798	0.19733	0.19221	0.19552	0.23222	0.21203	0.21253
	168	1	0.13333	0.20054	0.1994	0.20575	0.2073	0.25246	0.27672	0.19921
	168	24	0.13401	0.2379	0.24203	0.22813	0.22857	0.80948	0.25443	0.27549
	744	1	0.13557	0.2024	0.20357	0.25502	0.26165	0.27845	0.32449	0.1962
	744	168	0.13664	0.25594	0.2539	0.2625	0.25107	0.81386	0.28488	0.36001

Table 24: Harmonic Score for dir_ratio_bytes

	Training window	Prediction window	Mean	GRU	LSTM	GRU-FCN	LSTM-FCN	InceptionTime	ResNet	RC-LSTM
Inst.	24	1	26.9 (9)	10.8 (18)	11.0 (19)	11.0 (19)	11.0 (21)	12.0 (19)	12.0 (19)	12.0 (17)
	168	1	30.2 (9)	10.7 (18)	10.9 (18)	11.7 (19)	12.5 (23)	14.8 (21)	14.3 (22)	12.1 (18)
	168	24	30.8 (9)	13.2 (18)	13.7 (19)	13.6 (20)	14.8 (22)	38.3 (17)	22.0 (20)	24.5 (19)
	744	1	34.5 (11)	10.8 (18)	11.0 (18)	15.7 (22)	18.4 (25)	19.0 (22)	20.2 (25)	12.6 (18)
	744	168	35.5 (12)	15.5 (18)	15.1 (18)	19.5 (18)	17.2 (17)	38.8 (17)	26.3 (22)	192.3 (1)
Inst. subnets	24	1	27.3 (11)	17.4 (33)	17.5 (32)	17.5 (33)	17.3 (33)	19.1 (33)	19.5 (34)	18.6 (32)
	168	1	30.2 (12)	17.3 (32)	17.9 (33)	19.0 (34)	19.8 (36)	22.6 (34)	22.3 (36)	18.7 (32)
	168	24	30.8 (12)	20.4 (34)	21.0 (35)	21.3 (35)	22.1 (36)	38.5 (25)	28.0 (35)	28.6 (33)
	744	1	33.3 (14)	17.5 (32)	17.7 (33)	23.7 (38)	25.7 (36)	28.0 (36)	30.1 (40)	18.6 (31)
	744	168	34.2 (14)	22.6 (34)	22.4 (34)	26.2 (34)	24.5 (34)	39.1 (25)	33.8 (38)	192.0 (1)
IP addr.	24	1	9.8 (15)	167.4 (57)	167.5 (57)	166.5 (57)	166.1 (57)	167.5 (56)	167.3 (56)	134.0 (72)
	168	1	12.0 (21)	167.5 (57)	167.6 (57)	168.5 (56)	167.9 (57)	168.5 (54)	168.3 (55)	132.8 (72)
	168	24	12.1 (21)	171.3 (56)	171.3 (56)	170.0 (56)	169.7 (56)	163.7 (55)	172.4 (55)	169.2 (56)
	744	1	14.9 (27)	167.6 (57)	168.0 (57)	171.2 (54)	170.6 (54)	171.1 (53)	173.7 (50)	146.4 (67)
	744	168	14.8 (27)	171.5 (56)	171.8 (56)	171.3 (55)	171.5 (56)	163.6 (55)	173.7 (54)	197.8 (3)

Table 25: SMAPE for dir_ratio_packets

7 Results for dir_ratio_packets

	Training window	Prediction window	Mean	GRU	LSTM	GRU-FCN	LSTM-FCN	InceptionTime	ResNet	RC-LSTM
Inst.	24	1	0.46 (0.2)	0.35 (0.4)	0.32 (0.3)	0.33 (0.7)	0.36 (0.7)	-0.03 (0.8)	0.04 (0.6)	-0.01 (0.6)
	168	1	0.29 (0.1)	0.37 (0.3)	0.32 (0.3)	0.19 (0.8)	0.09 (1.0)	-0.61 (1.3)	-0.43 (1.1)	0.02 (0.2)
	168	24	0.25 (0.1)	-0.18 (0.7)	-0.28 (1.0)	-0.3 (0.8)	-0.5 (0.9)	-6.25 (3.8)	-2.89 (2.8)	-3.49 (3.4)
	744	1	0.05 (0.1)	0.35 (0.4)	0.3 (0.3)	-0.95 (2.2)	-1.16 (1.6)	-1.59 (2.4)	-1.79 (2.5)	-0.07 (0.7)
	744	168	-0.03 (0.1)	-0.88 (1.3)	-0.74 (0.9)	-2.38 (2.7)	-1.42 (1.6)	-6.3 (3.8)	-4.08 (3.1)	-9.84 (1.1)
Inst. subnets	24	1	0.39 (0.2)	0.26 (0.6)	0.23 (0.4)	0.25 (0.5)	0.28 (0.5)	-0.15 (0.9)	-0.1 (0.7)	-0.02 (0.7)
	168	1	0.24 (0.2)	0.25 (0.5)	0.2 (0.6)	0.0 (1.0)	-0.0 (1.0)	-0.75 (1.4)	-0.56 (1.4)	-0.01 (0.5)
	168	24	0.2 (0.1)	-0.24 (1.0)	-0.31 (1.1)	-0.37 (1.0)	-0.5 (1.0)	-5.0 (3.9)	-2.31 (2.8)	-2.49 (3.0)
	744	1	0.05 (0.1)	0.25 (0.4)	0.18 (0.6)	-0.72 (1.9)	-1.19 (1.8)	-1.65 (2.4)	-1.97 (2.7)	-0.09 (0.7)
	744	168	-0.01 (0.1)	-0.81 (1.3)	-0.72 (1.1)	-1.99 (2.6)	-1.28 (1.7)	-5.08 (3.9)	-3.68 (3.3)	-9.51 (1.9)
IP addr.	24	1	0.01 (0.1)	0.07 (0.6)	0.05 (0.7)	0.15 (0.5)	0.1 (0.5)	-0.27 (1.1)	0.01 (0.7)	0.09 (0.8)
	168	1	0.02 (0.1)	0.03 (0.7)	0.02 (0.8)	0.05 (0.5)	0.04 (0.7)	-0.51 (1.4)	-0.58 (2.0)	0.07 (0.9)
	168	24	0.02 (0.1)	-0.48 (1.7)	-0.51 (1.8)	-0.2 (1.0)	-0.27 (1.2)	-6.62 (4.0)	-0.46 (1.6)	-0.67 (2.0)
	744	1	0.01 (0.1)	0.01 (0.7)	-0.01 (0.9)	-0.51 (1.8)	-0.7 (2.2)	-1.0 (2.3)	-1.38 (2.8)	-0.01 (1.1)
	744	168	-0.0 (0.1)	-0.65 (2.0)	-0.61 (1.9)	-0.87 (1.9)	-0.58 (1.7)	-6.63 (4.0)	-0.89 (2.1)	-1.42 (2.8)

Table 26: R2-score for dir_ratio_packets

	Training window	Prediction window	Mean	GRU	LSTM	GRU-FCN	LSTM-FCN	InceptionTime	ResNet	RC-LSTM
Inst.	24	1	0.141 (0.03)	0.075 (0.04)	0.076 (0.04)	0.077 (0.05)	0.075 (0.05)	0.095 (0.06)	0.093 (0.06)	0.095 (0.04)
	168	1	0.164 (0.03)	0.074 (0.04)	0.077 (0.04)	0.083 (0.05)	0.088 (0.06)	0.117 (0.07)	0.111 (0.07)	0.095 (0.04)
	168	24	0.168 (0.03)	0.1 (0.05)	0.104 (0.05)	0.107 (0.06)	0.113 (0.06)	0.252 (0.07)	0.165 (0.06)	0.213 (0.59)
	744	1	0.193 (0.04)	0.075 (0.04)	0.078 (0.04)	0.117 (0.07)	0.133 (0.08)	0.14 (0.07)	0.149 (0.09)	0.094 (0.04)
	744	168	0.201 (0.05)	0.121 (0.05)	0.119 (0.05)	0.152 (0.06)	0.135 (0.05)	0.255 (0.07)	0.195 (0.07)	0.734 (0.11)
Inst. subnets	24	1	0.139 (0.03)	0.091 (0.07)	0.093 (0.07)	0.092 (0.07)	0.091 (0.07)	0.112 (0.08)	0.111 (0.08)	0.126 (0.43)
	168	1	0.158 (0.03)	0.091 (0.07)	0.094 (0.07)	0.102 (0.08)	0.105 (0.08)	0.136 (0.09)	0.129 (0.09)	0.126 (0.43)
	168	24	0.162 (0.03)	0.115 (0.08)	0.119 (0.08)	0.122 (0.08)	0.127 (0.08)	0.237 (0.08)	0.169 (0.09)	0.245 (0.84)
	744	1	0.179 (0.04)	0.092 (0.07)	0.094 (0.07)	0.129 (0.1)	0.147 (0.09)	0.162 (0.1)	0.172 (0.12)	0.106 (0.07)
	744	168	0.186 (0.05)	0.133 (0.07)	0.132 (0.07)	0.16 (0.08)	0.146 (0.07)	0.24 (0.08)	0.204 (0.09)	0.708 (0.42)
IP addr.	24	1	0.068 (0.05)	0.12 (0.08)	0.121 (0.08)	0.118 (0.08)	0.12 (0.08)	0.137 (0.09)	0.128 (0.09)	0.123 (0.08)
	168	1	0.068 (0.05)	0.122 (0.08)	0.122 (0.08)	0.126 (0.08)	0.126 (0.09)	0.15 (0.1)	0.161 (0.14)	0.132 (0.33)
	168	24	0.069 (0.05)	0.147 (0.09)	0.148 (0.09)	0.14 (0.09)	0.141 (0.09)	0.431 (0.1)	0.156 (0.11)	0.191 (0.57)
	744	1	0.069 (0.05)	0.123 (0.08)	0.124 (0.08)	0.153 (0.1)	0.157 (0.11)	0.167 (0.11)	0.204 (0.18)	0.131 (0.33)
	744	168	0.07 (0.05)	0.156 (0.09)	0.155 (0.09)	0.159 (0.09)	0.155 (0.1)	0.433 (0.1)	0.169 (0.11)	0.237 (0.58)

Table 27: RMSE for dir_ratio_packets

	Training window	Prediction window	Mean	GRU	LSTM	GRU-FCN	LSTM-FCN	InceptionTime	ResNet	RC-LSTM
Inst.	24	1	0.21932	0.13174	0.13552	0.13624	0.13335	0.17286	0.1676	0.17108
	168	1	0.26275	0.13072	0.13608	0.14795	0.15828	0.21572	0.20297	0.1717
	168	24	0.27153	0.18109	0.18968	0.19457	0.20801	0.48137	0.31059	0.37318
	744	1	0.31802	0.13205	0.1379	0.2165	0.24749	0.26177	0.27957	0.1702
	744	168	0.33425	0.22254	0.21913	0.28601	0.25068	0.4871	0.37038	1.37323
Inst. subnets	24	1	0.22187	0.15902	0.16314	0.16251	0.15978	0.20188	0.19872	0.21049
	168	1	0.25757	0.15916	0.16524	0.18186	0.18646	0.24778	0.2341	0.21172
	168	24	0.26486	0.20694	0.21429	0.22074	0.23096	0.4473	0.31445	0.39704
	744	1	0.29842	0.16148	0.16645	0.23575	0.27239	0.3004	0.31936	0.19003
	744	168	0.31146	0.243	0.24106	0.29595	0.26872	0.45399	0.38274	1.31104
IP addr.	24	1	0.12236	0.20159	0.20215	0.19689	0.20082	0.23443	0.21559	0.2044
	168	1	0.12325	0.20415	0.20465	0.2128	0.2127	0.25898	0.27944	0.20483
	168	24	0.12387	0.25255	0.25527	0.23855	0.24097	0.79898	0.26855	0.28995
	744	1	0.12546	0.20694	0.20938	0.26398	0.27319	0.292	0.3627	0.20257
	744	168	0.12644	0.27026	0.26814	0.27601	0.26789	0.80283	0.29477	0.38008

Table 28: Harmonic Score for dir_ratio_packets

	Training window	Prediction window	Mean	GRU	LSTM	GRU-FCN	LSTM-FCN	InceptionTime	ResNet	RC-LSTM
Inst.	24	1	85.7 (32)	94.3 (42)	94.9 (42)	82.2 (38)	85.4 (39)	110.6 (48)	90.0 (43)	87.0 (40)
	168	1	97.0 (38)	97.1 (43)	96.2 (42)	82.1 (37)	86.6 (40)	115.2 (45)	102.0 (43)	86.9 (39)
	168	24	97.5 (38)	122.3 (38)	116.9 (36)	99.3 (37)	105.8 (36)	165.5 (32)	126.1 (41)	103.9 (39)
	744	1	100.3 (39)	96.7 (42)	96.1 (42)	87.9 (36)	91.8 (38)	121.2 (44)	112.0 (41)	85.6 (40)
	744	168	100.5 (38)	116.6 (28)	116.4 (30)	111.1 (44)	110.7 (34)	164.9 (32)	143.4 (40)	163.5 (15)
Inst. subnets	24	1	81.1 (35)	99.4 (46)	99.1 (45)	88.8 (42)	88.9 (43)	116.9 (51)	96.7 (47)	90.0 (43)
	168	1	92.5 (41)	99.9 (46)	99.2 (45)	88.3 (42)	91.6 (44)	121.1 (48)	104.4 (44)	89.7 (43)
	168	24	93.0 (41)	125.7 (40)	120.5 (39)	105.4 (41)	111.3 (41)	166.5 (35)	130.6 (42)	110.0 (42)
	744	1	97.5 (42)	100.5 (46)	100.8 (45)	95.3 (41)	99.7 (42)	125.7 (46)	115.4 (42)	88.2 (43)
	744	168	97.9 (41)	118.7 (32)	117.8 (34)	119.9 (47)	115.5 (38)	165.9 (35)	146.2 (40)	166.7 (16)
IP addr.	24	1	57.9 (35)	181.8 (37)	181.6 (36)	176.5 (41)	176.4 (42)	184.4 (35)	177.8 (40)	176.1 (43)
	168	1	117.1 (56)	181.7 (37)	181.9 (36)	179.8 (37)	180.7 (38)	186.5 (30)	182.3 (35)	177.7 (41)
	168	24	117.4 (56)	185.1 (27)	184.8 (28)	182.9 (33)	183.7 (32)	194.4 (15)	185.2 (30)	185.4 (33)
	744	1	146.1 (55)	181.9 (37)	182.0 (36)	180.9 (35)	182.0 (35)	187.6 (29)	182.0 (34)	179.2 (40)
	744	168	146.1 (55)	184.7 (27)	184.5 (27)	187.4 (31)	185.0 (31)	194.2 (16)	189.1 (24)	194.3 (12)

Table 29: SMAPE for n_bytes

8 Results for n_bytes

	Training window	Prediction window	Mean	GRU	LSTM	GRU-FCN	LSTM-FCN	InceptionTime	ResNet	RC-LSTM
Inst.	24	1	0.09 (0.1)	0.08 (0.8)	0.09 (0.8)	0.15 (1.0)	0.19 (0.7)	-0.77 (2.5)	0.06 (1.1)	0.2 (0.9)
	168	1	0.04 (0.1)	0.03 (0.9)	0.1 (0.7)	0.17 (0.7)	0.14 (0.9)	-1.08 (2.5)	-0.63 (2.2)	0.2 (0.9)
	168	24	0.03 (0.1)	-0.45 (1.2)	-0.45 (1.3)	-0.18 (1.1)	-0.29 (1.3)	-9.22 (2.2)	-0.73 (1.7)	-0.37 (1.5)
	744	1	0.01 (0.1)	0.06 (0.7)	0.07 (0.8)	-0.05 (1.0)	-0.09 (1.2)	-1.59 (2.8)	-0.92 (2.4)	0.23 (0.7)
	744	168	-0.01 (0.1)	-0.53 (1.3)	-0.49 (1.2)	-1.08 (2.8)	-0.54 (1.4)	-9.18 (2.3)	-0.74 (1.5)	-1.8 (2.4)
Inst. subnets	24	1	0.12 (0.2)	-0.1 (1.3)	-0.05 (1.1)	0.06 (0.8)	0.08 (0.8)	-1.29 (3.1)	-0.15 (1.4)	0.08 (1.1)
	168	1	0.06 (0.1)	-0.1 (1.2)	-0.07 (1.2)	0.05 (0.9)	-0.01 (1.2)	-1.57 (3.0)	-0.68 (2.1)	0.09 (1.0)
	168	24	0.05 (0.1)	-0.55 (1.4)	-0.53 (1.3)	-0.27 (1.1)	-0.55 (1.8)	-8.9 (2.7)	-0.77 (1.6)	-0.64 (1.9)
	744	1	0.02 (0.1)	-0.1 (1.2)	-0.09 (1.1)	-0.19 (1.1)	-0.24 (1.3)	-2.19 (3.4)	-1.05 (2.5)	0.1 (1.0)
	744	168	-0.0 (0.1)	-0.61 (1.4)	-0.55 (1.3)	-1.67 (3.3)	-0.94 (2.2)	-8.85 (2.8)	-0.91 (1.8)	-2.26 (2.9)
IP addr.	24	1	-0.0 (0.1)	-0.46 (1.9)	-0.41 (1.8)	-0.12 (1.1)	-0.44 (1.9)	-2.7 (3.9)	-0.81 (2.4)	-0.09 (1.0)
	168	1	0.01 (0.1)	-0.41 (1.8)	-0.4 (1.8)	-0.18 (1.2)	-0.66 (2.3)	-2.82 (3.9)	-1.03 (2.8)	-0.12 (1.1)
	168	24	0.01 (0.1)	-0.31 (1.5)	-0.35 (1.6)	-0.61 (2.1)	-1.28 (3.0)	-9.22 (2.5)	-0.92 (2.6)	-0.99 (2.6)
	744	1	-0.08 (0.9)	-0.38 (1.7)	-0.39 (1.8)	-0.25 (1.3)	-0.62 (2.2)	-3.57 (4.2)	-1.17 (3.0)	-0.29 (1.6)
	744	168	-0.09 (0.9)	-0.5 (1.8)	-0.34 (1.5)	-3.97 (4.2)	-1.52 (3.2)	-9.17 (2.5)	-0.52 (1.9)	-2.77 (3.8)

Table 30: R2-score for n_bytes

	Training window	Prediction window	Mean	GRU	LSTM	GRU-FCN	LSTM-FCN	InceptionTime	ResNet	RC-LSTM
Inst.	24	1	0.146 (0.75)	0.104 (0.53)	0.105 (0.54)	0.102 (0.55)	0.102 (0.54)	0.112 (0.55)	0.106 (0.55)	0.14 (0.8)
	168	1	0.149 (0.75)	0.105 (0.53)	0.106 (0.54)	0.104 (0.55)	0.103 (0.54)	0.124 (0.55)	0.127 (0.55)	0.14 (0.8)
	168	24	0.15 (0.75)	0.123 (0.55)	0.124 (0.55)	0.115 (0.55)	0.117 (0.55)	0.483 (0.51)	0.131 (0.55)	0.163 (0.81)
	744	1	0.151 (0.75)	0.106 (0.53)	0.106 (0.53)	0.111 (0.55)	0.11 (0.53)	0.136 (0.55)	0.146 (0.56)	0.112 (0.58)
	744	168	0.152 (0.76)	0.165 (0.82)	0.165 (0.82)	0.165 (0.82)	0.164 (0.82)	0.519 (0.78)	0.173 (0.82)	0.193 (0.83)
Inst. subnets	24	1	0.383 (1.63)	0.218 (1.14)	0.219 (1.15)	0.217 (1.15)	0.217 (1.15)	0.23 (1.15)	0.22 (1.15)	0.323 (1.5)
	168	1	0.392 (1.66)	0.219 (1.15)	0.22 (1.15)	0.219 (1.15)	0.219 (1.15)	0.238 (1.15)	0.235 (1.15)	0.277 (1.36)
	168	24	0.394 (1.66)	0.237 (1.15)	0.237 (1.15)	0.229 (1.15)	0.231 (1.15)	0.59 (1.1)	0.244 (1.15)	0.334 (1.48)
	744	1	0.4 (1.68)	0.22 (1.14)	0.22 (1.15)	0.228 (1.15)	0.228 (1.15)		0.255 (1.15)	0.225 (1.16)
	744	168	0.402 (1.69)	0.265 (1.23)	0.265 (1.23)	0.269 (1.23)	0.265 (1.23)	0.613 (1.18)	0.275 (1.23)	0.326 (1.37)
IP addr.	24	1	1.01 (2.86)	0.149 (0.82)	0.15 (0.82)	0.15 (0.82)	0.151 (0.82)	0.165 (0.82)	0.152 (0.82)	0.221 (1.08)
	168	1	1.011 (2.86)	0.15 (0.82)	0.151 (0.82)	0.152 (0.82)	0.152 (0.82)	0.168 (0.82)	0.158 (0.82)	0.226 (1.12)
	168	24	1.011 (2.86)	0.154 (0.82)	0.154 (0.82)	0.154 (0.82)	0.158 (0.82)	0.573 (0.77)	0.159 (0.82)	0.247 (1.17)
	744	1	1.013 (2.86)	0.15 (0.82)	0.151 (0.82)	0.153 (0.82)	0.154 (0.82)	0.183 (0.82)	0.163 (0.82)	0.166 (0.89)
	744	168	1.014 (2.86)	0.179 (0.93)	0.179 (0.93)	0.214 (0.92)	0.189 (0.93)	0.593 (0.88)	0.182 (0.93)	0.234 (1.08)

Table 31: RMSE for n_bytes

	Training window	Prediction window	Mean	GRU	LSTM	GRU-FCN	LSTM-FCN	InceptionTime	ResNet	RC-LSTM
Inst.	24	1	0.14638	0.11988	0.1215	0.11476	0.11606	0.13448	0.1222	0.11924
	168	1	0.1517	0.12234	0.12238	0.11722	0.11811	0.15712	0.16212	0.11846
	168	24	0.15286	0.15592	0.15702	0.14076	0.14397	0.85087	0.17161	0.1615
	744	1	0.15491	0.12492	0.12375	0.13182	0.13322	0.18183	0.20099	0.12041
	744	168	0.15642	0.17122	0.17116	0.17118	0.16935	0.85523	0.18619	0.2244
Inst. subnets	24	1	0.17652	0.15198	0.15372	0.14844	0.14955	0.17427	0.15523	0.18015
	168	1	0.1866	0.154	0.15485	0.15295	0.15374	0.19104	0.18327	0.16024
	168	24	0.18937	0.18747	0.18793	0.17265	0.17702	0.86831	0.202	0.21899
	744	1	0.19685	0.15636	0.15621	0.1695	0.17137	0.21963	0.22311	0.15169
	744	168	0.20168	0.20279	0.2011	0.20976	0.20196	0.87231	0.22229	0.2701
IP addr.	24	1	0.29957	0.12944	0.13082	0.13074	0.13197	0.15928	0.13441	0.1641
	168	1	0.29675	0.1303	0.13137	0.13296	0.13481	0.16474	0.14476	0.16158
	168	24	0.29812	0.13804	0.13796	0.13748	0.14576	0.9378	0.14757	0.1745
	744	1	0.30066	0.1301	0.13143	0.13599	0.13734	0.19576	0.15526	0.13802
	744	168	0.30275	0.15091	0.15003	0.22075	0.1697	0.943	0.15623	0.19307

Table 32: Harmonic Score for n_bytes

	Training window	Prediction window	Mean	GRU	LSTM	GRU-FCN	LSTM-FCN	InceptionTime	ResNet	RC-LSTM
Inst.	24	1	41.3 (19)	36.9 (34)	36.9 (30)	32.6 (34)	34.1 (30)	42.9 (41)	32.8 (31)	29.2 (24)
	168	1	50.3 (24)	37.6 (35)	37.1 (30)	37.7 (33)	38.7 (34)	53.8 (39)	43.4 (35)	29.8 (26)
	168	24	50.9 (24)	87.7 (55)	85.3 (52)	58.5 (39)	72.7 (41)	117.1 (46)	102.4 (53)	58.5 (28)
	744	1	54.4 (26)	37.7 (32)	38.6 (31)	50.8 (36)	54.9 (35)	72.0 (40)	77.4 (49)	28.2 (24)
	744	168	54.8 (25)	97.5 (46)	97.1 (47)	61.9 (35)	89.6 (42)	116.1 (46)	118.7 (58)	162.7 (16)
Inst. subnets	24	1	40.0 (24)	45.1 (41)	44.5 (37)	41.0 (40)	41.1 (36)	53.6 (48)	40.6 (38)	37.1 (35)
	168	1	47.7 (28)	44.8 (39)	45.3 (37)	46.2 (40)	43.7 (37)	62.3 (44)	52.0 (41)	36.5 (34)
	168	24	48.4 (27)	97.4 (60)	94.4 (56)	71.2 (48)	79.2 (45)	124.6 (48)	108.8 (53)	64.1 (34)
	744	1	52.1 (28)	46.5 (40)	46.6 (37)	60.4 (43)	60.9 (39)	77.5 (42)	80.1 (47)	34.6 (33)
	744	168	52.9 (28)	102.0 (47)	100.6 (49)	72.3 (43)	89.5 (45)	123.4 (49)	126.8 (56)	162.5 (17)
IP addr.	24	1	57.7 (35)	173.3 (49)	172.6 (49)	171.1 (50)	170.7 (50)	171.1 (47)	170.0 (49)	153.3 (61)
	168	1	120.8 (59)	173.1 (49)	172.8 (49)	173.9 (48)	172.6 (49)	173.1 (44)	173.3 (46)	156.3 (59)
	168	24	121.2 (59)	184.9 (37)	184.1 (37)	179.1 (42)	179.4 (39)	184.6 (27)	183.9 (35)	175.6 (43)
	744	1	147.2 (58)	173.4 (49)	173.3 (48)	177.2 (44)	175.7 (44)	175.1 (40)	178.1 (40)	161.2 (58)
	744	168	147.6 (58)	184.0 (35)	183.9 (36)	176.0 (41)	180.1 (38)	184.2 (28)	187.8 (30)	191.7 (13)

Table 33: SMAPE for n_flows

9 Results for n_flows

	Training window	Prediction window	Mean	GRU	LSTM	GRU-FCN	LSTM-FCN	InceptionTime	ResNet	RC-LSTM
Inst.	24	1	0.27 (0.2)	0.35 (1.3)	0.38 (1.1)	0.5 (0.9)	0.44 (1.1)	-0.18 (2.5)	0.35 (1.4)	0.57 (0.9)
	168	1	0.13 (0.1)	0.38 (1.1)	0.32 (1.3)	0.33 (1.3)	0.39 (1.0)	-0.76 (2.8)	-0.11 (1.9)	0.58 (0.8)
	168	24	0.11 (0.1)	-0.82 (1.8)	-0.82 (1.8)	-0.29 (1.4)	-0.56 (1.7)	-6.32 (3.9)	-1.54 (2.1)	-0.73 (1.9)
	744	1	0.02 (0.1)	0.38 (1.0)	0.36 (1.0)	-0.09 (1.6)	-0.18 (1.6)	-1.54 (3.0)	-2.26 (3.7)	0.62 (0.7)
	744	168	-0.02 (0.2)	-1.02 (1.9)	-1.01 (1.9)	-0.98 (2.5)	-1.12 (2.0)	-6.22 (3.9)	-1.88 (2.5)	-3.78 (3.1)
Inst. subnets	24	1	0.32 (0.2)	0.12 (1.5)	0.12 (1.4)	0.18 (1.5)	0.24 (1.2)	-0.94 (3.4)	0.24 (1.1)	0.41 (1.0)
	168	1	0.17 (0.2)	0.13 (1.5)	0.07 (1.6)	0.14 (1.3)	0.23 (1.1)	-1.33 (3.3)	-0.56 (2.4)	0.44 (0.9)
	168	24	0.14 (0.2)	-1.09 (1.9)	-1.07 (1.9)	-0.57 (1.5)	-0.72 (1.7)	-6.81 (3.8)	-1.86 (2.4)	-0.9 (1.9)
	744	1	0.05 (0.2)	0.09 (1.5)	0.05 (1.5)	-0.21 (1.4)	-0.36 (1.6)	-2.27 (3.6)	-2.4 (3.7)	0.46 (1.0)
	744	168	-0.0 (0.2)	-1.26 (2.0)	-1.2 (1.9)	-1.69 (3.2)	-1.35 (2.2)	-6.68 (3.9)	-2.1 (2.4)	-4.33 (3.4)
IP addr.	24	1	0.1 (0.2)	-0.34 (1.8)	-0.39 (1.9)	0.07 (0.6)	-0.04 (1.0)	-1.5 (3.0)	-0.26 (1.6)	0.07 (1.0)
	168	1	0.06 (0.1)	-0.33 (1.7)	-0.39 (1.9)	-0.03 (0.7)	-0.2 (1.4)	-1.81 (3.1)	-0.89 (2.5)	0.03 (1.2)
	168	24	0.04 (0.1)	-0.24 (0.9)	-0.26 (1.0)	-0.24 (1.1)	-0.59 (2.0)	-9.07 (2.5)	-0.7 (2.0)	-0.71 (2.0)
	744	1	-0.03 (0.7)	-0.34 (1.7)	-0.36 (1.7)	-0.39 (1.6)	-0.69 (2.2)	-2.47 (3.6)	-1.35 (2.9)	-0.11 (1.6)
	744	168	-0.05 (0.7)	-0.4 (1.3)	-0.32 (1.1)	-2.5 (3.6)	-1.18 (2.7)	-8.99 (2.6)	-0.8 (2.1)	-1.96 (3.1)

Table 34: R2-score for n_flows

	Training window	Prediction window	Mean	GRU	LSTM	GRU-FCN	LSTM-FCN	InceptionTime	ResNet	RC-LSTM
Inst.	24	1	0.198 (0.87)	0.14 (0.74)	0.144 (0.74)	0.141 (0.75)	0.144 (0.74)	0.152 (0.75)	0.148 (0.75)	0.148 (0.74)
	168	1	0.211 (0.87)	0.142 (0.74)	0.144 (0.74)	0.151 (0.75)	0.15 (0.75)	0.183 (0.75)	0.167 (0.75)	0.177 (0.94)
	168	24	0.214 (0.87)	0.204 (0.74)	0.206 (0.74)	0.189 (0.75)	0.196 (0.75)	0.439 (0.72)	0.238 (0.75)	0.254 (0.94)
	744	1	0.221 (0.88)	0.143 (0.73)	0.147 (0.74)	0.18 (0.75)	0.184 (0.75)	0.229 (0.75)	0.283 (0.77)	0.141 (0.74)
	744	168	0.224 (0.88)	0.217 (0.75)	0.216 (0.75)	0.212 (0.75)	0.22 (0.75)	0.44 (0.72)	0.25 (0.75)	0.314 (0.76)
Inst. subnets	24	1	0.33 (1.4)	0.184 (1.01)	0.186 (1.01)	0.184 (1.01)	0.186 (1.01)	0.195 (1.01)	0.19 (1.01)	0.237 (1.19)
	168	1	0.359 (1.47)	0.186 (1.01)	0.187 (1.01)	0.19 (1.01)	0.191 (1.01)	0.22 (1.01)	0.214 (1.01)	0.214 (1.11)
	168	24	0.364 (1.48)	0.237 (1.01)	0.238 (1.01)	0.225 (1.01)	0.229 (1.01)	0.49 (0.98)	0.267 (1.01)	0.338 (1.32)
	744	1	0.376 (1.52)	0.186 (1.01)	0.188 (1.01)	0.213 (1.01)	0.222 (1.01)	0.265 (1.01)	0.305 (1.02)	0.181 (1.01)
	744	168	0.38 (1.52)	0.25 (1.01)	0.248 (1.01)	0.249 (1.01)	0.252 (1.01)	0.491 (0.98)	0.278 (1.01)	0.35 (1.1)
IP addr.	24	1	0.404 (1.59)	0.104 (0.47)	0.104 (0.47)	0.102 (0.46)	0.104 (0.47)	0.115 (0.47)	0.106 (0.47)	0.124 (0.57)
	168	1	0.412 (1.6)	0.104 (0.47)	0.105 (0.47)	0.106 (0.47)	0.106 (0.47)	0.125 (0.47)	0.125 (0.48)	0.122 (0.57)
	168	24	0.415 (1.61)	0.116 (0.48)	0.116 (0.47)	0.113 (0.48)	0.115 (0.48)	0.504 (0.44)	0.123 (0.48)	0.163 (0.73)
	744	1	0.419 (1.62)	0.105 (0.47)	0.106 (0.47)	0.113 (0.47)	0.118 (0.48)	0.139 (0.48)	0.136 (0.48)	0.102 (0.48)
	744	168	0.422 (1.62)	0.124 (0.48)	0.123 (0.48)	0.147 (0.47)	0.132 (0.48)	0.507 (0.44)	0.132 (0.48)	0.174 (0.74)

Table 35: RMSE for n_flows

	Training window	Prediction window	Mean	GRU	LSTM	GRU-FCN	LSTM-FCN	InceptionTime	ResNet	RC-LSTM
Inst.	24	1	0.18683	0.11913	0.12556	0.11844	0.12531	0.13942	0.13051	0.1265
	168	1	0.21033	0.12135	0.12522	0.13713	0.13543	0.19814	0.16836	0.13393
	168	24	0.21476	0.23948	0.24304	0.21018	0.22379	0.69603	0.30567	0.27965
	744	1	0.23055	0.12417	0.13032	0.19114	0.20169	0.28728	0.39077	0.11797
	744	168	0.23788	0.26144	0.25978	0.25101	0.2666	0.696	0.32569	0.44181
Inst. subnets	24	1	0.17599	0.13849	0.14334	0.13896	0.14352	0.16069	0.15074	0.16576
	168	1	0.20578	0.14246	0.14492	0.15062	0.1535	0.20804	0.19647	0.15267
	168	24	0.21189	0.24157	0.24332	0.21791	0.22462	0.73261	0.30026	0.31059
	744	1	0.2313	0.14346	0.14726	0.19357	0.21184	0.297	0.37171	0.13393
	744	168	0.242	0.26357	0.25993	0.26174	0.26713	0.73153	0.31919	0.43491
IP addr.	24	1	0.20721	0.13223	0.13303	0.12879	0.13133	0.15469	0.13614	0.14734
	168	1	0.21855	0.13222	0.13387	0.13558	0.13646	0.17269	0.1731	0.14391
	168	24	0.22197	0.1545	0.15507	0.14946	0.15349	0.89921	0.16938	0.18914
	744	1	0.22912	0.13457	0.13577	0.14977	0.16033	0.20014	0.1942	0.12692
	744	168	0.23424	0.16904	0.16719	0.21364	0.18417	0.90273	0.18332	0.21089

Table 36: Harmonic Score for n_flows

	Training window	Prediction window	Mean	GRU	LSTM	GRU-FCN	LSTM-FCN	InceptionTime	ResNet	RC-LSTM
Inst.	24	1	75.6 (28)	85.5 (45)	83.2 (40)	68.0 (35)	70.0 (36)	96.6 (48)	76.1 (39)	73.5 (35)
	168	1	88.1 (35)	85.0 (42)	83.2 (39)	69.9 (34)	73.5 (36)	103.8 (46)	89.8 (41)	73.7 (35)
	168	24	88.5 (35)	119.6 (42)	111.5 (39)	87.1 (37)	94.3 (33)	159.3 (34)	124.9 (44)	91.9 (35)
	744	1	91.9 (36)	85.0 (42)	84.0 (39)	77.2 (35)	79.5 (35)	110.9 (44)	104.0 (41)	72.1 (36)
	744	168	92.1 (36)	113.2 (30)	112.1 (32)	99.7 (42)	102.9 (33)	158.9 (34)	141.3 (43)	160.0 (14)
Inst. subnets	24	1	70.3 (32)	88.1 (46)	87.4 (43)	74.2 (40)	76.4 (41)	103.2 (51)	81.2 (43)	76.4 (39)
	168	1	81.3 (38)	88.4 (45)	87.4 (42)	75.8 (38)	78.9 (40)	108.9 (47)	94.0 (44)	76.6 (39)
	168	24	81.9 (37)	124.0 (43)	116.3 (41)	95.1 (40)	100.5 (38)	161.4 (36)	125.5 (44)	97.2 (39)
	744	1	86.3 (38)	89.9 (45)	88.1 (42)	84.4 (39)	88.0 (40)	115.4 (44)	108.6 (41)	74.6 (39)
	744	168	86.8 (38)	114.9 (33)	113.7 (35)	107.3 (45)	106.9 (37)	160.8 (37)	144.9 (42)	162.2 (15)
IP addr.	24	1	58.5 (35)	178.2 (40)	178.4 (40)	175.5 (44)	174.0 (45)	182.0 (37)	175.4 (42)	165.9 (51)
	168	1	117.6 (56)	178.6 (40)	178.6 (39)	177.9 (41)	177.6 (41)	184.0 (33)	178.9 (38)	167.6 (50)
	168	24	118.0 (56)	184.4 (29)	183.2 (30)	180.2 (36)	181.1 (35)	193.6 (17)	184.3 (30)	182.1 (36)
	744	1	145.0 (55)	178.4 (40)	178.6 (40)	178.8 (39)	178.8 (39)	185.3 (32)	179.4 (36)	173.5 (46)
	744	168	145.1 (55)	183.1 (29)	182.9 (30)	184.8 (33)	183.7 (33)	193.3 (17)	188.7 (24)	193.0 (13)

Table 37: SMAPE for n_packets

10 Results for n_packets

	Training window	Prediction window	Mean	GRU	LSTM	GRU-FCN	LSTM-FCN	InceptionTime	ResNet	RC-LSTM
Inst.	24	1	0.12 (0.1)	0.12 (0.9)	0.14 (0.8)	0.27 (0.7)	0.27 (0.7)	-0.51 (2.3)	0.16 (0.8)	0.26 (0.9)
	168	1	0.05 (0.1)	0.09 (1.0)	0.12 (0.9)	0.2 (0.9)	0.23 (0.7)	-0.78 (2.0)	-0.65 (2.2)	0.26 (0.9)
	168	24	0.04 (0.1)	-0.4 (1.0)	-0.4 (1.0)	-0.14 (1.0)	-0.25 (1.1)	-9.03 (2.4)	-0.73 (1.5)	-0.34 (1.4)
	744	1	0.0 (0.2)	0.1 (0.9)	0.09 (0.9)	-0.05 (1.2)	-0.04 (1.2)	-1.25 (2.4)	-0.98 (2.5)	0.26 (0.9)
	744	168	-0.02 (0.3)	-0.51 (1.1)	-0.5 (1.1)	-0.87 (2.4)	-0.52 (1.2)	-8.99 (2.5)	-0.92 (1.6)	-1.9 (2.3)
Inst. subnets	24	1	0.15 (0.2)	-0.04 (1.1)	-0.04 (1.1)	0.13 (0.9)	0.13 (0.8)	-1.07 (2.9)	-0.0 (1.2)	0.14 (1.1)
	168	1	0.08 (0.1)	-0.05 (1.2)	-0.1 (1.3)	0.11 (0.8)	0.1 (0.7)	-1.45 (3.0)	-0.9 (2.6)	0.14 (1.0)
	168	24	0.06 (0.1)	-0.62 (1.4)	-0.6 (1.3)	-0.3 (1.1)	-0.51 (1.6)	-8.78 (2.8)	-0.96 (1.8)	-0.66 (1.9)
	744	1	0.03 (0.2)	-0.04 (1.0)	-0.1 (1.2)	-0.22 (1.4)	-0.25 (1.4)	-1.99 (3.2)	-1.41 (2.9)	0.15 (1.0)
	744	168	-0.0 (0.2)	-0.64 (1.3)	-0.61 (1.2)	-1.44 (3.1)	-0.89 (2.1)	-8.73 (2.9)	-1.13 (1.9)	-2.42 (2.9)
IP addr.	24	1	0.01 (0.1)	-0.42 (1.9)	-0.4 (1.8)	-0.07 (0.8)	-0.31 (1.6)	-2.67 (3.9)	-0.74 (2.4)	-0.09 (1.1)
	168	1	0.02 (0.1)	-0.42 (1.8)	-0.38 (1.7)	-0.15 (1.1)	-0.49 (1.9)	-2.93 (3.9)	-0.91 (2.6)	-0.11 (1.1)
	168	24	0.01 (0.1)	-0.24 (1.2)	-0.3 (1.4)	-0.54 (2.0)	-1.37 (3.1)	-9.36 (2.2)	-1.0 (2.7)	-0.92 (2.5)
	744	1	-0.06 (0.8)	-0.38 (1.7)	-0.36 (1.7)	-0.22 (1.2)	-0.48 (1.9)	-3.58 (4.2)	-1.18 (3.0)	-0.34 (1.8)
	744	168	-0.08 (0.8)	-0.44 (1.7)	-0.31 (1.4)	-3.74 (4.2)	-1.39 (3.1)	-9.31 (2.3)	-0.56 (2.0)	-2.82 (3.8)

Table 38: R2-score for n_packets

	Training window	Prediction window	Mean	GRU	LSTM	GRU-FCN	LSTM-FCN	InceptionTime	ResNet	RC-LSTM
Inst.	24	1	0.152 (0.76)	0.109 (0.59)	0.109 (0.59)	0.106 (0.6)	0.107 (0.6)	0.115 (0.6)	0.11 (0.6)	0.108 (0.58)
	168	1	0.157 (0.77)	0.11 (0.58)	0.111 (0.59)	0.108 (0.6)	0.109 (0.6)	0.128 (0.6)	0.132 (0.6)	0.108 (0.58)
	168	24	0.159 (0.77)	0.133 (0.61)	0.133 (0.61)	0.124 (0.62)	0.127 (0.62)	0.478 (0.57)	0.144 (0.62)	0.169 (0.84)
	744	1	0.162 (0.78)	0.11 (0.57)	0.111 (0.59)	0.119 (0.6)	0.118 (0.6)	0.142 (0.6)	0.156 (0.61)	0.113 (0.62)
	744	168	0.163 (0.78)	0.173 (0.85)	0.173 (0.85)	0.17 (0.85)	0.172 (0.85)	0.513 (0.81)	0.187 (0.85)	0.206 (0.86)
Inst. subnets	24	1	0.355 (1.56)	0.198 (1.05)	0.199 (1.05)	0.197 (1.06)	0.198 (1.06)	0.208 (1.06)	0.201 (1.06)	0.265 (1.3)
	168	1	0.367 (1.58)	0.198 (1.05)	0.199 0.2 (1.06)	0.199 (1.06)	0.199 0.2 (1.06)	0.22 (1.06)	0.222 (1.06)	0.25 (1.23)
	168	24	0.37 (1.58)	0.222 (1.06)	0.222 (1.06)	0.214 (1.07)	0.216 (1.07)	0.564 (1.02)	0.232 (1.06)	0.316 (1.39)
	744	1	0.375 (1.59)	0.199 (1.05)	0.199 (1.05)	0.209 (1.06)	0.211 (1.06)	0.239 (1.06)	0.251 (1.06)	0.203 (1.07)
	744	168	0.378 (1.6)	0.247 (1.14)	0.247 (1.14)	0.248 (1.14)	0.247 (1.14)	0.584 (1.09)	0.262 (1.14)	0.301 (1.23)
IP addr.	24	1	0.588 (2.06)	0.111 (0.61)	0.112 (0.61)	0.112 (0.61)	0.112 (0.61)	0.126 (0.61)	0.114 (0.61)	0.163 (0.83)
	168	1	0.591 (2.07)	0.112 (0.61)	0.113 (0.61)	0.114 (0.61)	0.114 (0.61)	0.13 (0.61)	0.118 (0.61)	0.185 (0.96)
	168	24	0.593 (2.07)	0.117 (0.61)	0.117 (0.61)	0.116 (0.61)	0.121 (0.61)	0.537 (0.57)	0.123 (0.61)	0.202 (1.01)
	744	1	0.596 (2.08)	0.112 (0.61)	0.113 (0.61)	0.115 (0.61)	0.116 (0.61)	0.146 (0.61)	0.125 (0.61)	0.128 (0.7)
	744	168	0.598 (2.08)	0.139 (0.71)	0.138 (0.71)	0.171 (0.7)	0.147 (0.71)	0.555 (0.66)	0.141 (0.71)	0.2 (0.93)

Table 39: RMSE for n_packets

	Training window	Prediction window	Mean	GRU	LSTM	GRU-FCN	LSTM-FCN	InceptionTime	ResNet	RC-LSTM
Inst.	24	1	0.15126	0.12069	0.12139	0.11254	0.1144	0.13163	0.12101	0.11895
	168	1	0.1594	0.12306	0.12341	0.11662	0.11913	0.15639	0.16487	0.11774
	168	24	0.16105	0.16281	0.16412	0.1456	0.15125	0.83193	0.18497	0.17369
	744	1	0.1654	0.12393	0.12385	0.13796	0.13799	0.18343	0.21019	0.11821
	744	168	0.16776	0.17959	0.1794	0.17257	0.17749	0.83702	0.20719	0.24283
Inst. subnets	24	1	0.16729	0.14815	0.14982	0.14297	0.14486	0.16411	0.1508	0.17159
	168	1	0.18211	0.14776	0.15042	0.14806	0.15019	0.18937	0.19195	0.15856
	168	24	0.18566	0.19035	0.19099	0.17487	0.17845	0.85078	0.21057	0.22584
	744	1	0.19463	0.15016	0.15068	0.16608	0.17195	0.22544	0.24913	0.14467
	744	168	0.20046	0.20475	0.20374	0.20643	0.20379	0.85524	0.23405	0.28033
IP addr.	24	1	0.24703	0.11765	0.1192	0.11854	0.11882	0.14593	0.12119	0.14827
	168	1	0.24718	0.11814	0.11958	0.12112	0.12243	0.15459	0.13011	0.14985
	168	24	0.24877	0.12698	0.12774	0.12616	0.13565	0.93088	0.13819	0.16427
	744	1	0.25265	0.11805	0.11954	0.12406	0.12569	0.18402	0.14251	0.12566
	744	168	0.25525	0.14173	0.14085	0.20534	0.15859	0.93691	0.14687	0.18587

Table 40: Harmonic Score for n_packets

	Training window	Prediction window	Mean	GRU	LSTM	GRU-FCN	LSTM-FCN	InceptionTime	ResNet	RC-LSTM
Inst.	24	1	32.1 (15)	24.1 (26)	24.1 (24)	21.6 (23)	23.4 (23)	24.7 (27)	23.5 (27)	21.3 (19)
	168	1	37.1 (17)	24.4 (25)	24.4 (24)	25.2 (28)	26.7 (27)	32.0 (29)	28.6 (29)	21.3 (20)
	168	24	37.3 (17)	56.8 (51)	56.6 (50)	38.7 (33)	50.5 (40)	87.4 (46)	78.9 (52)	44.1 (25)
	744	1	38.8 (18)	24.3 (23)	24.4 (22)	35.8 (32)	36.8 (29)	46.1 (35)	53.1 (44)	21.0 (20)
	744	168	38.9 (18)	70.9 (51)	71.7 (52)	44.0 (30)	65.3 (43)	85.9 (45)	93.4 (60)	171.2 (16)
Inst. subnets	24	1	32.6 (23)	31.4 (35)	31.5 (34)	28.7 (34)	31.1 (34)	32.5 (36)	31.2 (35)	29.7 (33)
	168	1	36.9 (26)	30.9 (33)	32.1 (34)	31.9 (36)	33.4 (36)	38.6 (36)	36.3 (36)	28.9 (31)
	168	24	37.2 (26)	75.0 (62)	73.6 (60)	46.0 (40)	58.6 (45)	98.4 (48)	87.4 (57)	47.5 (35)
	744	1	39.1 (26)	31.0 (33)	32.0 (33)	41.0 (37)	43.3 (36)	50.4 (38)	52.8 (43)	28.5 (32)
	744	168	39.5 (26)	89.2 (57)	89.5 (57)	54.7 (39)	77.9 (47)	97.6 (48)	104.6 (63)	168.7 (16)
IP addr.	24	1	54.8 (36)	173.3 (50)	172.7 (49)	171.1 (50)	171.0 (50)	170.2 (49)	171.7 (48)	139.0 (69)
	168	1	116.0 (58)	173.0 (50)	172.7 (49)	172.6 (50)	172.2 (50)	170.8 (48)	172.6 (48)	141.4 (68)
	168	24	116.3 (58)	187.2 (35)	186.6 (35)	177.5 (47)	179.6 (41)	183.7 (26)	183.1 (38)	173.3 (49)
	744	1	145.8 (61)	173.5 (50)	173.3 (49)	175.2 (47)	173.9 (48)	172.0 (47)	174.4 (47)	150.4 (63)
	744	168	146.0 (61)	188.1 (28)	188.6 (28)	174.1 (45)	182.1 (35)	183.6 (26)	186.8 (33)	191.8 (14)

Table 41: SMAPE for std_n_dest_asn

11 Results for std_n_dest_asn

	Training window	Prediction window	Mean	GRU	LSTM	GRU-FCN	LSTM-FCN	InceptionTime	ResNet	RC-LSTM
Inst.	24	1	0.19 (0.2)	0.42 (1.2)	0.46 (1.0)	0.49 (1.2)	0.51 (0.8)	0.34 (1.3)	0.48 (0.7)	0.56 (0.4)
	168	1	0.08 (0.1)	0.49 (0.8)	0.43 (1.0)	0.4 (1.1)	0.39 (1.1)	0.04 (1.4)	0.14 (1.5)	0.53 (0.7)
	168	24	0.06 (0.1)	-0.87 (2.2)	-0.83 (2.2)	-0.08 (1.3)	-0.48 (1.6)	-5.34 (4.2)	-2.05 (2.8)	-0.92 (2.1)
	744	1	0.03 (0.1)	0.42 (1.1)	0.44 (0.9)	-0.02 (1.4)	-0.03 (1.2)	-0.89 (2.3)	-1.79 (3.6)	0.54 (0.8)
	744	168	-0.0 (0.1)	-1.15 (2.5)	-1.18 (2.5)	-0.72 (2.0)	-1.2 (2.4)	-5.2 (4.2)	-2.29 (3.0)	-5.57 (3.5)
Inst. subnets	24	1	0.22 (0.2)	0.26 (1.0)	0.25 (0.9)	0.35 (1.0)	0.29 (1.0)	0.11 (1.3)	0.14 (1.1)	0.33 (0.6)
	168	1	0.11 (0.2)	0.27 (1.0)	0.22 (1.0)	0.24 (1.0)	0.21 (1.0)	-0.25 (1.7)	-0.29 (2.0)	0.32 (0.8)
	168	24	0.09 (0.2)	-1.57 (2.9)	-1.55 (2.8)	-0.4 (1.5)	-0.88 (1.9)	-6.21 (4.2)	-2.54 (3.1)	-0.88 (2.0)
	744	1	0.03 (0.1)	0.28 (0.9)	0.23 (0.9)	-0.26 (1.6)	-0.39 (1.6)	-1.02 (2.2)	-1.53 (3.0)	0.34 (0.9)
	744	168	-0.0 (0.1)	-2.05 (3.1)	-2.08 (3.1)	-1.21 (2.4)	-1.84 (2.8)	-6.13 (4.2)	-2.94 (3.4)	-5.99 (3.6)
IP addr.	24	1	0.07 (0.1)	-0.33 (1.4)	-0.38 (1.6)	0.05 (0.3)	-0.04 (0.7)	-1.1 (2.5)	-0.32 (1.3)	-0.03 (0.9)
	168	1	0.05 (0.1)	-0.37 (1.6)	-0.42 (1.7)	-0.03 (0.5)	-0.16 (1.1)	-1.29 (2.6)	-1.26 (2.9)	-0.08 (1.1)
	168	24	0.04 (0.1)	-0.31 (0.9)	-0.29 (0.8)	-0.18 (0.9)	-0.43 (1.5)	-9.52 (1.8)	-0.58 (1.7)	-0.55 (1.8)
	744	1	0.01 (0.2)	-0.32 (1.4)	-0.4 (1.6)	-0.36 (1.3)	-0.53 (1.9)	-1.86 (3.1)	-1.07 (2.5)	-0.25 (1.6)
	744	168	-0.01 (0.3)	-0.49 (1.2)	-0.42 (1.1)	-2.26 (3.2)	-1.1 (2.4)	-9.5 (1.9)	-0.77 (1.8)	-1.87 (2.8)

Table 42: R2-score for std_n_dest_asn

	Training window	Prediction window	Mean	GRU	LSTM	GRU-FCN	LSTM-FCN	InceptionTime	ResNet	RC-LSTM
Inst.	24	1	0.125 (0.13)	0.07 (0.14)	0.071 (0.14)	0.069 (0.15)	0.072 (0.15)	0.075 (0.16)	0.073 (0.16)	0.076 (0.14)
	168	1	0.133 (0.14)	0.07 (0.14)	0.074 (0.14)	0.079 (0.17)	0.08 (0.16)	0.095 (0.16)	0.087 (0.16)	0.074 (0.14)
	168	24	0.134 (0.14)	0.127 (0.15)	0.127 (0.15)	0.107 (0.16)	0.119 (0.15)	0.306 (0.16)	0.172 (0.16)	0.184 (0.6)
	744	1	0.136 (0.14)	0.071 (0.14)	0.073 (0.14)	0.104 (0.17)	0.106 (0.16)	0.14 (0.19)	0.184 (0.24)	0.072 (0.14)
	744	168	0.138 (0.14)	0.134 (0.15)	0.135 (0.15)	0.129 (0.16)	0.139 (0.15)	0.304 (0.16)	0.181 (0.17)	0.302 (0.21)
Inst. subnets	24	1	0.104 (0.13)	0.069 (0.13)	0.071 (0.13)	0.067 (0.13)	0.071 (0.14)	0.075 (0.14)	0.075 (0.14)	0.111 (0.62)
	168	1	0.112 (0.13)	0.069 (0.13)	0.072 (0.13)	0.074 (0.14)	0.076 (0.14)	0.094 (0.15)	0.09 (0.15)	0.073 (0.13)
	168	24	0.114 (0.13)	0.121 (0.14)	0.122 (0.14)	0.102 (0.14)	0.111 (0.14)	0.326 (0.14)	0.157 (0.15)	0.203 (0.86)
	744	1	0.118 (0.14)	0.07 (0.13)	0.072 (0.13)	0.095 (0.15)	0.102 (0.14)	0.124 (0.16)	0.15 (0.2)	0.071 (0.13)
	744	168	0.12 (0.14)	0.131 (0.14)	0.131 (0.14)	0.123 (0.14)	0.132 (0.14)	0.326 (0.14)		0.284 (0.46)
IP addr.	24	1	0.089 (0.24)	0.064 (0.05)	0.064 (0.05)	0.06 (0.05)	0.061 (0.05)	0.071 (0.05)	0.064 (0.05)	0.068 (0.12)
	168	1	0.091 (0.25)	0.064 (0.05)	0.064 (0.05)	0.062 (0.06)	0.062 (0.06)	0.076 (0.06)	0.095 (0.12)	0.077 (0.35)
	168	24	0.092 (0.25)	0.069 (0.06)	0.068 (0.06)	0.065 (0.06)	0.067 (0.06)	0.466 (0.04)	0.073 (0.06)	0.107 (0.58)
	744	1	0.094 (0.27)	0.064 (0.05)	0.064 (0.05)	0.067 (0.06)	0.069 (0.06)	0.087 (0.07)	0.083 (0.09)	0.06 (0.05)
	744	168	0.096 (0.27)	0.073 (0.06)	0.073 (0.06)	0.094 (0.06)	0.079 (0.06)	0.469 (0.04)	0.079 (0.07)	0.123 (0.58)

Table 43: RMSE for std_n_dest_asn

	Training window	Prediction window	Mean	GRU	LSTM	GRU-FCN	LSTM-FCN	InceptionTime	ResNet	RC-LSTM
Inst.	24	1	0.2018	0.10231	0.10537	0.10025	0.105	0.1112	0.1082	0.11145
	168	1	0.21698	0.10213	0.1093	0.12029	0.12171	0.14949	0.1353	0.10856
	168	24	0.21937	0.21364	0.21364	0.17313	0.19639	0.56054	0.30022	0.2731
	744	1	0.22377	0.10453	0.10814	0.16813	0.17273	0.23776	0.32227	0.10526
	744	168	0.22708	0.22541	0.22795	0.21506	0.2347	0.55675	0.31708	0.55498
Inst. subnets	24	1	0.16543	0.10718	0.11017	0.10373	0.11092	0.11921	0.11876	0.14072
	168	1	0.18086	0.10745	0.11227	0.11599	0.12141	0.15569	0.14783	0.11409
	168	24	0.18362	0.20702	0.20955	0.17106	0.18751	0.60501	0.27811	0.28369
	744	1	0.1911	0.10837	0.11263	0.15619	0.17187	0.21457	0.26451	0.10964
	744	168	0.19554	0.22687	0.22781	0.21071	0.22922	0.6041	0.29254	0.51099
IP addr.	24	1	0.13469	0.11679	0.11688	0.10882	0.11077	0.13128	0.11746	0.12022
	168	1	0.13762	0.11745	0.1174	0.11375	0.11448	0.14229	0.17675	0.11924
	168	24	0.13879	0.12634	0.12576	0.11963	0.12342	0.88771	0.13596	0.1448
	744	1	0.14151	0.11732	0.11828	0.12444	0.12777	0.16241	0.15412	0.11021
	744	168	0.14344	0.135	0.13353	0.17496	0.14615	0.8917	0.14592	0.17747

Table 44: Harmonic Score for std_n_dest_asn

	Training window	Prediction window	Mean	GRU	LSTM	GRU-FCN	LSTM-FCN	InceptionTime	ResNet	RC-LSTM
Inst.	24	1	46.0 (21)	29.3 (29)	30.3 (27)	27.5 (29)	29.6 (26)	31.2 (31)	28.1 (28)	27.8 (22)
	168	1	55.8 (27)	30.0 (29)	31.1 (27)	31.4 (31)	33.4 (31)	41.4 (34)	36.2 (32)	27.9 (22)
	168	24	56.2 (27)	65.9 (49)	67.3 (47)	46.7 (33)	55.0 (39)	96.3 (44)	87.0 (49)	54.6 (28)
	744	1	58.7 (28)	30.9 (27)	31.2 (26)	43.4 (32)	49.0 (34)	63.4 (40)	63.3 (47)	27.6 (23)
	744	168	58.7 (28)	85.3 (51)	85.0 (50)	49.4 (30)	79.1 (44)	95.3 (44)	96.6 (56)	167.7 (16)
Inst. subnets	24	1	42.6 (25)	36.5 (36)	37.8 (35)	35.0 (37)	37.1 (35)	39.1 (38)	36.9 (37)	34.8 (33)
	168	1	50.1 (30)	37.1 (37)	38.2 (36)	39.3 (38)	39.4 (36)	48.1 (38)	44.1 (38)	34.4 (32)
	168	24	50.6 (30)	80.9 (58)	80.8 (56)	54.8 (42)	67.4 (45)	104.6 (46)	91.6 (51)	57.5 (35)
	744	1	53.4 (31)	37.4 (35)	38.8 (35)	49.5 (38)	53.5 (37)	64.0 (42)	68.5 (50)	33.8 (32)
	744	168	53.7 (31)	95.3 (53)	95.7 (54)	59.9 (39)	88.1 (48)	104.1 (46)	107.5 (60)	166.6 (17)
IP addr.	24	1	55.6 (35)	174.2 (48)	173.8 (47)	171.7 (49)	171.7 (49)	171.0 (47)	172.2 (47)	141.8 (67)
	168	1	116.9 (57)	174.4 (48)	173.8 (47)	173.6 (48)	173.7 (49)	171.9 (46)	173.5 (47)	143.9 (66)
	168	24	117.2 (57)	187.5 (33)	187.0 (34)	178.5 (45)	180.8 (38)	185.3 (24)	183.3 (36)	173.9 (47)
	744	1	146.1 (60)	174.7 (48)	174.1 (48)	176.0 (46)	174.7 (47)	172.4 (45)	174.2 (46)	152.3 (61)
	744	168	146.4 (59)	188.1 (28)	188.3 (28)	174.6 (43)	181.6 (35)	185.1 (24)	188.2 (30)	191.3 (14)

Table 45: SMAPE for std_n_dest_ip

12 Results for std_n_dest_ip

	Training window	Prediction window	Mean	GRU	LSTM	GRU-FCN	LSTM-FCN	InceptionTime	ResNet	RC-LSTM
Inst.	24	1	0.2 (0.2)	0.61 (0.7)	0.55 (1.1)	0.64 (0.8)	0.62 (0.7)	0.48 (1.3)	0.6 (0.6)	0.64 (0.7)
	168	1	0.05 (0.6)	0.58 (0.8)	0.55 (1.0)	0.55 (1.0)	0.54 (0.9)	0.15 (1.6)	0.25 (1.6)	0.68 (0.3)
	168	24	0.03 (0.6)	-0.31 (1.6)	-0.38 (1.6)	0.1 (1.1)	-0.03 (1.3)	-3.92 (3.7)	-1.11 (2.1)	-0.41 (1.4)
	744	1	-0.01 (0.6)	0.56 (1.0)	0.57 (0.8)	0.27 (1.0)	0.08 (1.4)	-0.76 (2.3)	-1.69 (3.7)	0.65 (0.7)
	744	168	-0.04 (0.6)	-0.46 (1.8)	-0.45 (1.7)	-0.2 (1.5)	-0.42 (1.6)	-3.84 (3.7)	-1.1 (2.2)	-3.57 (3.2)
Inst. subnets	24	1	0.23 (0.2)	0.41 (1.0)	0.35 (1.1)	0.45 (0.8)	0.42 (0.8)	0.21 (1.4)	0.29 (1.1)	0.45 (0.8)
	168	1	0.09 (0.5)	0.38 (1.0)	0.32 (1.2)	0.35 (1.0)	0.36 (0.7)	-0.12 (1.7)	-0.08 (1.8)	0.5 (0.6)
	168	24	0.07 (0.5)	-0.85 (1.9)	-0.84 (2.0)	-0.18 (1.3)	-0.48 (1.6)	-5.24 (4.1)	-1.49 (2.2)	-0.57 (1.5)
	744	1	0.01 (0.5)	0.36 (1.1)	0.34 (1.1)	-0.02 (1.3)	-0.15 (1.3)	-0.89 (2.3)	-1.8 (3.4)	0.5 (0.6)
	744	168	-0.02 (0.5)	-1.07 (2.1)	-1.04 (2.1)	-0.61 (1.7)	-0.96 (2.0)	-5.2 (4.1)	-1.75 (2.6)	-4.03 (3.2)
IP addr.	24	1	0.06 (0.1)	-0.37 (1.6)	-0.41 (1.7)	0.0 (0.5)	-0.06 (0.7)	-1.24 (2.7)	-0.31 (1.4)	-0.03 (0.9)
	168	1	0.04 (0.1)	-0.36 (1.6)	-0.41 (1.7)	-0.04 (0.5)	-0.15 (1.0)	-1.49 (2.8)	-0.9 (2.5)	-0.09 (1.2)
	168	24	0.03 (0.1)	-0.24 (0.7)	-0.24 (0.8)	-0.15 (0.8)	-0.37 (1.3)	-9.59 (1.7)	-0.57 (1.7)	-0.65 (2.0)
	744	1	0.0 (0.4)	-0.36 (1.6)	-0.39 (1.6)	-0.3 (1.3)	-0.5 (1.9)	-2.07 (3.3)	-1.06 (2.5)	-0.26 (1.6)
	744	168	-0.02 (0.5)	-0.44 (1.2)	-0.33 (0.9)	-2.5 (3.3)	-1.2 (2.6)	-9.58 (1.7)	-0.81 (2.1)	-1.85 (2.8)

Table 46: R2-score for std_n_dest_ip

	Training window	Prediction window	Mean	GRU	LSTM	GRU-FCN	LSTM-FCN	InceptionTime	ResNet	RC-LSTM
Inst.	24	1	0.175 (0.27)	0.089 (0.22)	0.092 (0.22)	0.089 (0.23)	0.093 (0.23)	0.094 (0.24)	0.092 (0.23)	0.096 (0.21)
	168	1	0.186 (0.27)	0.09 (0.22)	0.093 (0.22)	0.1 (0.24)	0.1 (0.24)	0.123 (0.24)	0.114 (0.24)	0.095 (0.21)
	168	24	0.188 (0.27)	0.164 (0.23)	0.17 (0.23)	0.145 (0.24)	0.148 (0.24)	0.34 (0.22)	0.209 (0.24)	0.221 (0.63)
	744	1	0.191 (0.28)	0.092 (0.22)	0.095 (0.22)	0.126 (0.24)	0.141 (0.24)	0.194 (0.26)	0.237 (0.31)	0.094 (0.22)
	744	168	0.193 (0.28)	0.17 (0.24)	0.172 (0.24)	0.164 (0.24)	0.173 (0.24)	0.341 (0.22)	0.203 (0.24)	0.328 (0.27)
Inst. subnets	24	1	0.155 (0.26)	0.098 (0.3)	0.103 (0.32)	0.1 (0.32)	0.105 (0.32)	0.108 (0.33)	0.107 (0.33)	0.123 (0.53)
	168	1	0.169 (0.28)	0.1 (0.32)	0.103 (0.32)	0.107 (0.32)	0.11 (0.32)	0.135 (0.33)	0.127 (0.33)	0.104 (0.31)
	168	24	0.171 (0.28)	0.166 (0.32)	0.168 (0.32)	0.147 (0.32)	0.152 (0.32)	0.364 (0.3)	0.204 (0.33)	0.251 (0.9)
	744	1	0.178 (0.3)	0.101 (0.32)	0.104 (0.32)	0.133 (0.33)	0.145 (0.33)	0.182 (0.34)	0.236 (0.38)	0.102 (0.32)
	744	168	0.182 (0.31)	0.174 (0.32)	0.174 (0.32)	0.167 (0.33)	0.176 (0.32)	0.365 (0.3)	0.204 (0.33)	0.318 (0.55)
IP addr.	24	1	0.117 (0.51)	0.065 (0.14)	0.066 (0.14)	0.063 (0.14)	0.063 (0.14)	0.073 (0.14)	0.066 (0.14)	0.071 (0.19)
	168	1	0.119 (0.51)	0.066 (0.14)	0.066 (0.14)	0.064 (0.14)	0.064 (0.14)	0.078 (0.14)	0.08 (0.15)	0.08 (0.38)
	168	24	0.12 (0.52)	0.07 (0.14)	0.07 (0.14)	0.067 (0.14)	0.069 (0.14)	0.474 (0.12)	0.076 (0.15)	0.12 (0.68)
	744	1	0.123 (0.52)	0.066 (0.14)	0.066 (0.14)	0.068 (0.14)	0.07 (0.14)	0.089 (0.14)	0.081 (0.15)	0.059 (0.06)
	744	168	0.124 (0.53)	0.074 (0.14)	0.073 (0.14)	0.098 (0.14)	0.083 (0.14)	0.475 (0.12)	0.08 (0.15)	0.135 (0.68)

Table 47: RMSE for std_n_dest_ip

	Training window	Prediction window	Mean	GRU	LSTM	GRU-FCN	LSTM-FCN	InceptionTime	ResNet	RC-LSTM
Inst.	24	1	0.2555	0.11152	0.11768	0.11123	0.11835	0.12033	0.11749	0.1241
	168	1	0.27689	0.11382	0.11984	0.13165	0.1321	0.17483	0.15785	0.12144
	168	24	0.28016	0.25199	0.2641	0.21661	0.22164	0.59662	0.34097	0.30569
	744	1	0.28609	0.11865	0.12249	0.17956	0.21043	0.31121	0.3942	0.11981
	744	168	0.2905	0.26261	0.26462	0.25058	0.26792	0.59609	0.3257	0.56636
Inst. subnets	24	1	0.21298	0.12712	0.13508	0.12956	0.13857	0.14482	0.14337	0.14699
	168	1	0.23604	0.13028	0.13596	0.1423	0.14808	0.19602	0.18213	0.13568
	168	24	0.24023	0.2541	0.25879	0.21734	0.22783	0.64093	0.32844	0.31533
	744	1	0.25035	0.13198	0.13683	0.19187	0.21651	0.28638	0.39072	0.13283
	744	168	0.2568	0.26873	0.26832	0.25633	0.27276	0.64072	0.32746	0.52661
IP addr.	24	1	0.13906	0.11487	0.11604	0.10947	0.11016	0.13029	0.11719	0.1194
	168	1	0.14238	0.11533	0.11623	0.11165	0.11279	0.14043	0.14325	0.11923
	168	24	0.14368	0.1246	0.12395	0.11772	0.12227	0.89699	0.13472	0.14199
	744	1	0.14684	0.11611	0.11674	0.12097	0.12476	0.16158	0.14537	0.10695
	744	168	0.14905	0.1314	0.12973	0.17858	0.14816	0.89932	0.14304	0.17158

Table 48: Harmonic Score for std_n_dest_ip

	Training window	Prediction window	Mean	GRU	LSTM	GRU-FCN	LSTM-FCN	InceptionTime	ResNet	RC-LSTM
Inst.	24	1	32.2 (16)	59.9 (42)	53.8 (35)	67.6 (49)	55.3 (41)	94.6 (57)	52.6 (35)	38.2 (27)
	168	1	38.5 (20)	57.1 (43)	56.2 (38)	66.4 (43)	57.9 (36)	95.5 (51)	62.2 (36)	37.9 (26)
	168	24	39.2 (20)	138.3 (53)	127.4 (52)	97.3 (49)	100.9 (43)	163.8 (42)	122.1 (52)	66.5 (36)
	744	1	43.9 (23)	57.1 (41)	53.9 (37)	79.5 (42)	74.8 (41)	102.4 (50)	82.5 (44)	37.3 (27)
	744	168	44.9 (24)	122.3 (40)	120.7 (41)	104.8 (51)	109.6 (47)	162.8 (43)	150.2 (50)	157.8 (18)
Inst. subnets	24	1	35.0 (23)	60.7 (46)	57.8 (41)	76.6 (55)	62.8 (46)	102.3 (60)	59.2 (40)	42.5 (33)
	168	1	40.5 (26)	58.2 (42)	57.2 (40)	73.4 (48)	61.9 (41)	101.7 (53)	66.6 (40)	42.2 (33)
	168	24	41.1 (26)	133.9 (54)	122.1 (53)	94.0 (49)	103.7 (46)	162.8 (43)	123.3 (52)	71.6 (41)
	744	1	45.2 (28)	59.3 (43)	57.5 (41)	85.4 (46)	80.9 (47)	107.4 (52)	86.3 (45)	42.0 (33)
	744	168	46.2 (28)	119.8 (42)	118.0 (43)	112.2 (56)	111.9 (49)	161.6 (44)	149.6 (51)	161.9 (19)
IP addr.	24	1	56.4 (35)	174.0 (47)	173.8 (46)	174.4 (44)	171.4 (48)	176.3 (40)	173.2 (45)	143.7 (65)
	168	1	118.6 (58)	174.0 (47)	174.0 (46)	175.5 (44)	174.3 (46)	176.2 (40)	173.8 (45)	146.5 (64)
	168	24	118.9 (58)	185.1 (35)	184.1 (37)	178.2 (42)	179.8 (39)	184.1 (27)	184.3 (36)	176.1 (44)
	744	1	147.1 (59)	174.2 (47)	174.3 (46)	178.0 (43)	176.1 (45)	177.9 (38)	176.4 (42)	154.5 (60)
	744	168	147.3 (59)	184.0 (34)	184.1 (35)	179.5 (39)	181.2 (38)	183.9 (28)	187.5 (31)	193.6 (12)

Table 49: SMAPE for std_n_dest_ports

13 Results for std_n_dest_ports

	Training window	Prediction window	Mean	GRU	LSTM	GRU-FCN	LSTM-FCN	InceptionTime	ResNet	RC-LSTM
Inst.	24	1	0.16 (0.2)	-0.36 (1.4)	-0.2 (1.0)	-0.4 (1.6)	-0.21 (1.2)	-2.93 (4.2)	-0.78 (2.5)	0.15 (0.3)
	168	1	0.09 (0.2)	-0.34 (1.5)	-0.34 (1.3)	-0.41 (1.4)	-0.31 (1.2)	-3.06 (4.0)	-0.85 (2.1)	0.15 (0.3)
	168	24	0.07 (0.2)	-1.26 (2.0)	-1.17 (1.8)	-0.74 (1.4)	-1.63 (3.0)	-8.73 (2.9)	-2.02 (2.8)	-0.99 (2.2)
	744	1	0.01 (0.2)	-0.33 (1.4)	-0.28 (1.4)	-0.85 (2.0)	-0.83 (1.9)	-3.94 (4.3)	-1.59 (2.9)	0.1 (0.7)
	744	168	-0.03 (0.2)	-1.39 (2.1)	-1.21 (1.7)	-3.45 (4.1)	-2.02 (3.1)	-8.66 (3.0)	-1.89 (2.7)	-4.86 (4.0)
Inst. subnets	24	1	0.15 (0.2)	-0.46 (1.6)	-0.42 (1.5)	-0.71 (2.0)	-0.52 (1.8)	-3.52 (4.4)	-1.29 (3.1)	0.02 (0.8)
	168	1	0.09 (0.2)	-0.39 (1.4)	-0.4 (1.4)	-0.65 (1.7)	-0.61 (1.9)	-3.69 (4.3)	-1.1 (2.3)	0.01 (0.8)
	168	24	0.07 (0.2)	-1.41 (2.1)	-1.28 (1.9)	-0.87 (1.6)	-2.24 (3.5)	-8.84 (2.8)	-2.35 (3.1)	-1.45 (2.8)
	744	1	0.02 (0.2)	-0.51 (1.8)	-0.38 (1.3)	-0.94 (1.8)	-1.17 (2.4)	-4.28 (4.4)	-1.9 (3.0)	-0.01 (0.9)
	744	168	-0.02 (0.2)	-1.74 (2.5)	-1.36 (1.8)	-3.94 (4.3)	-2.53 (3.4)	-8.72 (2.9)	-2.33 (2.9)	-5.38 (4.0)
IP addr.	24	1	0.06 (0.1)	-0.33 (1.6)	-0.36 (1.6)	-0.01 (0.6)	-0.04 (0.8)	-1.53 (3.1)	-0.41 (1.8)	0.03 (0.6)
	168	1	0.04 (0.1)	-0.37 (1.7)	-0.4 (1.7)	-0.06 (0.7)	-0.21 (1.4)	-1.79 (3.2)	-1.22 (2.8)	-0.08 (1.2)
	168	24	0.03 (0.1)	-0.31 (1.2)	-0.25 (1.0)	-0.28 (1.3)	-0.64 (2.2)	-9.12 (2.4)	-0.65 (1.9)	-0.8 (2.2)
	744	1	0.0 (0.3)	-0.38 (1.6)	-0.38 (1.6)	-0.38 (1.4)	-0.62 (2.1)	-2.15 (3.4)	-1.4 (2.9)	-0.26 (1.6)
	744	168	-0.01 (0.3)	-0.46 (1.4)	-0.31 (1.1)	-2.33 (3.4)	-1.02 (2.5)	-9.1 (2.4)	-0.75 (2.0)	-1.88 (3.1)

Table 50: R2-score for std_n_dest_ports

	Training window	Prediction window	Mean	GRU	LSTM	GRU-FCN	LSTM-FCN	InceptionTime	ResNet	RC-LSTM
Inst.	24	1	0.08 (0.16)	0.092 (0.47)	0.092 (0.47)	0.092 (0.47)	0.091 (0.47)	0.109 (0.47)	0.096 (0.47)	0.112 (0.61)
	168	1	0.086 (0.19)	0.092 (0.47)	0.093 (0.47)	0.097 (0.47)	0.096 (0.47)	0.112 (0.47)	0.105 (0.47)	0.097 (0.46)
	168	24	0.088 (0.19)	0.11 (0.47)	0.111 (0.47)	0.105 (0.47)	0.109 (0.47)	0.473 (0.44)	0.121 (0.47)	0.153 (0.75)
	744	1	0.092 (0.21)	0.092 (0.47)	0.093 (0.47)	0.105 (0.47)	0.105 (0.47)	0.127 (0.47)	0.126 (0.48)	0.089 (0.48)
	744	168	0.095 (0.22)	0.119 (0.47)	0.119 (0.47)	0.134 (0.47)	0.124 (0.47)	0.476 (0.44)	0.131 (0.47)	0.156 (0.48)
Inst. subnets	24	1	0.108 (0.47)	0.079 (0.35)	0.08 (0.35)	0.079 (0.35)	0.08 (0.35)	0.099 (0.35)	0.084 (0.35)	0.106 (0.48)
	168	1	0.114 (0.48)	0.079 (0.35)	0.08 (0.35)	0.083 (0.35)	0.082 (0.35)	0.102 (0.35)	0.094 (0.35)	0.093 (0.37)
	168	24	0.115 (0.48)	0.094 (0.35)	0.095 (0.35)	0.09 (0.35)	0.096 (0.35)	0.458 (0.32)	0.11 (0.35)	0.188 (0.93)
	744	1	0.12 (0.49)	0.08 (0.35)	0.08 (0.35)	0.09 (0.35)	0.093 (0.35)	0.114 (0.35)	0.108 (0.36)	0.077 (0.36)
	744	168	0.123 (0.49)	0.104 (0.35)	0.104 (0.35)	0.123 (0.35)	0.11 (0.36)	0.46 (0.32)	0.117 (0.36)	0.169 (0.57)
IP addr.	24	1	0.161 (0.71)	0.104 (0.49)	0.104 (0.49)	0.101 (0.49)	0.101 (0.49)	0.116 (0.49)	0.105 (0.49)	0.115 (0.53)
	168	1	0.162 (0.71)	0.104 (0.49)	0.104 (0.49)	0.103 (0.49)	0.103 (0.49)	0.123 (0.49)	0.137 (0.5)	0.134 (0.7)
	168	24	0.163 (0.71)	0.112 (0.49)	0.111 (0.49)	0.108 (0.49)	0.11 (0.49)	0.498 (0.47)	0.118 (0.49)	0.159 (0.77)
	744	1	0.165 (0.71)	0.105 (0.49)	0.105 (0.49)	0.11 (0.49)	0.113 (0.49)	0.132 (0.49)	0.134 (0.5)	0.103 (0.5)
	744	168	0.166 (0.71)	0.117 (0.49)	0.116 (0.49)	0.136 (0.49)	0.12 (0.49)	0.499 (0.47)	0.124 (0.49)	0.169 (0.77)

Table 51: RMSE for std_n_dest_ports

	Training window	Prediction window	Mean	GRU	LSTM	GRU-FCN	LSTM-FCN	InceptionTime	ResNet	RC-LSTM
Inst.	24	1	0.11527	0.10974	0.11005	0.10914	0.10803	0.14211	0.11607	0.12029
	168	1	0.12346	0.10976	0.11152	0.11834	0.1164	0.14859	0.13537	0.1134
	168	24	0.12572	0.14604	0.1467	0.13482	0.14387	0.84308	0.16636	0.19177
	744	1	0.13346	0.10973	0.11141	0.13461	0.13535	0.17773	0.17385	0.10236
	744	168	0.13704	0.15956	0.15853	0.18901	0.16909	0.84391	0.182	0.2332
Inst. subnets	24	1	0.127	0.10837	0.11139	0.10939	0.11083	0.1484	0.11845	0.127
	168	1	0.13478	0.10838	0.11132	0.11587	0.11439	0.15324	0.13748	0.12144
	168	24	0.13702	0.13903	0.14032	0.13108	0.14204	0.83772	0.17108	0.22515
	744	1	0.14539	0.11093	0.11085	0.12964	0.13642	0.17719	0.16594	0.10384
	744	168	0.14948	0.15628	0.15503	0.19307	0.16704	0.83867	0.18215	0.26372
IP addr.	24	1	0.17472	0.13838	0.13829	0.13278	0.13354	0.16331	0.14182	0.14988
	168	1	0.17732	0.13851	0.13951	0.13788	0.13772	0.17572	0.2029	0.15045
	168	24	0.17865	0.15299	0.15169	0.14599	0.14984	0.89303	0.16534	0.17992
	744	1	0.18089	0.14143	0.14108	0.15102	0.15783	0.195	0.19703	0.13577
	744	168	0.18275	0.16234	0.16003	0.19973	0.16943	0.89606	0.17584	0.20076

Table 52: Harmonic Score for std_n_dest_ports

	Training window	Prediction window	Mean	GRU	LSTM	GRU-FCN	LSTM-FCN	InceptionTime	ResNet	RC-LSTM
Inst.	24	1	23.5 (11)	18.3 (22)	18.7 (22)	18.4 (24)	19.4 (23)	19.0 (23)	19.3 (24)	18.2 (19)
	168	1	27.4 (13)	18.5 (23)	19.7 (24)	19.7 (24)	22.1 (26)	26.8 (24)	24.1 (27)	18.9 (23)
	168	24	27.8 (13)	38.9 (31)	38.8 (30)	30.0 (25)	34.1 (28)	57.1 (37)	54.9 (38)	43.5 (25)
	744	1	29.5 (14)	18.6 (22)	19.0 (21)	32.4 (32)	34.9 (29)	42.0 (32)	41.9 (37)	17.7 (20)
	744	168	29.9 (14)	42.5 (33)	42.6 (32)	38.2 (27)	42.8 (30)	55.8 (36)	60.9 (46)	181.0 (9)
Inst. subnets	24	1	26.8 (22)	26.9 (33)	27.4 (33)	27.2 (34)	27.8 (35)	28.9 (35)	29.7 (36)	28.0 (34)
	168	1	30.8 (23)	27.0 (33)	27.9 (34)	29.1 (35)	30.5 (36)	38.3 (37)	36.4 (38)	27.4 (33)
	168	24	31.3 (23)	47.6 (39)	47.4 (38)	39.7 (36)	42.9 (37)	65.8 (42)	59.8 (42)	52.4 (34)
	744	1	33.6 (24)	26.8 (33)	28.1 (33)	38.8 (39)	42.6 (36)	50.8 (39)	57.3 (47)	25.8 (32)
	744	168	34.2 (24)	51.3 (40)	51.1 (40)	47.5 (35)	51.8 (38)	65.0 (41)	68.2 (49)	179.7 (10)
IP addr.	24	1	56.7 (35)	169.9 (53)	169.9 (52)	168.9 (54)	167.8 (54)	168.8 (51)	169.4 (52)	152.1 (62)
	168	1	119.7 (61)	170.1 (53)	169.9 (53)	171.4 (52)	170.6 (52)	170.7 (48)	171.1 (50)	151.9 (62)
	168	24	120.1 (61)	175.8 (50)	176.0 (49)	173.3 (51)	173.7 (50)	174.3 (41)	177.9 (46)	173.5 (47)
	744	1	146.0 (61)	170.4 (53)	170.2 (52)	174.0 (50)	173.2 (48)	172.9 (45)	176.1 (43)	159.9 (59)
	744	168	146.3 (61)	177.1 (47)	177.1 (48)	172.7 (48)	176.0 (47)	174.1 (41)	179.8 (43)	194.8 (8)

Table 53: SMAPE for sum_n_dest_asn

14 Results for sum_n_dest_asn

	Training window	Prediction window	Mean	GRU	LSTM	GRU-FCN	LSTM-FCN	InceptionTime	ResNet	RC-LSTM
Inst.	24	1	0.31 (0.2)	0.64 (0.4)	0.62 (0.4)	0.56 (0.8)	0.57 (0.6)	0.48 (0.9)	0.44 (1.0)	0.57 (0.4)
	168	1	0.17 (0.1)	0.61 (0.5)	0.57 (0.7)	0.51 (0.9)	0.36 (1.4)	-0.35 (2.1)	-0.0 (1.9)	0.52 (0.8)
	168	24	0.14 (0.1)	-0.87 (2.0)	-0.86 (1.9)	-0.21 (1.5)	-0.37 (1.4)	-3.06 (3.7)	-2.25 (2.6)	-1.56 (2.3)
	744	1	0.06 (0.1)	0.6 (0.7)	0.59 (0.6)	-0.17 (1.6)	-0.53 (1.9)	-1.77 (3.1)	-2.18 (3.9)	0.63 (0.3)
	744	168	0.01 (0.2)	-1.0 (2.1)	-1.04 (2.1)	-0.98 (2.0)	-1.08 (2.2)	-2.89 (3.6)	-2.37 (3.1)	-7.29 (3.1)
Inst. subnets	24	1	0.36 (0.2)	0.46 (0.7)	0.41 (0.9)	0.35 (1.0)	0.41 (0.8)	0.18 (1.3)	0.1 (1.4)	0.35 (0.9)
	168	1	0.22 (0.2)	0.44 (0.8)	0.38 (0.9)	0.29 (1.0)	0.22 (1.3)	-1.11 (2.8)	-0.73 (2.7)	0.33 (1.1)
	168	24	0.19 (0.2)	-1.16 (2.1)	-1.09 (1.9)	-0.67 (1.9)	-0.7 (1.7)	-3.92 (4.0)	-2.47 (3.0)	-2.06 (2.6)
	744	1	0.1 (0.2)	0.44 (0.9)	0.36 (0.9)	-0.25 (1.7)	-0.75 (2.2)	-2.36 (3.6)	-3.06 (4.1)	0.47 (0.7)
	744	168	0.04 (0.2)	-1.33 (2.1)	-1.37 (2.1)	-1.46 (2.2)	-1.6 (2.4)	-3.82 (3.9)	-2.92 (3.3)	-7.04 (3.3)
IP addr.	24	1	0.12 (0.2)	-0.23 (1.6)	-0.27 (1.7)	0.12 (0.4)	-0.02 (1.1)	-0.88 (2.4)	-0.21 (1.4)	0.12 (0.8)
	168	1	0.08 (0.1)	-0.27 (1.7)	-0.24 (1.6)	0.03 (0.5)	-0.07 (1.0)	-1.39 (2.7)	-1.31 (3.0)	0.1 (0.8)
	168	24	0.06 (0.1)	-0.35 (1.2)	-0.32 (1.1)	-0.27 (1.2)	-0.46 (1.7)	-8.65 (2.9)	-0.78 (2.0)	-0.86 (2.0)
	744	1	-0.0 (0.5)	-0.26 (1.7)	-0.31 (1.7)	-0.42 (1.6)	-0.73 (2.2)	-2.13 (3.4)	-1.74 (3.3)	-0.04 (1.3)
	744	168	-0.04 (0.7)	-0.58 (1.5)	-0.47 (1.4)	-1.74 (2.9)	-0.92 (2.2)	-8.63 (2.9)	-1.05 (2.3)	-1.68 (2.9)

Table 54: R2-score for sum_n_dest_asn

	Training window	Prediction window	Mean	GRU	LSTM	GRU-FCN	LSTM-FCN	InceptionTime	ResNet	RC-LSTM
Inst.	24	1	0.147 (0.6)	0.071 (0.12)	0.072 (0.12)	0.073 (0.12)	0.077 (0.12)	0.082 (0.14)	0.081 (0.13)	0.079 (0.11)
	168	1	0.158 (0.6)	0.071 (0.12)	0.074 (0.13)	0.078 (0.12)	0.085 (0.13)	0.123 (0.14)	0.1 (0.13)	0.113 (0.6)
	168	24	0.16 (0.6)	0.151 (0.13)	0.155 (0.14)	0.126 (0.15)	0.136 (0.15)	0.236 (0.15)	0.204 (0.15)	0.219 (0.6)
	744	1	0.165 (0.6)	0.072 (0.12)	0.073 (0.12)	0.118 (0.17)	0.141 (0.18)	0.19 (0.19)	0.205 (0.21)	0.075 (0.12)
	744	168	0.168 (0.6)	0.157 (0.14)	0.161 (0.14)	0.16 (0.16)	0.162 (0.15)	0.235 (0.15)	0.209 (0.18)	0.394 (0.21)
Inst. subnets	24	1	0.258 (1.13)	0.146 (0.8)	0.148 (0.79)	0.152 (0.8)	0.152 (0.8)	0.164 (0.8)	0.163 (0.8)	0.211 (1.08)
	168	1	0.277 (1.16)	0.146 (0.8)	0.15 (0.8)	0.157 (0.8)	0.16 (0.8)	0.21 (0.8)	0.193 (0.8)	0.173 (0.9)
	168	24	0.281 (1.16)	0.223 (0.79)	0.226 (0.79)	0.204 (0.8)	0.21 (0.79)	0.321 (0.78)	0.267 (0.79)	0.329 (1.15)
	744	1	0.296 (1.2)	0.147 (0.8)	0.151 (0.8)	0.185 (0.8)	0.207 (0.8)	0.27 (0.8)	0.297 (0.8)	0.15 (0.8)
	744	168	0.303 (1.22)	0.231 (0.79)	0.233 (0.79)	0.236 (0.79)	0.238 (0.79)	0.321 (0.78)	0.282 (0.79)	0.449 (0.89)
IP addr.	24	1	0.264 (1.01)	0.084 (0.11)	0.086 (0.11)	0.083 (0.11)	0.084 (0.11)	0.099 (0.13)	0.089 (0.11)	0.088 (0.13)
	168	1	0.28 (1.08)	0.086 (0.11)	0.086 (0.11)	0.088 (0.11)	0.088 (0.11)	0.116 (0.14)	0.13 (0.16)	0.087 (0.13)
	168	24	0.283 (1.09)	0.104 (0.12)	0.104 (0.12)	0.098 (0.12)	0.1 (0.12)	0.454 (0.11)	0.115 (0.13)	0.152 (0.58)
	744	1	0.292 (1.12)	0.087 (0.11)	0.088 (0.11)	0.101 (0.12)	0.107 (0.12)	0.138 (0.14)	0.147 (0.18)	0.081 (0.11)
	744	168	0.297 (1.14)	0.112 (0.13)	0.11 (0.13)	0.126 (0.12)	0.115 (0.12)	0.456 (0.11)	0.124 (0.13)	0.168 (0.59)

Table 55: RMSE for sum_n_dest_asn

	Training window	Prediction window	Mean	GRU	LSTM	GRU-FCN	LSTM-FCN	InceptionTime	ResNet	RC-LSTM
Inst.	24	1	0.18785	0.1061	0.10864	0.11143	0.11814	0.12821	0.12588	0.12177
	168	1	0.21009	0.1059	0.11267	0.11943	0.13483	0.20656	0.16235	0.14737
	168	24	0.21381	0.26272	0.26882	0.2123	0.2329	0.42726	0.36574	0.35391
	744	1	0.22511	0.10948	0.11039	0.19586	0.24138	0.33836	0.36629	0.11472
	744	168	0.2316	0.273	0.27906	0.27856	0.28183	0.42373	0.37379	0.73672
Inst. subnets	24	1	0.1775	0.14441	0.14897	0.15539	0.15656	0.1785	0.17818	0.20925
	168	1	0.20637	0.14572	0.15216	0.16579	0.17165	0.27022	0.23553	0.17754
	168	24	0.21205	0.29506	0.2987	0.25618	0.2682	0.48542	0.38084	0.42158
	744	1	0.23396	0.14612	0.15377	0.22066	0.26514	0.38681	0.43788	0.152
	744	168	0.24575	0.3082	0.31327	0.31845	0.32287	0.48355	0.40891	0.72057
IP addr.	24	1	0.19621	0.14614	0.14857	0.14263	0.14576	0.17382	0.15552	0.14892
	168	1	0.20843	0.1486	0.14844	0.15247	0.15246	0.2083	0.23394	0.14758
	168	24	0.21194	0.18347	0.18386	0.17282	0.17562	0.85648	0.20523	0.22168
	744	1	0.22004	0.15004	0.15222	0.17875	0.19057	0.24963	0.26764	0.13941
	744	168	0.22574	0.19844	0.19463	0.2254	0.20391	0.86026	0.22132	0.25435

Table 56: Harmonic Score for sum_n_dest_asn

	Training window	Prediction window	Mean	GRU	LSTM	GRU-FCN	LSTM-FCN	InceptionTime	ResNet	RC-LSTM
Inst.	24	1	37.5 (17)	22.6 (24)	24.7 (26)	21.6 (26)	24.1 (24)	24.2 (28)	23.9 (28)	23.0 (23)
	168	1	45.1 (22)	22.8 (25)	24.1 (25)	25.6 (28)	26.4 (25)	33.2 (30)	29.8 (31)	22.4 (21)
	168	24	45.5 (22)	48.4 (35)	51.8 (37)	39.0 (29)	44.8 (35)	75.6 (40)	71.3 (45)	52.4 (26)
	744	1	47.9 (23)	23.3 (23)	24.9 (25)	36.1 (30)	41.1 (30)	53.5 (37)	54.5 (45)	22.2 (22)
	744	168	48.1 (23)	60.9 (44)	61.4 (44)	42.5 (27)	59.5 (40)	74.7 (40)	77.6 (51)	175.0 (13)
Inst. subnets	24	1	36.4 (24)	30.2 (33)	32.0 (34)	30.2 (36)	32.0 (35)	32.6 (36)	32.5 (36)	30.3 (33)
	168	1	42.9 (27)	30.7 (34)	32.5 (34)	33.6 (37)	34.5 (36)	42.1 (37)	38.9 (39)	30.2 (33)
	168	24	43.4 (27)	56.5 (42)	57.6 (42)	45.9 (37)	51.8 (41)	80.6 (42)	73.9 (46)	58.7 (33)
	744	1	46.3 (28)	31.3 (34)	32.7 (34)	45.1 (38)	49.8 (37)	58.9 (41)	63.9 (49)	28.7 (32)
	744	168	46.9 (27)	66.1 (46)	64.8 (45)	51.1 (35)	64.5 (43)	79.9 (42)	82.0 (52)	175.0 (13)
IP addr.	24	1	57.3 (35)	171.1 (52)	170.8 (51)	169.9 (52)	168.4 (53)	169.1 (50)	169.3 (51)	152.1 (62)
	168	1	120.4 (60)	171.3 (52)	171.0 (51)	171.9 (51)	171.1 (51)	170.9 (48)	172.5 (49)	156.4 (59)
	168	24	120.7 (60)	178.2 (46)	178.2 (46)	174.7 (49)	175.5 (47)	177.8 (36)	180.0 (42)	174.5 (45)
	744	1	146.7 (60)	171.4 (52)	171.3 (51)	175.1 (48)	173.8 (47)	172.9 (44)	175.7 (44)	160.8 (58)
	744	168	147.0 (59)	179.8 (43)	179.8 (44)	173.6 (45)	177.6 (44)	177.6 (37)	182.3 (39)	193.7 (10)

Table 57: SMAPE for sum_n_dest_ip

15 Results for sum_n_dest_ip

	Training window	Prediction window	Mean	GRU	LSTM	GRU-FCN	LSTM-FCN	InceptionTime	ResNet	RC-LSTM
Inst.	24	1	0.25 (0.2)	0.75 (0.3)	0.68 (0.5)	0.71 (0.6)	0.69 (0.7)	0.65 (0.8)	0.63 (0.8)	0.72 (0.3)
	168	1	0.12 (0.1)	0.72 (0.5)	0.65 (0.8)	0.67 (0.5)	0.63 (0.8)	0.13 (1.7)	0.32 (1.5)	0.7 (0.7)
	168	24	0.09 (0.2)	-0.31 (1.6)	-0.37 (1.7)	0.07 (1.4)	-0.01 (1.3)	-2.67 (3.2)	-1.43 (2.3)	-0.77 (1.7)
	744	1	0.03 (0.1)	0.7 (0.6)	0.64 (0.9)	0.25 (1.4)	0.07 (1.4)	-0.89 (2.5)	-1.94 (3.9)	0.71 (0.7)
	744	168	-0.01 (0.2)	-0.35 (1.6)	-0.36 (1.6)	-0.22 (1.3)	-0.33 (1.5)	-2.59 (3.1)	-1.26 (2.5)	-4.47 (3.2)
Inst. subnets	24	1	0.32 (0.2)	0.56 (0.8)	0.51 (0.9)	0.54 (0.8)	0.53 (0.7)	0.42 (1.0)	0.41 (1.0)	0.58 (0.5)
	168	1	0.18 (0.2)	0.55 (0.8)	0.49 (0.9)	0.46 (0.8)	0.47 (0.8)	-0.38 (2.3)	-0.15 (2.1)	0.56 (0.7)
	168	24	0.15 (0.2)	-0.62 (1.8)	-0.62 (1.7)	-0.2 (1.5)	-0.27 (1.4)	-3.67 (3.8)	-1.73 (2.5)	-1.22 (2.1)
	744	1	0.07 (0.2)	0.55 (0.7)	0.49 (0.9)	0.01 (1.3)	-0.28 (1.6)	-1.47 (3.0)	-2.48 (4.0)	0.6 (0.7)
	744	168	0.02 (0.2)	-0.73 (1.7)	-0.67 (1.7)	-0.61 (1.7)	-0.74 (1.7)	-3.61 (3.7)	-1.81 (2.7)	-4.73 (3.2)
IP addr.	24	1	0.11 (0.2)	-0.29 (1.8)	-0.26 (1.7)	0.13 (0.4)	-0.0 (1.1)	-0.94 (2.5)	-0.21 (1.5)	0.1 (0.9)
	168	1	0.07 (0.1)	-0.29 (1.7)	-0.31 (1.8)	0.04 (0.5)	-0.04 (0.9)	-1.27 (2.6)	-1.06 (2.8)	0.1 (0.9)
	168	24	0.05 (0.1)	-0.25 (1.0)	-0.26 (1.0)	-0.22 (1.1)	-0.4 (1.6)	-8.79 (2.7)	-0.69 (1.9)	-0.83 (2.1)
	744	1	-0.03 (0.8)	-0.29 (1.7)	-0.31 (1.8)	-0.34 (1.4)	-0.61 (2.1)	-2.03 (3.2)	-1.41 (3.0)	-0.08 (1.5)
	744	168	-0.05 (0.8)	-0.48 (1.5)	-0.37 (1.3)	-1.91 (3.0)	-0.98 (2.4)	-8.74 (2.8)	-0.84 (2.0)	-1.64 (2.8)

Table 58: R2-score for sum_n_dest_ip

	Training window	Prediction window	Mean	GRU	LSTM	GRU-FCN	LSTM-FCN	InceptionTime	ResNet	RC-LSTM
Inst.	24	1	0.194 (0.61)	0.089 (0.26)	0.096 (0.28)	0.089 (0.26)	0.093 (0.26)	0.097 (0.29)	0.097 (0.29)	0.132 (0.64)
	168	1	0.207 (0.62)	0.091 (0.27)	0.094 (0.26)	0.097 (0.28)	0.102 (0.25)	0.138 (0.3)	0.12 (0.29)	0.096 (0.25)
	168	24	0.209 (0.62)	0.18 (0.28)	0.184 (0.28)	0.156 (0.29)	0.162 (0.29)	0.299 (0.27)	0.24 (0.29)	0.247 (0.64)
	744	1	0.214 (0.62)	0.092 (0.25)	0.096 (0.26)	0.139 (0.3)	0.155 (0.3)	0.207 (0.29)	0.254 (0.34)	0.096 (0.26)
	744	168	0.217 (0.62)	0.183 (0.28)	0.186 (0.28)	0.182 (0.29)	0.186 (0.29)	0.3 (0.27)	0.229 (0.3)	0.387 (0.32)
Inst. subnets	24	1	0.323 (1.28)	0.172 (0.92)	0.177 (0.92)	0.174 (0.93)	0.178 (0.93)	0.183 (0.93)	0.183 (0.93)	0.216 (1.1)
	168	1	0.359 (1.4)	0.172 (0.92)	0.178 (0.92)	0.182 (0.93)	0.183 (0.92)	0.224 (0.93)	0.208 (0.93)	0.215 (1.1)
	168	24	0.363 (1.4)	0.255 (0.92)	0.258 (0.92)	0.234 (0.92)	0.239 (0.92)	0.384 (0.91)	0.306 (0.92)	0.36 (1.24)
	744	1	0.373 (1.43)	0.174 (0.92)	0.179 (0.92)	0.22 (0.93)	0.236 (0.92)	0.291 (0.92)	0.337 (0.93)	0.175 (0.92)
	744	168	0.379 (1.43)	0.262 (0.92)	0.262 (0.92)	0.26 (0.92)	0.266 (0.92)	0.383 (0.91)	0.308 (0.92)	0.452 (1.01)
IP addr.	24	1	0.335 (1.35)	0.092 (0.34)	0.092 (0.34)	0.09 (0.34)	0.09 (0.34)	0.103 (0.34)	0.095 (0.34)	0.098 (0.37)
	168	1	0.347 (1.38)	0.093 (0.34)	0.093 (0.34)	0.094 (0.34)	0.093 (0.34)	0.116 (0.35)	0.123 (0.35)	0.097 (0.36)
	168	24	0.349 (1.39)	0.109 (0.34)	0.11 (0.34)	0.104 (0.34)	0.106 (0.34)	0.472 (0.33)	0.121 (0.35)	0.159 (0.67)
	744	1	0.357 (1.41)	0.094 (0.34)	0.094 (0.34)	0.105 (0.34)	0.111 (0.35)	0.136 (0.35)	0.137 (0.36)	0.099 (0.47)
	744	168	0.361 (1.42)	0.117 (0.35)	0.116 (0.35)	0.134 (0.34)	0.122 (0.35)	0.474 (0.33)	0.128 (0.35)	0.173 (0.68)

Table 59: RMSE for sum_n_dest_ip

	Training window	Prediction window	Mean	GRU	LSTM	GRU-FCN	LSTM-FCN	InceptionTime	ResNet	RC-LSTM
Inst.	24	1	0.24805	0.10858	0.11894	0.10856	0.11466	0.12154	0.12221	0.13896
	168	1	0.27277	0.11077	0.11777	0.12183	0.13334	0.19795	0.16524	0.12045
	168	24	0.27665	0.27856	0.28723	0.23089	0.24404	0.51124	0.3969	0.35817
	744	1	0.2864	0.11325	0.12029	0.19933	0.23091	0.33272	0.42468	0.11933
	744	168	0.2924	0.28297	0.28746	0.28018	0.28793	0.51146	0.37214	0.67602
Inst. subnets	24	1	0.22119	0.14526	0.15356	0.14941	0.15661	0.16661	0.16552	0.17618
	168	1	0.25387	0.14631	0.15672	0.16424	0.1664	0.24458	0.21502	0.17913
	168	24	0.26021	0.30383	0.30958	0.26092	0.27085	0.55462	0.40368	0.40783
	744	1	0.27924	0.14991	0.15803	0.23461	0.26885	0.3743	0.4636	0.15102
	744	168	0.29061	0.31475	0.3149	0.31175	0.32216	0.55261	0.40476	0.66748
IP addr.	24	1	0.19912	0.14468	0.14477	0.14044	0.14068	0.16619	0.14936	0.14655
	168	1	0.21221	0.14617	0.14632	0.14772	0.14595	0.19153	0.20407	0.14594
	168	24	0.21595	0.17647	0.17726	0.1664	0.16965	0.87394	0.1995	0.21102
	744	1	0.22387	0.14749	0.1481	0.16844	0.18091	0.23063	0.23115	0.13905
	744	168	0.22965	0.19092	0.18781	0.22448	0.20024	0.87645	0.2112	0.24048

Table 60: Harmonic Score for sum_n_dest_ip

	Training window	Prediction window	Mean	GRU	LSTM	GRU-FCN	LSTM-FCN	InceptionTime	ResNet	RC-LSTM
Inst.	24	1	22.0 (12)	39.5 (33)	37.0 (29)	40.0 (39)	34.5 (28)	53.4 (47)	32.9 (26)	27.1 (24)
	168	1	26.9 (15)	36.8 (30)	38.8 (30)	40.8 (37)	36.2 (31)	58.2 (41)	45.5 (34)	27.1 (26)
	168	24	27.6 (15)	114.7 (65)	108.8 (63)	79.6 (51)	88.6 (47)	132.3 (54)	107.3 (57)	49.0 (29)
	744	1	31.7 (17)	38.4 (33)	37.6 (30)	58.5 (41)	57.8 (36)	70.1 (44)	66.6 (38)	26.0 (24)
	744	168	32.8 (17)	107.5 (50)	107.3 (52)	74.5 (43)	89.1 (45)	130.8 (55)	131.4 (61)	158.4 (19)
Inst. subnets	24	1	27.2 (22)	46.3 (40)	44.0 (36)	46.8 (41)	45.1 (39)	66.5 (53)	42.2 (37)	35.2 (33)
	168	1	32.1 (24)	47.3 (42)	44.2 (36)	48.7 (41)	43.4 (38)	67.3 (45)	52.4 (39)	34.8 (33)
	168	24	32.8 (24)	118.1 (65)	112.5 (61)	86.4 (53)	89.6 (49)	135.8 (54)	112.8 (56)	57.0 (36)
	744	1	36.6 (25)	44.6 (38)	44.2 (36)	69.3 (50)	64.7 (43)	77.3 (45)	79.5 (47)	33.8 (33)
	744	168	37.8 (25)	108.2 (50)	107.6 (52)	83.5 (48)	88.3 (47)	133.5 (56)	133.7 (61)	160.2 (20)
IP addr.	24	1	57.0 (35)	171.3 (51)	171.2 (50)	170.2 (51)	169.5 (51)	171.8 (46)	169.4 (50)	153.2 (61)
	168	1	120.2 (60)	171.2 (50)	171.0 (50)	172.8 (50)	171.2 (50)	172.8 (44)	172.2 (47)	155.1 (59)
	168	24	120.5 (60)	181.5 (41)	180.9 (41)	176.7 (44)	176.3 (44)	179.1 (34)	182.1 (39)	174.0 (46)
	744	1	146.7 (60)	171.4 (50)	171.5 (50)	176.1 (45)	174.6 (46)	175.1 (42)	176.6 (41)	160.7 (58)
	744	168	147.0 (60)	181.0 (39)	181.0 (40)	176.4 (42)	177.9 (43)	178.6 (35)	183.7 (37)	193.6 (12)

Table 61: SMAPE for sum_n_dest_ports

16 Results for sum_n_dest_ports

	Training window	Prediction window	Mean	GRU	LSTM	GRU-FCN	LSTM-FCN	InceptionTime	ResNet	RC-LSTM
Inst.	24	1	0.32 (0.2)	-0.33 (1.6)	-0.28 (1.4)	-0.5 (2.4)	-0.19 (1.5)	-1.72 (3.6)	-0.27 (1.6)	0.24 (0.6)
	168	1	0.19 (0.2)	-0.26 (1.5)	-0.41 (1.8)	-0.37 (1.7)	-0.29 (1.7)	-2.13 (3.5)	-1.06 (2.6)	0.2 (0.9)
	168	24	0.15 (0.2)	-2.68 (3.2)	-2.57 (3.1)	-1.52 (2.4)	-2.03 (2.7)	-7.92 (3.6)	-3.37 (3.3)	-1.18 (2.0)
	744	1	0.0 (0.5)	-0.32 (1.7)	-0.37 (1.7)	-1.18 (2.4)	-1.23 (2.3)	-3.0 (3.7)	-2.58 (3.5)	0.23 (0.8)
	744	168	-0.07 (0.6)	-2.69 (2.9)	-2.61 (2.8)	-2.84 (3.5)	-2.46 (2.8)	-7.77 (3.8)	-3.63 (3.4)	-6.31 (3.6)
Inst. subnets	24	1	0.34 (0.2)	-0.46 (1.9)	-0.45 (1.7)	-0.69 (2.5)	-0.61 (2.2)	-2.5 (4.1)	-0.53 (1.8)	0.06 (1.0)
	168	1	0.21 (0.2)	-0.45 (1.7)	-0.41 (1.7)	-0.51 (1.9)	-0.31 (1.7)	-2.83 (3.8)	-1.57 (3.0)	0.06 (1.1)
	168	24	0.17 (0.2)	-2.69 (3.1)	-2.61 (3.0)	-1.78 (2.5)	-1.95 (2.5)	-8.0 (3.5)	-3.47 (3.3)	-1.36 (2.1)
	744	1	0.05 (0.4)	-0.38 (1.6)	-0.44 (1.7)	-1.23 (2.2)	-1.32 (2.4)	-3.75 (4.0)	-3.03 (3.7)	0.05 (1.1)
	744	168	-0.01 (0.4)	-2.6 (2.7)	-2.53 (2.7)	-3.45 (3.8)	-2.72 (3.0)	-7.65 (3.8)	-3.64 (3.2)	-6.46 (3.6)
IP addr.	24	1	0.12 (0.2)	-0.25 (1.6)	-0.36 (1.9)	0.08 (0.6)	-0.06 (1.1)	-1.22 (2.9)	-0.28 (1.6)	0.11 (0.8)
	168	1	0.07 (0.1)	-0.31 (1.7)	-0.39 (2.0)	-0.02 (0.7)	-0.12 (1.2)	-1.59 (3.0)	-1.19 (2.8)	0.07 (1.0)
	168	24	0.05 (0.1)	-0.47 (1.5)	-0.47 (1.5)	-0.37 (1.4)	-0.64 (2.1)	-8.63 (2.8)	-0.74 (2.0)	-0.84 (2.1)
	744	1	-0.01 (0.6)	-0.33 (1.8)	-0.35 (1.8)	-0.47 (1.6)	-0.8 (2.3)	-2.24 (3.5)	-1.87 (3.4)	-0.06 (1.3)
	744	168	-0.04 (0.6)	-0.62 (1.7)	-0.52 (1.5)	-1.89 (3.2)	-1.1 (2.6)	-8.52 (2.9)	-1.08 (2.3)	-1.76 (3.0)

Table 62: R2-score for sum_n_dest_ports

	Training window	Prediction window	Mean	GRU	LSTM	GRU-FCN	LSTM-FCN	InceptionTime	ResNet	RC-LSTM
Inst.	24	1	0.102 (0.55)	0.094 (0.6)	0.094 (0.6)	0.093 (0.6)	0.094 (0.6)	0.105 (0.59)	0.099 (0.6)	0.103 (0.6)
	168	1	0.113 (0.61)	0.092 (0.59)	0.094 (0.59)	0.097 (0.6)	0.098 (0.6)	0.122 (0.6)	0.117 (0.6)	0.134 (0.84)
	168	24	0.115 (0.61)	0.131 (0.59)	0.13 (0.59)	0.12 (0.6)	0.127 (0.6)	0.42 (0.58)	0.151 (0.6)	0.177 (0.84)
	744	1	0.121 (0.61)	0.093 (0.59)	0.095 (0.59)	0.115 (0.6)	0.125 (0.6)	0.151 (0.6)	0.166 (0.6)	0.088 (0.6)
	744	168	0.124 (0.61)	0.145 (0.6)	0.142 (0.6)	0.148 (0.6)	0.147 (0.6)	0.422 (0.58)	0.163 (0.6)	0.216 (0.61)
Inst. subnets	24	1	0.224 (1.04)	0.144 (0.88)	0.145 (0.88)	0.147 (0.88)	0.148 (0.88)	0.164 (0.88)	0.154 (0.88)	0.178 (0.99)
	168	1	0.251 (1.14)	0.144 (0.88)	0.146 (0.88)	0.15 (0.88)	0.15 (0.88)	0.181 (0.88)	0.175 (0.88)	0.174 (0.98)
	168	24	0.256 (1.16)	0.18 (0.88)	0.181 (0.88)	0.173 (0.88)	0.177 (0.88)	0.472 (0.85)	0.203 (0.88)	0.275 (1.22)
	744	1	0.281 (1.27)	0.144 (0.88)	0.147 (0.88)	0.165 (0.88)	0.171 (0.88)	0.216 (0.89)	0.221 (0.89)	0.139 (0.88)
	744	168	0.288 (1.29)	0.194 (0.88)	0.192 (0.88)	0.202 (0.88)	0.197 (0.88)	0.471 (0.85)	0.215 (0.88)	0.283 (0.98)
IP addr.	24	1	0.297 (1.12)	0.106 (0.4)	0.108 (0.4)	0.105 (0.41)	0.106 (0.41)	0.12 (0.4)	0.111 (0.41)	0.125 (0.51)
	168	1	0.306 (1.14)	0.107 (0.4)	0.108 (0.4)	0.11 (0.41)	0.11 (0.41)	0.134 (0.41)	0.146 (0.42)	0.124 (0.51)
	168	24	0.308 (1.14)	0.126 (0.41)	0.126 (0.41)	0.121 (0.41)	0.122 (0.41)	0.484 (0.38)	0.134 (0.41)	0.176 (0.69)
	744	1	0.313 (1.15)	0.108 (0.4)	0.109 (0.4)	0.123 (0.41)	0.13 (0.41)	0.154 (0.41)	0.171 (0.43)	0.105 (0.41)
	744	168	0.317 (1.17)	0.136 (0.41)	0.134 (0.41)	0.148 (0.41)	0.138 (0.41)	0.486 (0.38)	0.145 (0.41)	0.185 (0.7)

Table 63: RMSE for sum_n_dest_ports

	Training window	Prediction window	Mean	GRU	LSTM	GRU-FCN	LSTM-FCN	InceptionTime	ResNet	RC-LSTM
Inst.	24	1	0.11123	0.10587	0.10505	0.10451	0.10568	0.1282	0.11476	0.11258
	168	1	0.12478	0.10213	0.1064	0.11059	0.11359	0.16022	0.15038	0.14238
	168	24	0.12797	0.17833	0.17616	0.15588	0.17044	0.73399	0.2181	0.22665
	744	1	0.14111	0.10387	0.10791	0.14619	0.16598	0.21675	0.24526	0.09367
	744	168	0.14704	0.20135	0.19639	0.20776	0.20524	0.7333	0.2365	0.34156
Inst. subnets	24	1	0.13043	0.12821	0.13073	0.13323	0.13556	0.16728	0.14713	0.15555
	168	1	0.15033	0.1289	0.13192	0.13989	0.14091	0.20163	0.18801	0.15479
	168	24	0.15486	0.19895	0.19962	0.18452	0.19335	0.76062	0.24387	0.29158
	744	1	0.17546	0.1283	0.13309	0.16995	0.18128	0.26889	0.27876	0.11939
	744	168	0.18564	0.22172	0.21952	0.23835	0.22839	0.75416	0.26284	0.38188
IP addr.	24	1	0.22146	0.14956	0.15207	0.14591	0.14886	0.1769	0.15783	0.16183
	168	1	0.23269	0.15113	0.15178	0.156	0.15627	0.20431	0.22678	0.15977
	168	24	0.23614	0.18601	0.18705	0.17624	0.17888	0.87462	0.201	0.2279
	744	1	0.24213	0.15321	0.15536	0.18271	0.19542	0.24161	0.27335	0.14465
	744	168	0.247	0.20424	0.20045	0.22824	0.20886	0.87675	0.22187	0.24437

Table 64: Harmonic Score for sum_n_dest_ports

	Training window	Prediction window	Mean	GRU	LSTM	GRU-FCN	LSTM-FCN	InceptionTime	ResNet	RC-LSTM
Inst.	24	1	19.1 (13)	10.4 (19)	10.6 (19)	10.0 (19)	9.9 (19)	11.0 (19)	10.7 (19)	11.6 (19)
	168	1	21.0 (14)	10.4 (19)	10.6 (19)	11.2 (20)	11.1 (19)	12.8 (20)	12.3 (20)	11.6 (19)
	168	24	21.4 (14)	15.1 (19)	15.5 (20)	13.2 (19)	15.9 (20)	45.9 (18)	20.8 (20)	30.2 (20)
	744	1	22.6 (15)	10.4 (19)	10.5 (19)	14.9 (20)	16.1 (21)	15.5 (22)	16.9 (24)	11.9 (19)
	744	168	23.2 (16)	18.1 (19)	17.8 (19)	18.8 (21)	18.6 (20)	46.6 (18)	22.6 (26)	192.7 (2)
Inst. subnets	24	1	24.6 (18)	19.1 (34)	19.5 (34)	19.3 (34)	19.1 (34)	21.2 (36)	20.6 (35)	20.1 (34)
	168	1	27.0 (20)	18.9 (33)	19.8 (35)	20.7 (36)	20.6 (35)	24.1 (37)	22.7 (36)	20.3 (33)
	168	24	27.4 (21)	25.0 (37)	25.4 (37)	23.4 (36)	25.7 (37)	48.5 (28)	30.6 (37)	37.0 (35)
	744	1	28.9 (22)	19.1 (34)	20.0 (35)	24.8 (36)	26.1 (36)	26.4 (37)	27.1 (37)	20.3 (33)
	744	168	29.7 (22)	27.7 (36)	27.3 (36)	28.9 (38)	28.9 (38)	49.0 (27)	33.3 (42)	191.8 (4)
IP addr.	24	1	33.4 (28)	168.1 (55)	168.4 (54)	167.7 (55)	167.0 (55)	168.4 (54)	168.2 (54)	137.2 (69)
	168	1	75.7 (70)	168.4 (55)	168.4 (54)	169.6 (54)	169.1 (54)	168.6 (53)	169.0 (53)	141.8 (68)
	168	24	75.9 (70)	172.0 (54)	172.1 (54)	170.7 (54)	170.7 (54)	171.5 (44)	172.5 (53)	172.8 (49)
	744	1	92.9 (80)	168.4 (55)	168.6 (55)	171.7 (53)	171.0 (53)	170.8 (53)	171.1 (52)	149.4 (64)
	744	168	93.0 (80)	172.3 (53)	172.4 (53)	172.0 (53)	172.1 (53)	171.4 (44)	174.2 (51)	197.7 (5)

Table 65: SMAPE for tcp_udp_ratio_bytes

17 Results for tcp_udp_ratio_bytes

	Training window	Prediction window	Mean	GRU	LSTM	GRU-FCN	LSTM-FCN	InceptionTime	ResNet	RC-LSTM
Inst.	24	1	0.35 (0.2)	0.07 (0.6)	0.02 (0.7)	0.26 (0.4)	0.24 (0.4)	-0.1 (1.1)	0.07 (0.7)	-0.23 (0.7)
	168	1	0.22 (0.2)	0.07 (0.7)	0.03 (0.6)	-0.17 (1.4)	-0.14 (1.2)	-0.69 (1.8)	-0.51 (1.7)	-0.23 (0.7)
	168	24	0.19 (0.2)	-2.04 (2.9)	-1.96 (2.8)	-0.96 (2.0)	-2.4 (2.9)	-7.45 (3.7)	-4.4 (3.7)	-5.8 (4.1)
	744	1	0.1 (0.1)	0.1 (0.6)	0.0 (0.7)	-1.57 (2.5)	-1.74 (2.5)	-1.39 (2.3)	-1.75 (2.8)	-0.29 (0.7)
	744	168	0.05 (0.1)	-3.24 (3.0)	-3.08 (3.0)	-3.34 (3.2)	-3.42 (3.1)	-7.52 (3.6)	-4.19 (3.4)	-9.72 (1.4)
Inst. subnets	24	1	0.34 (0.2)	0.08 (0.8)	0.02 (0.9)	0.15 (0.7)	0.17 (0.7)	-0.29 (1.4)	-0.12 (1.1)	-0.13 (0.7)
	168	1	0.23 (0.2)	0.1 (0.7)	0.02 (0.8)	-0.19 (1.2)	-0.12 (1.1)	-0.87 (1.9)	-0.57 (1.7)	-0.15 (0.7)
	168	24	0.2 (0.2)	-1.39 (2.3)	-1.41 (2.3)	-0.82 (1.8)	-1.73 (2.4)	-5.9 (4.1)	-3.32 (3.3)	-4.26 (4.1)
	744	1	0.11 (0.1)	0.09 (0.7)	-0.05 (0.9)	-1.3 (2.2)	-1.51 (2.3)	-1.47 (2.3)	-1.68 (2.7)	-0.22 (0.9)
	744	168	0.06 (0.1)	-2.36 (2.6)	-2.21 (2.5)	-2.58 (2.9)	-2.56 (2.7)	-5.98 (4.1)	-3.31 (3.1)	-9.07 (2.4)
IP addr.	24	1	0.11 (0.2)	0.12 (0.5)	0.09 (0.6)	0.14 (0.4)	0.1 (0.5)	-0.16 (1.0)	0.02 (0.7)	0.16 (0.5)
	168	1	0.07 (0.1)	0.09 (0.6)	0.06 (0.6)	0.02 (0.4)	0.05 (0.5)	-0.34 (1.3)	-0.41 (1.8)	0.15 (0.5)
	168	24	0.05 (0.1)	-0.53 (1.9)	-0.59 (2.0)	-0.17 (0.9)	-0.3 (1.3)	-5.74 (4.2)	-0.66 (1.8)	-0.92 (2.5)
	744	1	0.03 (0.1)	0.08 (0.5)	0.04 (0.7)	-0.73 (2.1)	-0.7 (2.3)	-0.93 (2.3)	-1.49 (3.0)	0.06 (0.8)
	744	168	0.01 (0.1)	-0.72 (2.1)	-0.69 (2.0)	-0.86 (2.1)	-0.74 (2.0)	-5.75 (4.2)	-1.0 (2.2)	-1.04 (2.4)

Table 66: R2-score for tcp_udp_ratio_bytes

	Training window	Prediction window	Mean	GRU	LSTM	GRU-FCN	LSTM-FCN	InceptionTime	ResNet	RC-LSTM
Inst.	24	1	0.118 (0.04)	0.075 (0.06)	0.078 (0.06)	0.073 (0.06)	0.073 (0.06)	0.085 (0.07)	0.082 (0.07)	0.089 (0.06)
	168	1	0.13 (0.05)	0.075 (0.06)	0.077 (0.06)	0.085 (0.07)	0.085 (0.07)	0.102 (0.08)	0.099 (0.09)	0.09 (0.06)
	168	24	0.133 (0.05)	0.119 (0.06)	0.121 (0.07)	0.104 (0.07)	0.127 (0.07)	0.309 (0.08)	0.171 (0.09)	0.254 (0.59)
	744	1	0.142 (0.05)	0.075 (0.06)	0.077 (0.06)	0.118 (0.08)	0.128 (0.09)	0.12 (0.09)	0.131 (0.11)	0.09 (0.06)
	744	168	0.146 (0.05)	0.147 (0.07)	0.144 (0.07)	0.15 (0.08)	0.15 (0.07)	0.314 (0.08)	0.176 (0.1)	0.792 (0.14)
Inst. subnets	24	1	0.138 (0.07)	0.104 (0.1)	0.109 (0.11)	0.108 (0.12)	0.107 (0.12)	0.129 (0.15)	0.125 (0.14)	0.12 (0.11)
	168	1	0.152 (0.07)	0.104 (0.1)	0.11 (0.12)	0.121 (0.13)	0.121 (0.13)	0.152 (0.16)	0.141 (0.15)	0.122 (0.11)
	168	24	0.155 (0.07)	0.151 (0.13)	0.154 (0.13)	0.143 (0.14)	0.162 (0.14)	0.303 (0.11)	0.204 (0.15)	0.301 (0.84)
	744	1	0.165 (0.08)	0.106 (0.1)	0.113 (0.12)	0.154 (0.14)	0.166 (0.14)	0.169 (0.16)	0.174 (0.15)	0.12 (0.1)
	744	168	0.17 (0.08)	0.178 (0.13)	0.175 (0.13)	0.185 (0.14)	0.184 (0.14)	0.308 (0.11)	0.21 (0.15)	0.765 (0.44)
IP addr.	24	1	0.137 (0.08)	0.169 (0.1)	0.171 (0.1)	0.171 (0.1)	0.173 (0.1)	0.191 (0.12)	0.18 (0.11)	0.17 (0.1)
	168	1	0.143 (0.08)	0.17 (0.1)	0.172 (0.1)	0.187 (0.12)	0.181 (0.11)	0.206 (0.13)	0.212 (0.15)	0.17 (0.1)
	168	24	0.144 (0.09)	0.214 (0.12)	0.217 (0.13)	0.202 (0.12)	0.205 (0.12)	0.466 (0.05)	0.234 (0.15)	0.265 (0.57)
	744	1	0.148 (0.09)	0.174 (0.11)	0.176 (0.11)	0.233 (0.15)	0.224 (0.14)	0.235 (0.14)	0.298 (0.25)	0.17 (0.11)
	744	168	0.15 (0.09)	0.229 (0.14)	0.228 (0.14)	0.231 (0.13)	0.232 (0.14)	0.469 (0.05)	0.249 (0.15)	0.31 (0.6)

Table 67: RMSE for tcp_udp_ratio_bytes

	Training window	Prediction window	Mean	GRU	LSTM	GRU-FCN	LSTM-FCN	InceptionTime	ResNet	RC-LSTM
Inst.	24	1	0.19483	0.13405	0.13834	0.1289	0.12939	0.15228	0.1463	0.16104
	168	1	0.21805	0.13407	0.13793	0.15213	0.15406	0.18551	0.18043	0.1614
	168	24	0.22322	0.21952	0.22337	0.18951	0.2362	0.58968	0.32331	0.45375
	744	1	0.24023	0.13285	0.13808	0.21742	0.23825	0.22277	0.24325	0.16209
	744	168	0.24899	0.275	0.26978	0.2818	0.28108	0.5999	0.33256	1.47308
Inst. subnets	24	1	0.22009	0.17635	0.18541	0.18242	0.17961	0.22323	0.21406	0.2053
	168	1	0.2454	0.17607	0.18656	0.20729	0.2078	0.26795	0.24743	0.20842
	168	24	0.25126	0.26704	0.27283	0.25021	0.28839	0.56393	0.37126	0.48091
	744	1	0.2697	0.17864	0.19149	0.27365	0.29732	0.30285	0.31298	0.20676
	744	168	0.27956	0.32008	0.31469	0.33279	0.33189	0.57308	0.38335	1.40111
IP addr.	24	1	0.22474	0.26251	0.26572	0.26549	0.26961	0.30318	0.28388	0.26391
	168	1	0.23492	0.2648	0.26827	0.29598	0.28418	0.33214	0.34358	0.26268
	168	24	0.23786	0.34598	0.35313	0.32398	0.32969	0.83181	0.38445	0.39457
	744	1	0.24489	0.27129	0.27533	0.38339	0.36788	0.38691	0.50623	0.26472
	744	168	0.24931	0.37435	0.37277	0.37949	0.38015	0.83689	0.41364	0.48003

Table 68: Harmonic Score for tcp_udp_ratio_bytes

	Training window	Prediction window	Mean	GRU	LSTM	GRU-FCN	LSTM-FCN	InceptionTime	ResNet	RC-LSTM
Inst.	24	1	18.8 (12)	10.0 (19)	10.3 (19)	9.8 (19)	9.8 (19)	10.7 (19)	10.5 (19)	11.3 (18)
	168	1	20.9 (14)	10.1 (19)	10.3 (19)	10.8 (19)	11.1 (19)	12.6 (20)	12.5 (20)	11.4 (19)
	168	24	21.3 (14)	15.6 (21)	15.7 (20)	13.3 (20)	16.1 (20)	45.9 (18)	20.9 (20)	29.0 (20)
	744	1	22.6 (15)	10.0 (19)	10.4 (19)	15.0 (19)	16.6 (21)	14.6 (20)	15.6 (21)	11.7 (19)
	744	168	23.2 (16)	18.0 (19)	17.8 (19)	18.6 (20)	18.6 (20)	46.6 (18)	22.8 (26)	192.8 (2)
Inst. subnets	24	1	24.1 (18)	18.1 (33)	18.8 (34)	18.3 (33)	18.4 (34)	20.5 (36)	19.9 (35)	19.4 (33)
	168	1	26.6 (20)	18.2 (33)	18.8 (34)	20.0 (36)	19.7 (34)	23.4 (37)	22.3 (35)	19.5 (32)
	168	24	27.1 (20)	24.6 (36)	25.4 (37)	23.2 (36)	25.4 (36)	48.5 (27)	30.8 (38)	36.1 (34)
	744	1	28.7 (21)	18.1 (33)	18.9 (34)	24.9 (37)	25.7 (35)	25.8 (37)	27.0 (39)	19.7 (32)
	744	168	29.5 (22)	27.3 (36)	27.0 (35)	28.7 (38)	28.6 (38)	49.1 (27)	32.1 (41)	191.9 (4)
IP addr.	24	1	34.7 (29)	167.9 (55)	167.9 (55)	167.2 (56)	166.6 (56)	167.9 (55)	167.8 (55)	137.5 (70)
	168	1	78.3 (70)	167.9 (55)	167.9 (55)	169.1 (55)	168.9 (55)	168.3 (54)	168.3 (54)	139.8 (69)
	168	24	78.5 (70)	171.7 (54)	171.6 (54)	170.4 (55)	170.4 (54)	171.2 (44)	171.9 (53)	172.4 (49)
	744	1	96.2 (80)	168.1 (55)	168.0 (55)	171.2 (54)	170.5 (54)	170.4 (53)	170.8 (53)	147.8 (65)
	744	168	96.2 (80)	172.0 (54)	172.1 (54)	171.8 (53)	171.7 (54)	171.1 (44)	173.8 (52)	197.7 (5)

Table 69: SMAPE for tcp_udp_ratio_packets

18 Results for tcp_udp_ratio_packets

	Training window	Prediction window	Mean	GRU	LSTM	GRU-FCN	LSTM-FCN	InceptionTime	ResNet	RC-LSTM
Inst.	24	1	0.37 (0.2)	0.11 (0.7)	0.03 (0.8)	0.28 (0.4)	0.27 (0.4)	-0.12 (1.2)	0.07 (0.7)	-0.23 (0.7)
	168	1	0.24 (0.2)	0.07 (0.7)	0.03 (0.8)	-0.24 (1.6)	-0.22 (1.3)	-0.7 (1.9)	-0.67 (2.0)	-0.24 (0.7)
	168	24	0.21 (0.2)	-2.2 (3.1)	-2.14 (2.9)	-1.0 (2.0)	-2.58 (3.0)	-7.4 (3.7)	-4.49 (3.6)	-5.66 (4.1)
	744	1	0.11 (0.1)	0.11 (0.8)	-0.01 (0.9)	-1.92 (2.9)	-1.97 (2.7)	-1.22 (2.1)	-1.66 (2.7)	-0.32 (0.9)
	744	168	0.05 (0.1)	-3.29 (3.1)	-3.16 (3.1)	-3.37 (3.2)	-3.43 (3.1)	-7.49 (3.6)	-4.36 (3.5)	-9.76 (1.4)
Inst. subnets	24	1	0.37 (0.2)	0.11 (0.8)	0.04 (0.8)	0.18 (0.7)	0.17 (0.8)	-0.23 (1.3)	-0.07 (1.1)	-0.14 (0.7)
	168	1	0.24 (0.2)	0.11 (0.8)	0.05 (0.8)	-0.13 (1.1)	-0.17 (1.3)	-0.85 (2.0)	-0.65 (1.8)	-0.15 (0.8)
	168	24	0.21 (0.2)	-1.53 (2.5)	-1.53 (2.4)	-0.87 (1.9)	-1.85 (2.5)	-5.99 (4.1)	-3.41 (3.3)	-4.21 (4.0)
	744	1	0.12 (0.1)	0.12 (0.7)	0.04 (0.8)	-1.52 (2.6)	-1.66 (2.5)	-1.38 (2.4)	-1.68 (2.7)	-0.23 (0.9)
	744	168	0.06 (0.1)	-2.45 (2.7)	-2.31 (2.6)	-2.62 (2.9)	-2.62 (2.7)	-6.07 (4.1)	-3.23 (3.2)	-9.1 (2.4)
IP addr.	24	1	0.11 (0.2)	0.11 (0.5)	0.08 (0.7)	0.15 (0.4)	0.1 (0.6)	-0.13 (0.8)	0.06 (0.5)	0.16 (0.5)
	168	1	0.07 (0.1)	0.11 (0.5)	0.09 (0.5)	0.03 (0.4)	0.05 (0.5)	-0.38 (1.4)	-0.42 (1.8)	0.17 (0.3)
	168	24	0.06 (0.1)	-0.49 (1.7)	-0.55 (1.9)	-0.16 (0.8)	-0.28 (1.2)	-5.69 (4.2)	-0.64 (1.8)	-0.93 (2.5)
	744	1	0.03 (0.1)	0.08 (0.5)	0.05 (0.7)	-0.68 (2.0)	-0.68 (2.2)	-0.92 (2.3)	-1.28 (2.7)	0.07 (0.8)
	744	168	0.01 (0.1)	-0.71 (2.1)	-0.69 (2.1)	-0.86 (2.1)	-0.75 (2.0)	-5.71 (4.2)	-1.0 (2.2)	-1.06 (2.4)

Table 70: R2-score for tcp_udp_ratio_packets

	Training window	Prediction window	Mean	GRU	LSTM	GRU-FCN	LSTM-FCN	InceptionTime	ResNet	RC-LSTM
Inst.	24	1	0.115 (0.04)	0.073 (0.06)	0.075 (0.06)	0.071 (0.06)	0.071 (0.06)	0.084 (0.07)	0.081 (0.07)	0.088 (0.06)
	168	1	0.129 (0.05)	0.074 (0.06)	0.075 (0.06)	0.083 (0.07)	0.085 (0.07)	0.103 (0.09)	0.102 (0.09)	0.089 (0.06)
	168	24	0.132 (0.05)	0.122 (0.07)	0.124 (0.07)	0.104 (0.07)	0.13 (0.07)	0.309 (0.08)	0.172 (0.08)	0.246 (0.59)
	744	1	0.141 (0.05)	0.073 (0.06)	0.077 (0.06)	0.12 (0.08)	0.131 (0.09)	0.115 (0.08)	0.125 (0.1)	0.089 (0.06)
	744	168	0.146 (0.05)	0.146 (0.07)	0.144 (0.07)	0.15 (0.08)	0.15 (0.07)	0.315 (0.08)	0.179 (0.1)	0.793 (0.13)
Inst. subnets	24	1	0.135 (0.07)	0.1 (0.09)	0.106 (0.1)	0.105 (0.11)	0.105 (0.11)	0.123 (0.13)	0.119 (0.13)	0.117 (0.1)
	168	1	0.15 (0.07)	0.101 (0.09)	0.106 (0.1)	0.117 (0.12)	0.117 (0.12)	0.147 (0.15)	0.141 (0.14)	0.118 (0.1)
	168	24	0.154 (0.07)	0.151 (0.12)	0.156 (0.13)	0.142 (0.13)	0.162 (0.13)	0.305 (0.1)	0.204 (0.14)	0.297 (0.84)
	744	1	0.164 (0.08)	0.101 (0.09)	0.106 (0.1)	0.154 (0.13)	0.166 (0.14)	0.161 (0.14)	0.171 (0.15)	0.117 (0.1)
	744	168	0.17 (0.08)	0.177 (0.12)	0.175 (0.12)	0.184 (0.13)	0.183 (0.13)	0.31 (0.1)	0.207 (0.15)	0.768 (0.43)
IP addr.	24	1	0.14 (0.08)	0.17 (0.1)	0.172 (0.1)	0.171 (0.1)	0.172 (0.1)	0.191 (0.12)	0.179 (0.11)	0.181 (0.34)
	168	1	0.146 (0.09)	0.17 (0.1)	0.173 (0.1)	0.187 (0.12)	0.182 (0.11)	0.206 (0.13)	0.211 (0.15)	0.18 (0.34)
	168	24	0.147 (0.09)	0.214 (0.12)	0.218 (0.13)	0.202 (0.12)	0.206 (0.12)	0.465 (0.05)	0.235 (0.15)	0.267 (0.57)
	744	1	0.151 (0.09)	0.174 (0.1)	0.176 (0.11)	0.234 (0.15)	0.225 (0.14)	0.237 (0.14)	0.296 (0.25)	0.17 (0.11)
	744	168	0.154 (0.09)	0.23 (0.13)	0.229 (0.13)	0.233 (0.13)	0.233 (0.14)	0.468 (0.05)	0.25 (0.15)	0.312 (0.6)

Table 71: RMSE for tcp_udp_ratio_packets

	Training window	Prediction window	Mean	GRU	LSTM	GRU-FCN	LSTM-FCN	InceptionTime	ResNet	RC-LSTM
Inst.	24	1	0.18959	0.12885	0.13381	0.12585	0.12605	0.15055	0.14383	0.15854
	168	1	0.21518	0.13178	0.13411	0.14932	0.15304	0.18768	0.18546	0.15933
	168	24	0.22069	0.22563	0.22868	0.19035	0.24188	0.59025	0.3256	0.43926
	744	1	0.23906	0.12922	0.13701	0.2222	0.24517	0.21153	0.23264	0.161
	744	168	0.24845	0.27484	0.27088	0.28129	0.28166	0.60082	0.33811	1.47541
Inst. subnets	24	1	0.21457	0.16945	0.17917	0.17695	0.17724	0.21245	0.20528	0.20021
	168	1	0.24227	0.17092	0.17975	0.20036	0.20248	0.26047	0.24798	0.20263
	168	24	0.24845	0.26872	0.27704	0.25054	0.28987	0.56751	0.37199	0.47278
	744	1	0.26845	0.16976	0.18061	0.27451	0.29804	0.28892	0.30776	0.20179
	744	168	0.27905	0.31992	0.31544	0.33232	0.3314	0.57717	0.37774	1.4081
IP addr.	24	1	0.22827	0.26364	0.26723	0.26587	0.2676	0.30379	0.28096	0.2726
	168	1	0.23919	0.26439	0.26857	0.29547	0.28632	0.33182	0.34227	0.26418
	168	24	0.24231	0.34592	0.3535	0.32395	0.33044	0.8305	0.3848	0.39839
	744	1	0.24966	0.27188	0.27455	0.38524	0.36818	0.3913	0.50082	0.26477
	744	168	0.25429	0.37621	0.37437	0.38169	0.38234	0.83569	0.41444	0.4841

Table 72: Harmonic Score for tcp_udp_ratio_packets