

Experiment Report

Kadir Korkmaz

December 4, 2020

Experiment Configuration

Dataset name is **2021-01-08_17:08:17**

Advanced algorand with concurrency constant **7**

Number of nodes is **450**

Bandwidth limit per process using Trickle: **20 Mbps using tc and cgroups**

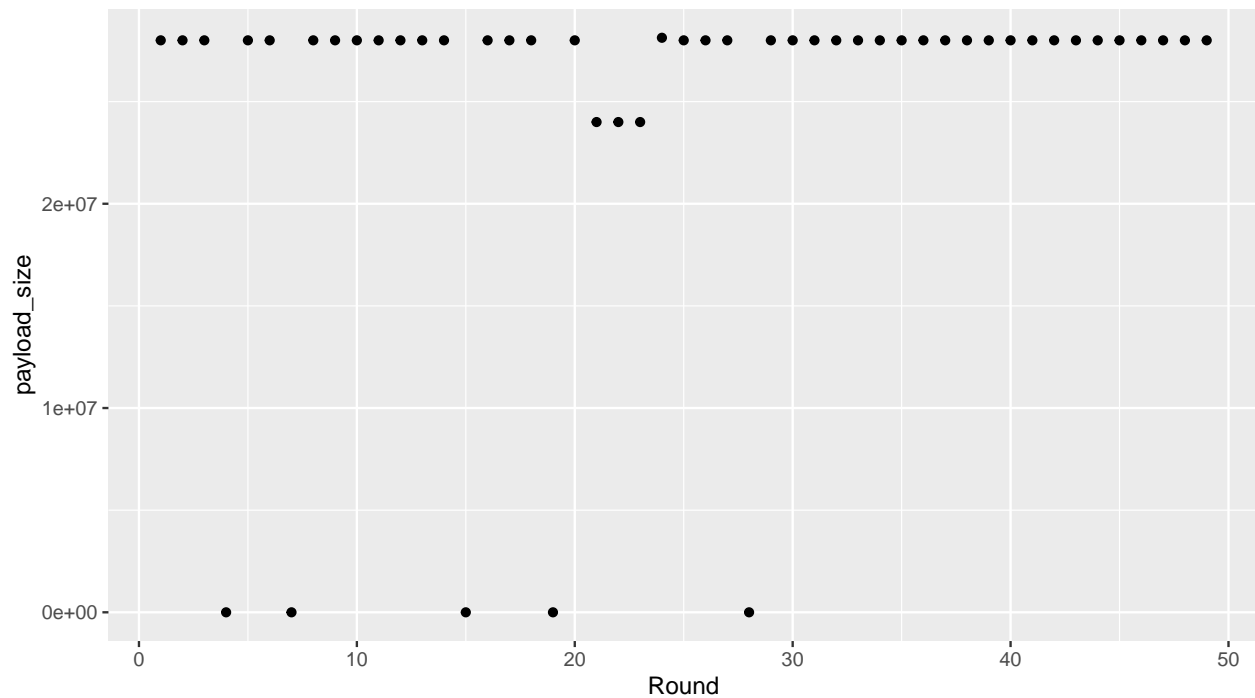
tc Delay on outgoing channel: **50 ms delay (RTT 100ms)**

Node Configuration

```
## {
##   "NodeCount": 450,
##   "BAStar": {
##     "UserMoney": 10,
##     "ThresholdProposer": 26,
##     "TSmallStep": 180,
##     "TBigStep": 0.68,
##     "TBigFinal": 900,
##     "TSmallFinal": 0.74,
##     "LamdaPriority": 5,
##     "LamdaBlock": 60,
##     "LamdaStep": 20,
##     "LamdaStepVar": 5,
##     "ConcurrencyConstant": 7
##   },
##   "Blockchain": {
##     "BlockPayloadSize": 4000000,
##     "StopOnRound": 50
##   },
##   "Network": {
##     "GossipNodeMessageBufferSize": 100,
##     "PeerCount": 4
##   },
##   "Logger": {
##     "EnableAgreementLogging": true,
##     "EnableMemoryPoolLogging": true,
##     "EnableBlockchainLogging": true,
##     "EnableGossipNodeLogging": false
##   },
##   "Validation": {
##     "ValidateBlock": true,
##     "ValidateVote": true
##   }
## }
```

Sanity Check

FileName	count	mean_bp	mean_ba_wo_final	mean_ba_w_final	distinct_hash	max_round
nuc10.maas.stat	1200	14.79183	21.80607	25.82845	49	49
nuc14.maas.stat	1197	14.91049	21.86038	25.90689	49	49
nuc15.maas.stat	1175	15.05626	21.92695	25.99142	50	49
nuc16.maas.stat	1225	14.75363	21.80209	25.83877	49	49
nuc19.maas.stat	1200	14.82893	21.79935	25.73968	49	49
nuc2.maas.stat	1225	14.99375	21.66273	25.62241	49	49
nuc20.maas.stat	1200	14.84712	21.83645	25.69743	50	49
nuc21.maas.stat	1225	14.88630	21.73407	25.71114	49	49
nuc22.maas.stat	1075	15.20927	22.56238	26.18851	50	49
nuc23.maas.stat	1189	14.81615	22.07063	26.07625	50	49
nuc24.maas.stat	1200	15.05455	21.74973	25.76439	49	49
nuc27.maas.stat	1147	14.73776	22.41507	26.43555	50	49
nuc3.maas.stat	1225	14.93037	21.68901	25.60849	49	49
nuc4.maas.stat	1225	14.67637	21.75372	25.70691	49	49
nuc5.maas.stat	1200	15.02827	21.83266	25.82746	50	49
nuc6.maas.stat	1225	14.77829	21.76017	25.78460	49	49
nuc7.maas.stat	1210	15.02243	21.78620	25.81576	49	49
nuc8.maas.stat	1197	15.05695	21.80292	25.83161	49	49



The number of rows in data set is **21540**

Maximum round number is **49**

Appended payload size is is **1220.1252796** MB

Overall Results

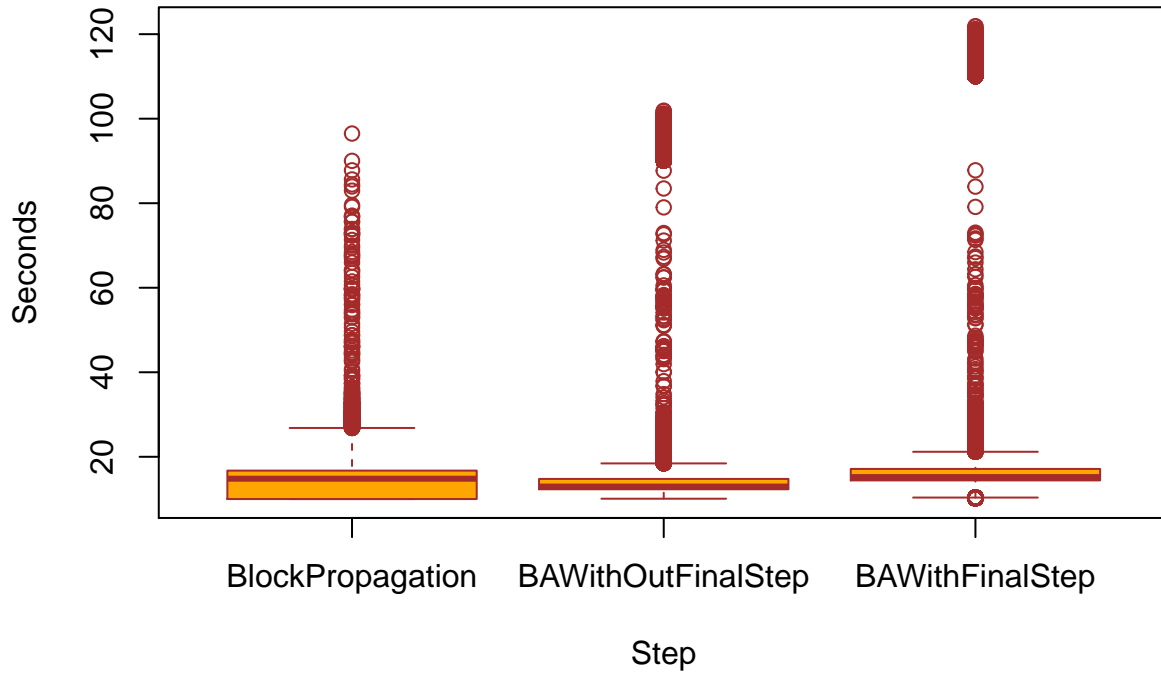
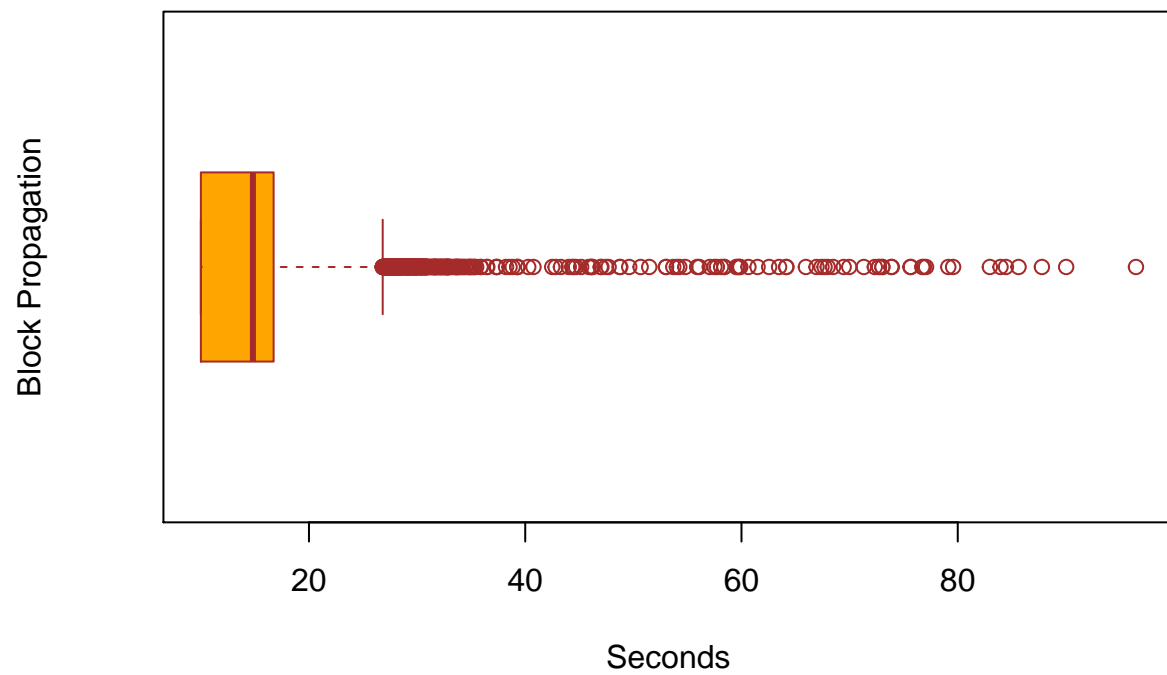
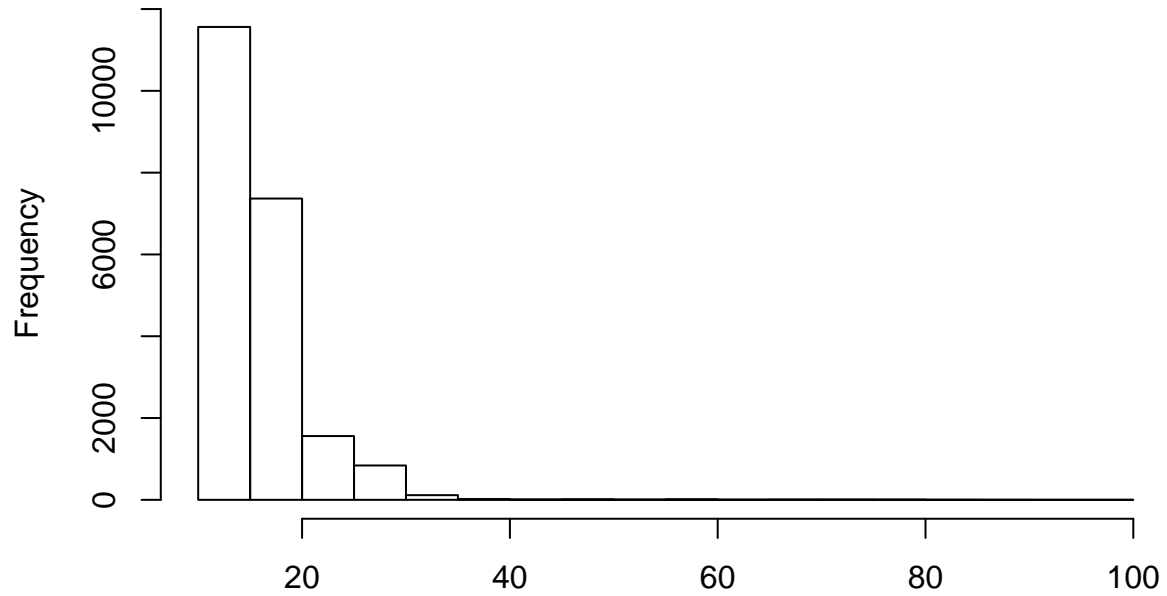


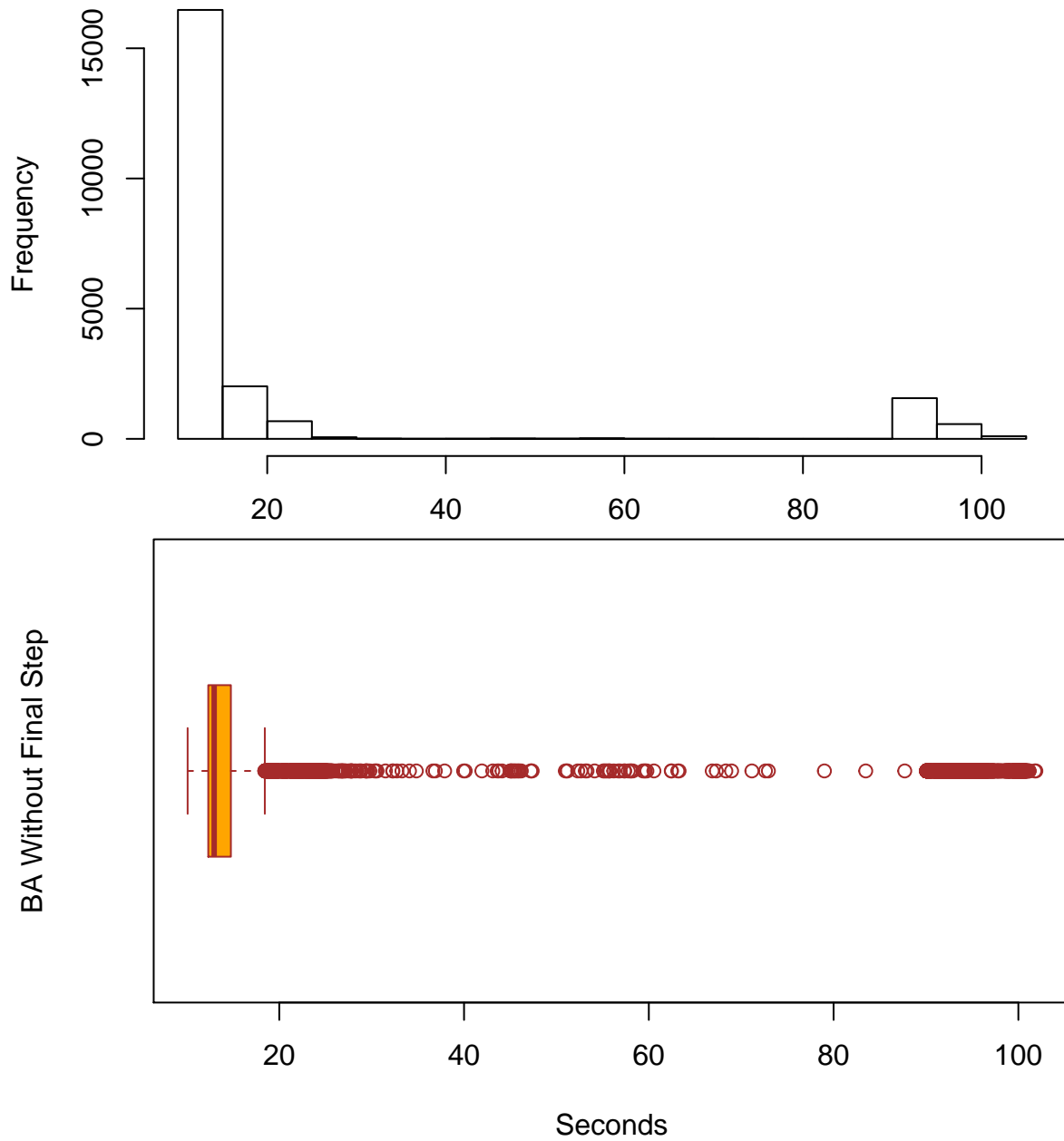
Table 2: Summaries

BlockPropagation	BAWithOutFinalStep	BAWithFinalStep
Min. :10.00	Min. : 10.08	Min. : 10.16
1st Qu.:10.00	1st Qu.: 12.31	1st Qu.: 14.42
Median :14.82	Median : 12.95	Median : 15.20
Mean :14.91	Mean : 21.87	Mean : 25.85
3rd Qu.:16.73	3rd Qu.: 14.76	3rd Qu.: 17.13
Max. :96.48	Max. :101.89	Max. :121.89

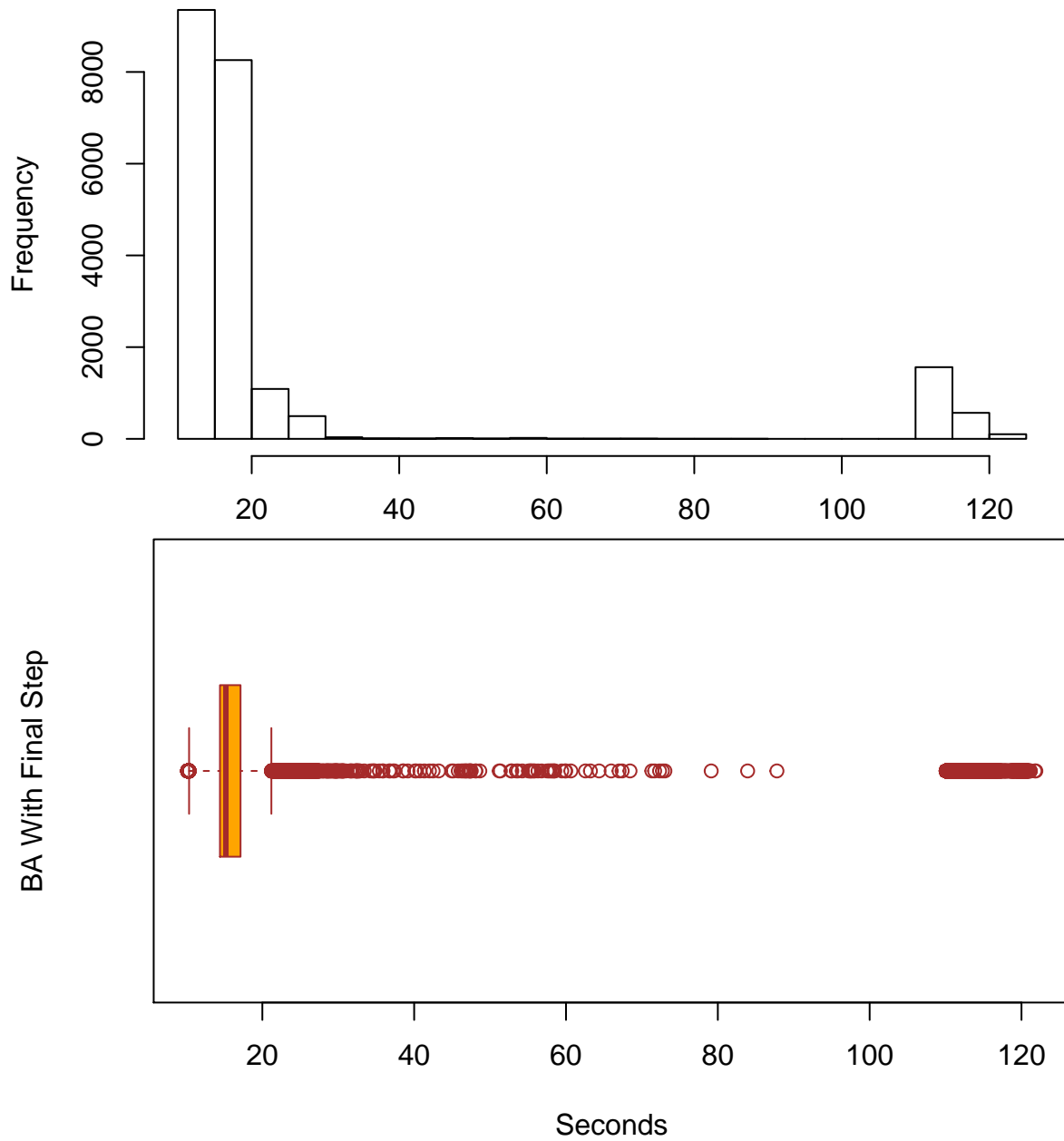
Block Propagation Statistics



BA Elapsed Time Without Final Step Statistics



BA Elapsed Time With Final Step Statistics



Forwarded Message Counts Per Round

