Experiment Report

Kadir Korkmaz

December 4, 2020

Experiment Configuration

Dataset name is **2021-01-07__16:51:39**

Advanced algorand with concurrency constant **1**

Number of nodes is **450**

Bandwidth limit per process using Trickle: **20 Mbps using tc and cgroups**
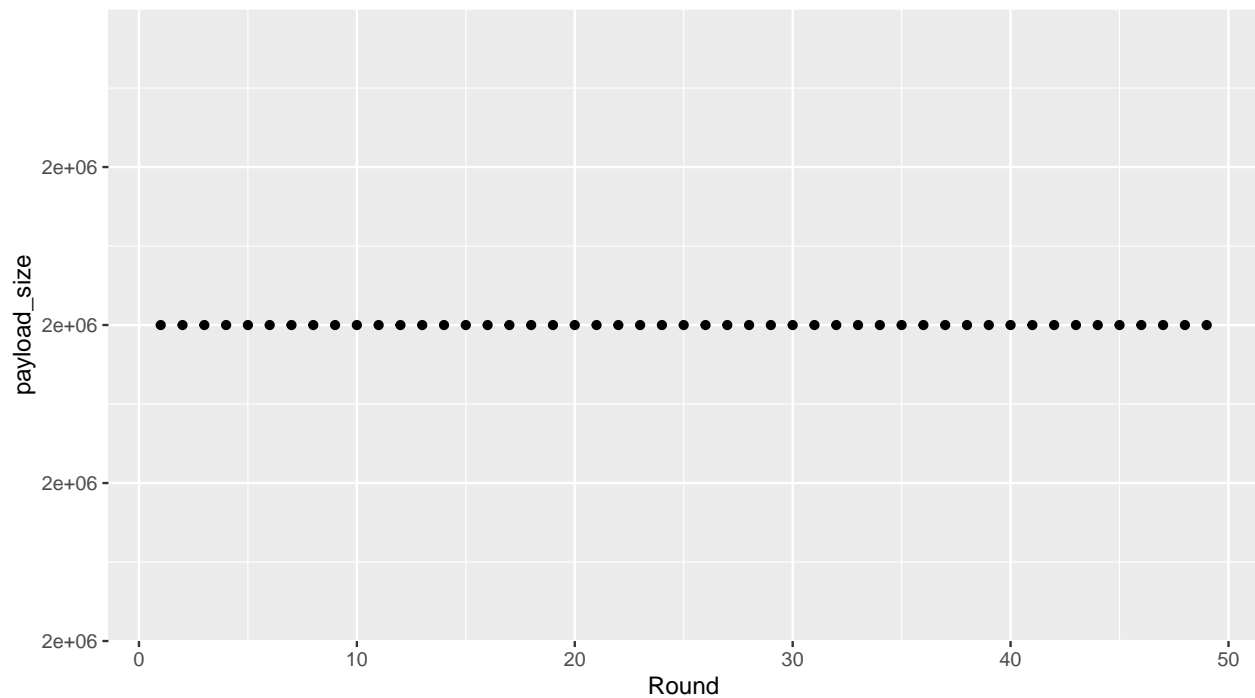
tc Delay on outgoing channel: **50 ms delay (RTT 100ms)**

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": 1
##      },
##      "Blockchain": {
##          "BlockPayloadSize": 2000000,
##          "StopOnRound": 50
##      },
##      "Network": {
##          "GossipNodeMessageBufferSize": 100,
##          "PeerCount": 4
##      },
##      "Logger": {
##          "EnableAgreementLoging": true,
##          "EnableMemoryPoolLoging": true,
##          "EnableBlockchainLoging": true,
##          "EnableGossipNodeLoging": 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	1225	10.00136	12.61384	14.80318	49	49
nuc14.maas.stat	1225	10.01664	12.61240	14.80739	49	49
nuc15.maas.stat	1225	10.01443	12.60946	14.80913	49	49
nuc16.maas.stat	1225	10.00667	12.62389	14.80326	49	49
nuc19.maas.stat	1225	10.00607	12.61035	14.80252	49	49
nuc2.maas.stat	1225	10.00107	12.64699	14.80746	49	49
nuc20.maas.stat	1225	10.00508	12.66758	14.81292	49	49
nuc21.maas.stat	1225	10.01268	12.65087	14.80911	49	49
nuc22.maas.stat	1225	10.00567	12.63704	14.80878	49	49
nuc23.maas.stat	1225	10.00675	12.64458	14.80648	49	49
nuc24.maas.stat	1225	10.01208	12.63026	14.81084	49	49
nuc27.maas.stat	1225	10.00132	12.63099	14.80529	49	49
nuc3.maas.stat	1225	10.00132	12.64764	14.80983	49	49
nuc4.maas.stat	1225	10.00830	12.66748	14.81381	49	49
nuc5.maas.stat	1225	10.02430	12.59939	14.80035	49	49
nuc6.maas.stat	1225	10.00659	12.62401	14.80479	49	49
nuc7.maas.stat	1225	10.01067	12.63422	14.80270	49	49
nuc8.maas.stat	1225	10.00143	12.67258	14.82341	49	49

The number of rows in data set is **22050**

Maximum round number is **49**

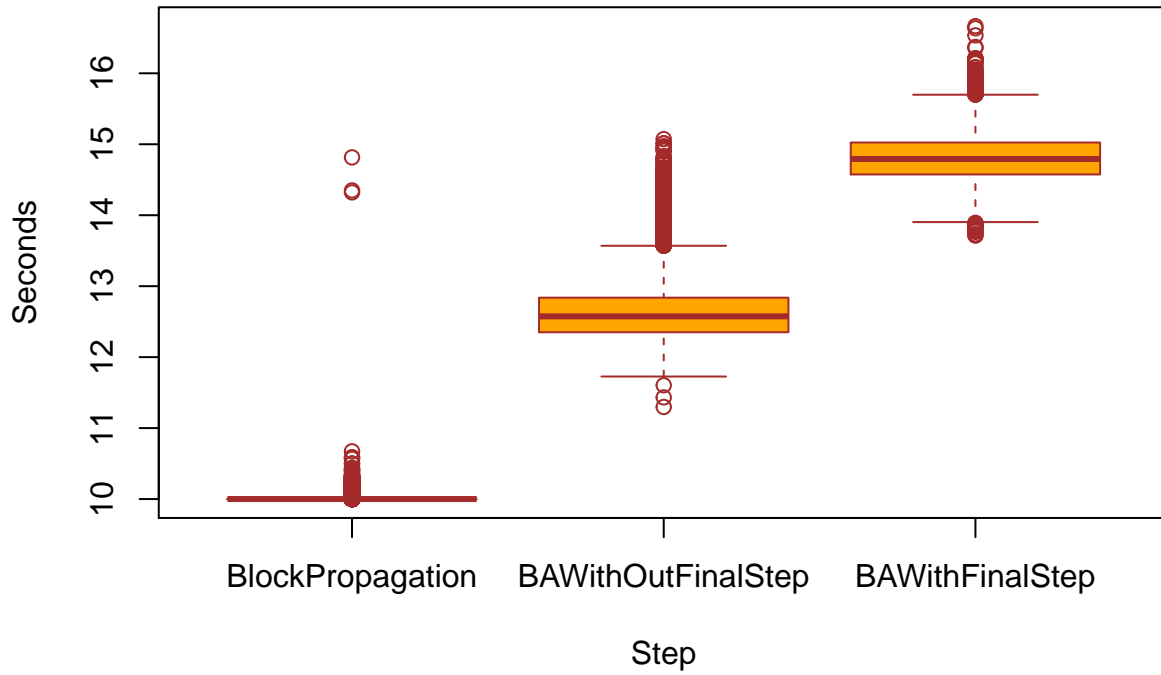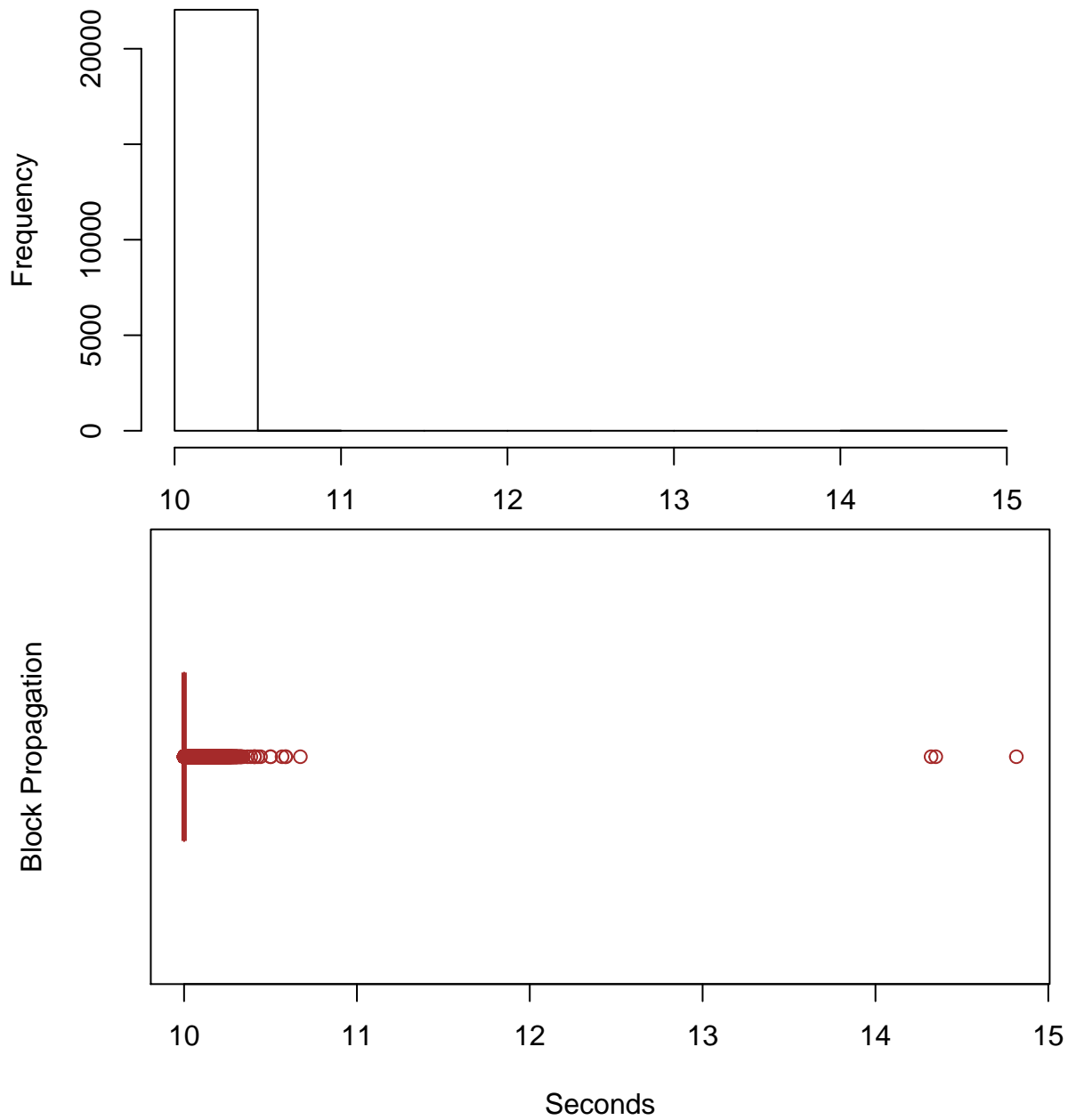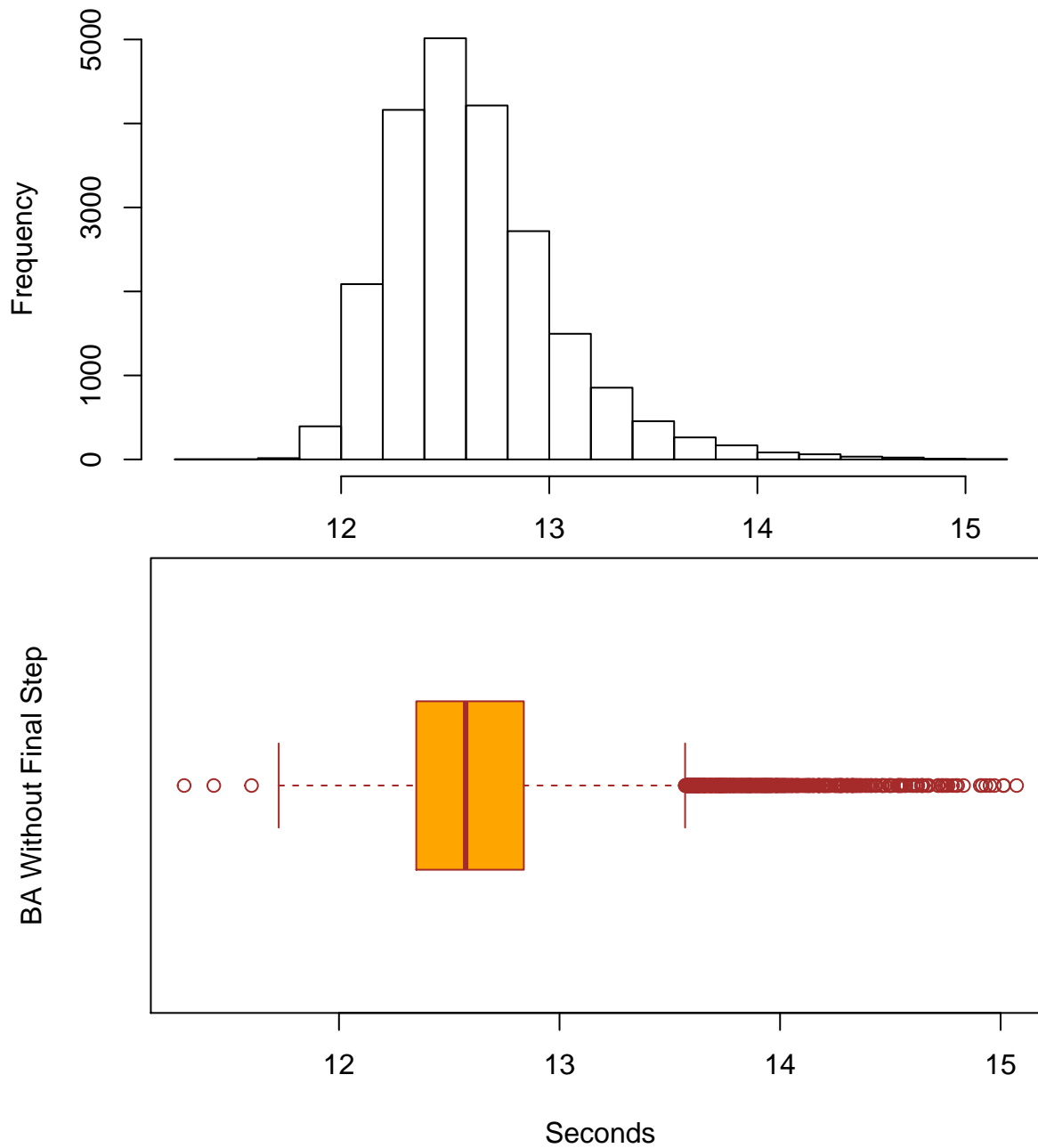Appended payload size is is **98** MB

Overal Results

Table 2: Summaries

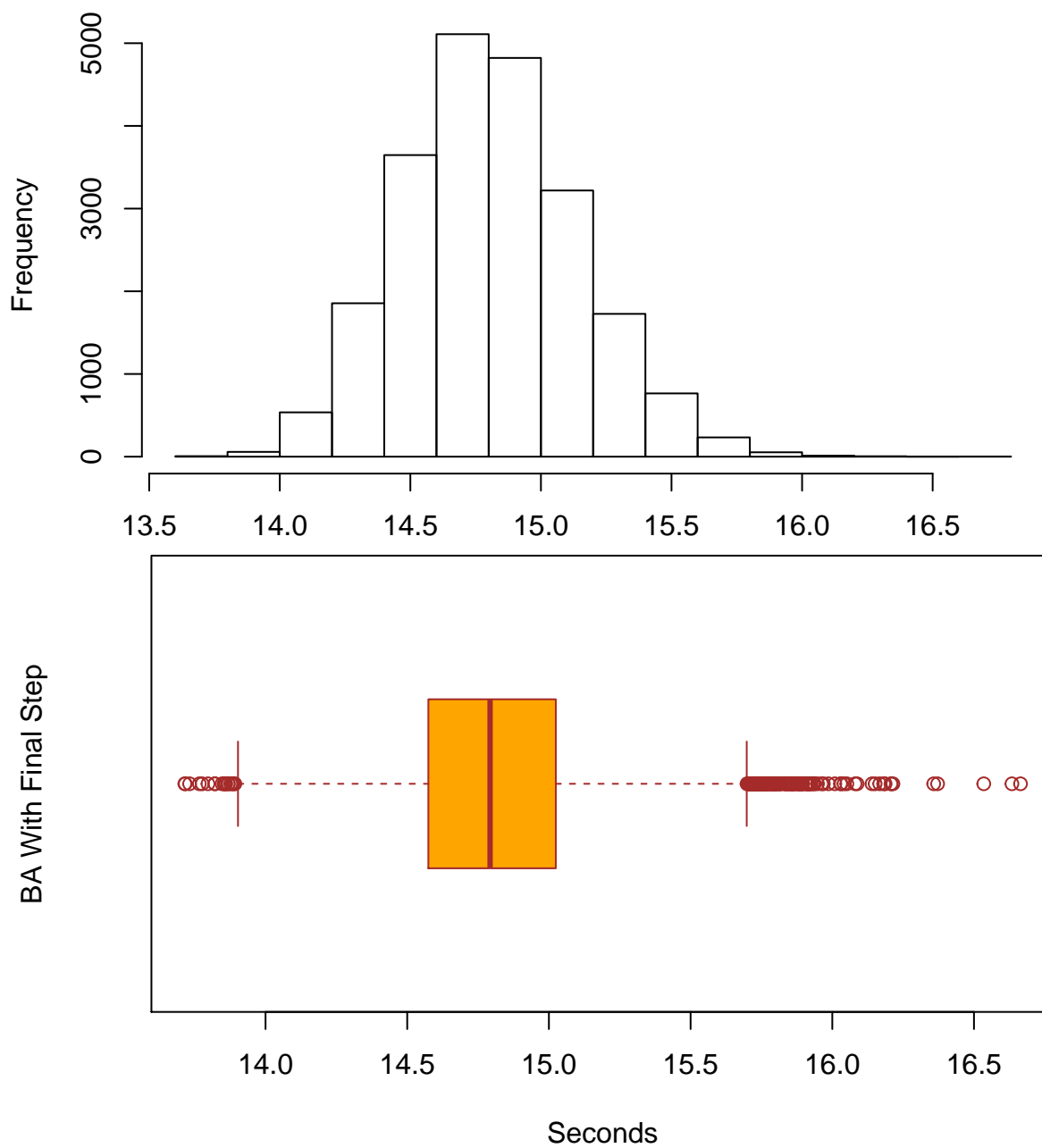| BlockPropagation	BAWithOutFinalStep	BAWithFinalStep
Min. :10.00	Min. :11.30	Min. :13.72
1st Qu.:10.00	1st Qu.:12.35	1st Qu.:14.57
Median :10.00	Median :12.57	Median :14.79
Mean :10.01	Mean :12.63	Mean :14.81
3rd Qu.:10.00	3rd Qu.:12.84	3rd Qu.:15.02
Max. :14.82	Max. :15.07	Max. :16.66

Block Propagation Statistics

BA Elapsed Time Without Final Step Statistics

BA Elapsed Time With Final Step Statistics

Forwarded Message Counts Per Round