Experiment Report

Kadir Korkmaz

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Experiment Configuration

Dataset name is **2021-03-05__16:00:03**

Advanced algorand with concurrency constant **8**

Number of nodes is **450**

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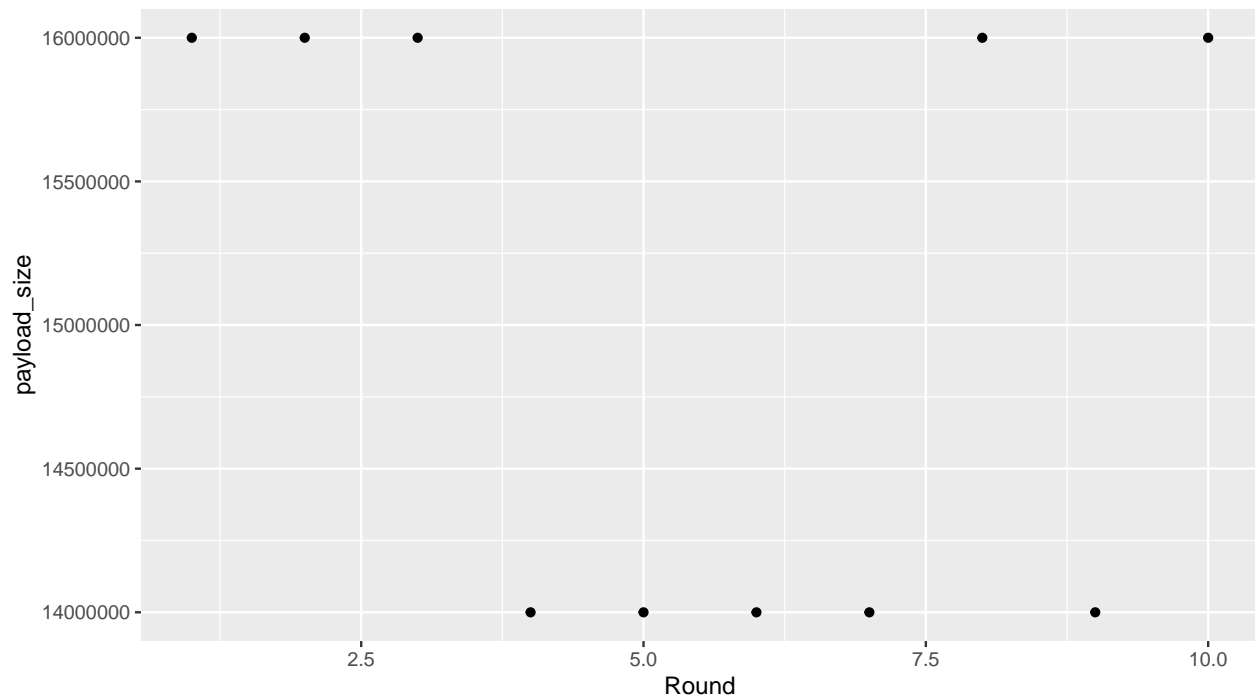
tc Delay on outgoing channel: **50 ms delay (RTT 100ms)**

Node Configuration

```
## {
##      "NodeCount": 450,
##      "BAStar": {
##          "UserMoney": 10,
##          "ThresholdProposer": 26,
##          "TSmallStep": 180,
##          "TBigStep": 0.68,
##          "TBigFinal": 900,
##          "TSmallFinal": 0.74,
##          "LamdaPriority": 5,
##          "LamdaBlock": 60,
##          "LamdaStep": 60,
##          "LamdaStepVar": 5,
##          "MacroBlockSize": 16000000,
##          "ConcurrencyConstant": 8
##      },
##      "Blockchain": {
##          "StopOnRound": 11
##      },
##      "Network": {
##          "GossipNodeMessageBufferSize": 100,
##          "PeerCount": 4,
##          "FanOut": 8,
##          "BigMessageMutex": true
##      },
##      "Logger": {
##          "EnableAgreementLoging": true,
##          "EnableMemoryPoolLoging": true,
##          "EnableBlockchainLoging": true,
##          "EnableGossipNodeLoging": false
##      },
##      "Validation": {
##          "ValidateBlock": true,
##          "ValidateVote": true
##      },
##      "Host": {
##          "LimitBandwidth": true,
##          "Bandwidth": 20,
##          "ApplyTCDelay": true,
##          "TCDelay": 50,
##          "InterfaceName": "eno1"
##      }
## }
##
```

Sanity Check

FileName	count	mean_bp	mean_ba_wo_final	mean_ba_w_final	distinct_hash	max_round
nuc10.maas.stat	250	35.62403	45.52722	48.42285	10	10
nuc14.maas.stat	250	35.44897	45.25488	48.36071	10	10
nuc15.maas.stat	250	35.50514	45.26106	48.23891	10	10
nuc16.maas.stat	250	37.27286	45.61181	48.35164	10	10
nuc19.maas.stat	250	37.09502	45.65307	48.38334	10	10
nuc2.maas.stat	250	45.48420	47.34306	48.51193	10	10
nuc20.maas.stat	250	36.36377	45.60699	48.50165	10	10
nuc21.maas.stat	250	37.57404	45.62124	48.29523	10	10
nuc22.maas.stat	250	37.30164	45.47620	48.32842	10	10
nuc23.maas.stat	250	35.31176	45.20892	48.31856	10	10
nuc24.maas.stat	250	36.95270	45.49378	48.36400	10	10
nuc27.maas.stat	250	36.24399	45.31808	48.24767	10	10
nuc3.maas.stat	250	37.13342	45.77370	48.46191	10	10
nuc4.maas.stat	250	36.75087	45.50181	48.35768	10	10
nuc5.maas.stat	250	36.55263	45.21474	48.06843	10	10
nuc6.maas.stat	250	37.57918	45.53934	48.15509	10	10
nuc7.maas.stat	250	37.96810	45.68183	48.24771	10	10
nuc8.maas.stat	250	36.25299	45.47830	48.36048	10	10

The number of rows in data set is **4500**

Maximum round number is **10**

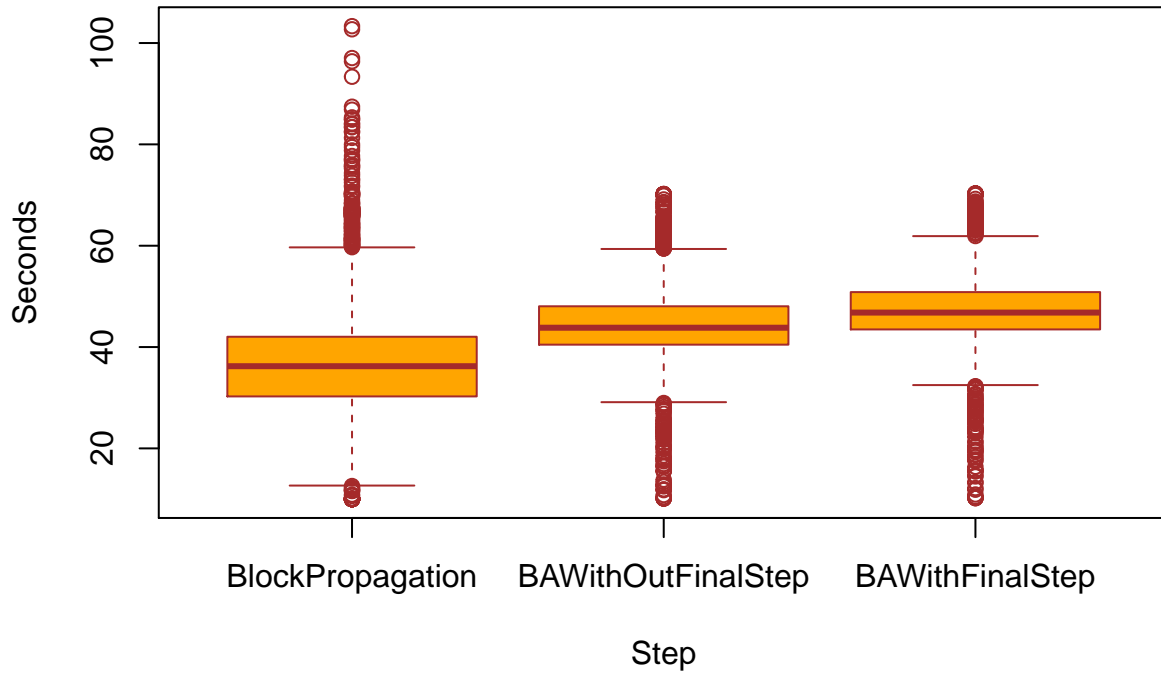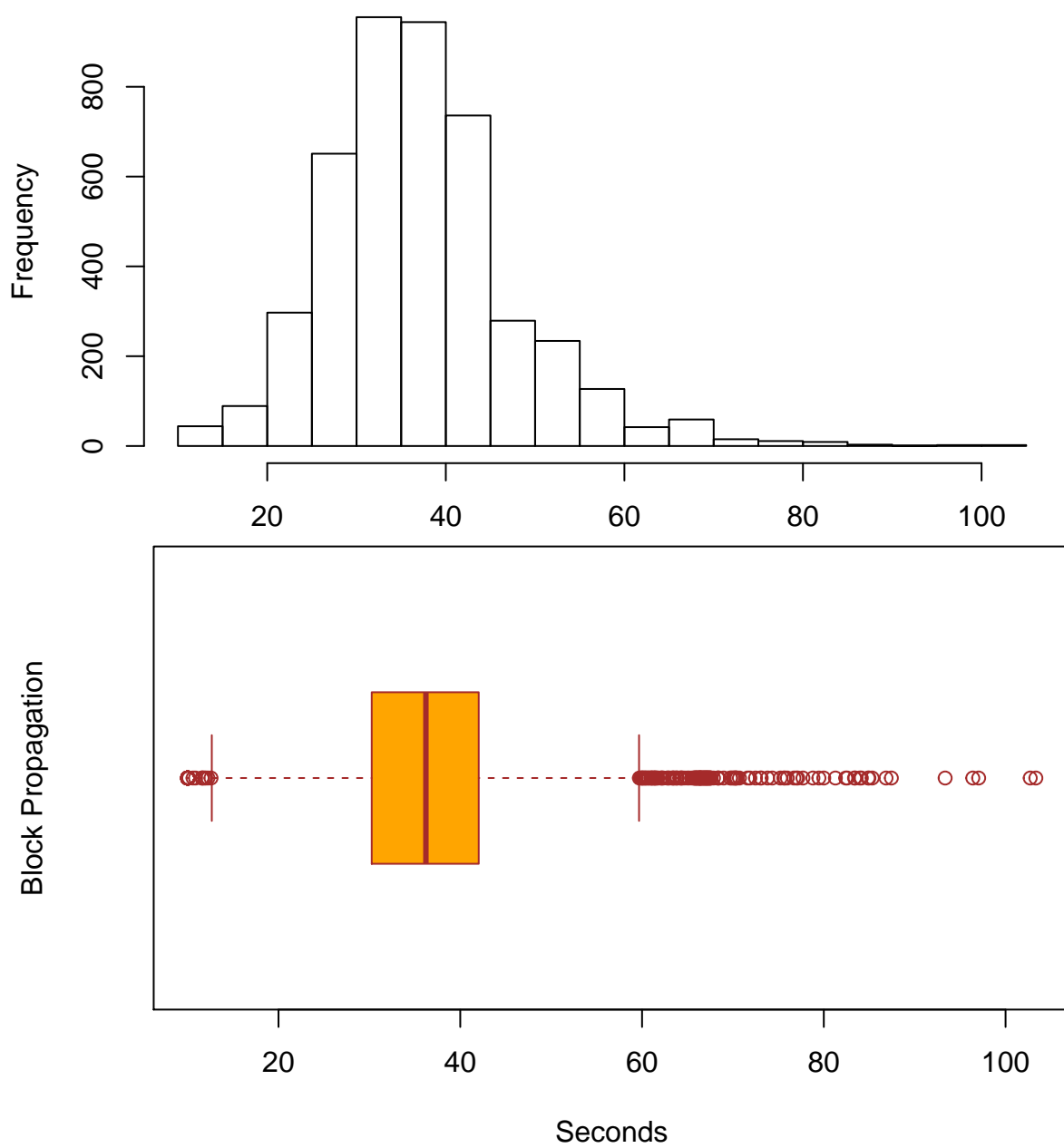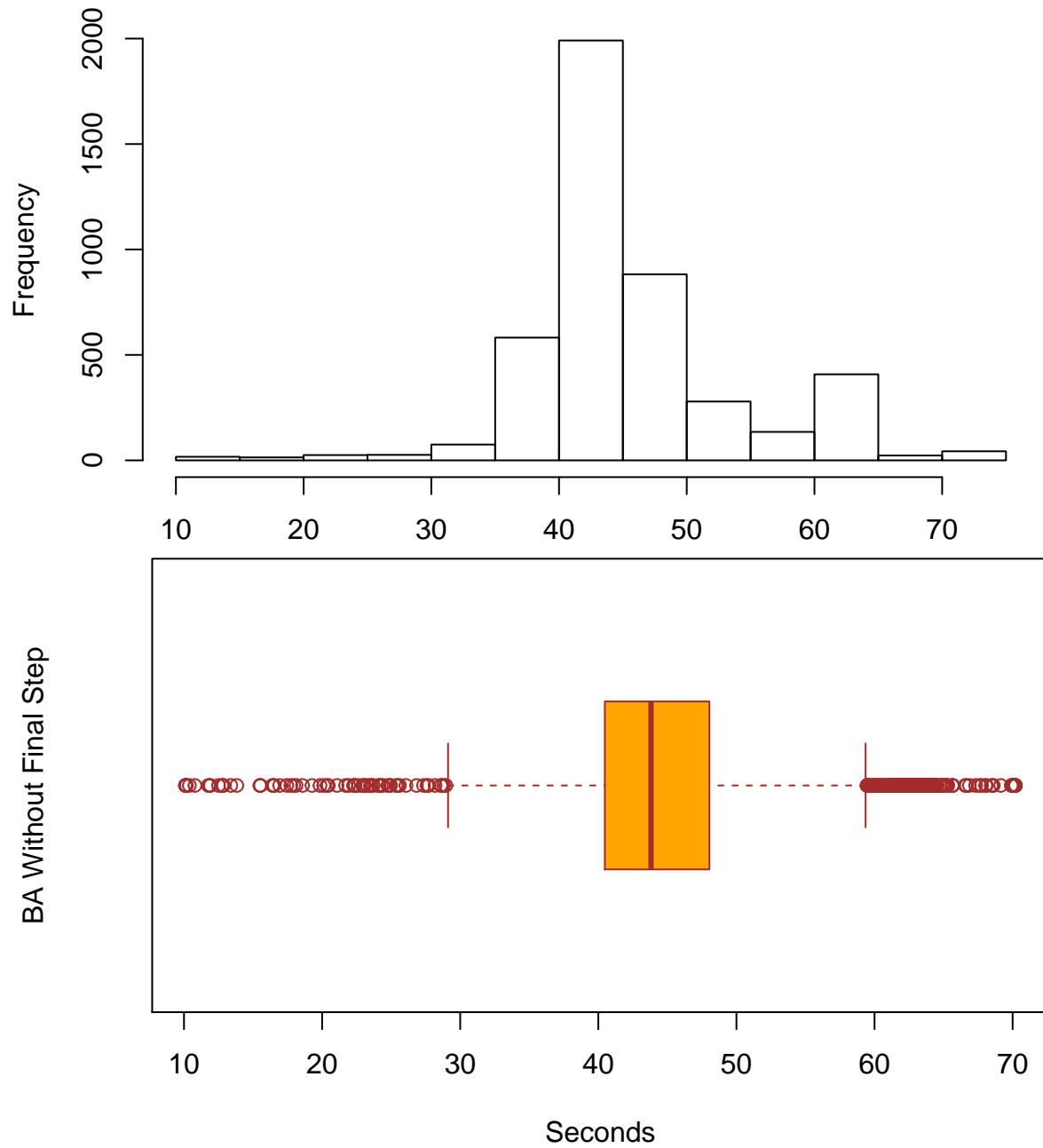Appended payload size is is **150** MB

3

Overal Results

Table 2: Summaries

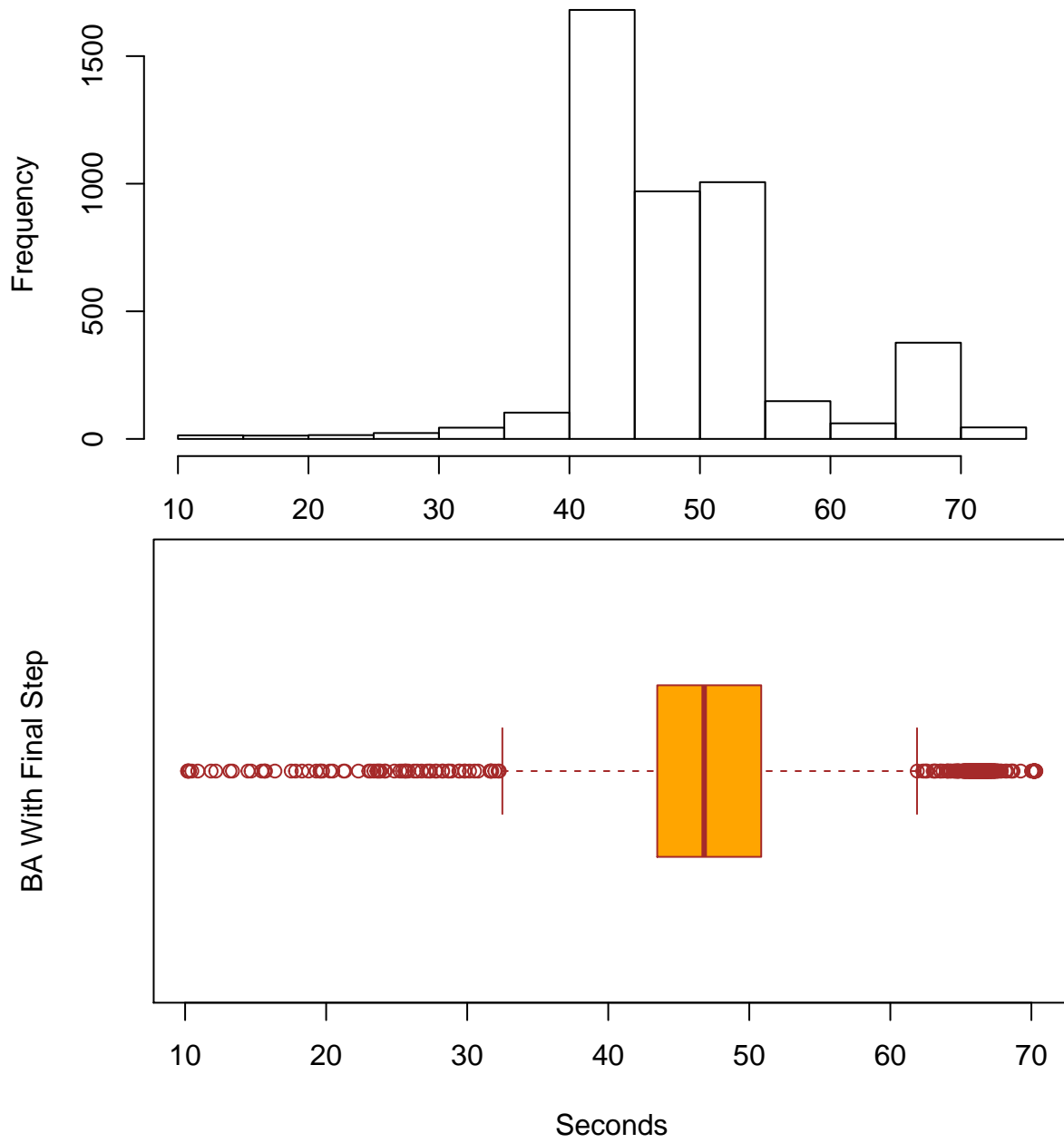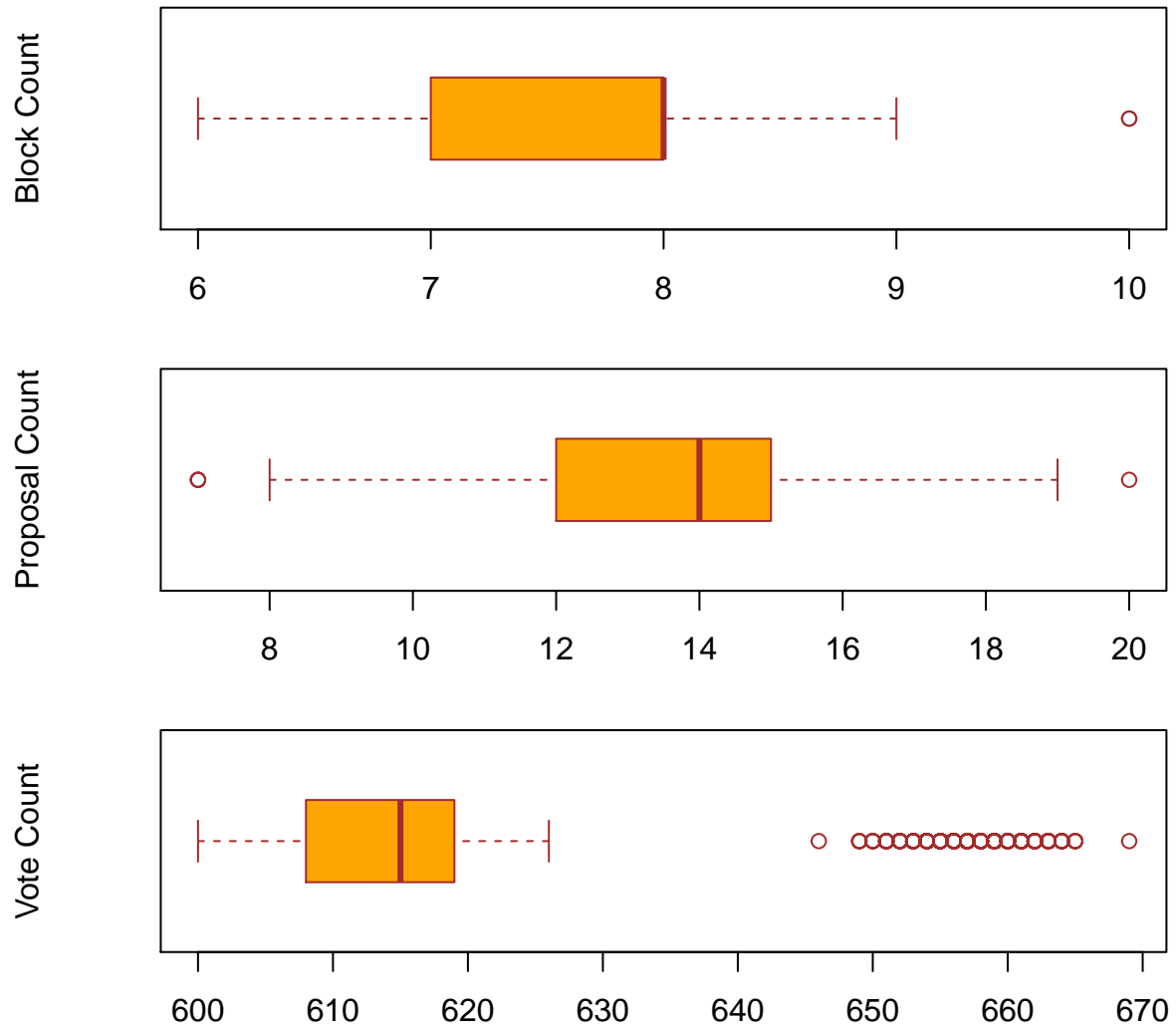| BlockPropagation	BAWithOutFinalStep	BAWithFinalStep
Min. : 10.00	Min. :10.10	Min. :10.18
1st Qu.: 30.26	1st Qu.:40.47	1st Qu.:43.47
Median : 36.22	Median :43.81	Median :46.80
Mean : 37.13	Mean :45.59	Mean :48.33
3rd Qu.: 42.03	3rd Qu.:48.04	3rd Qu.:50.85
Max. :103.33	Max. :70.20	Max. :70.32

Block Propagation Statistics

BA Elapsed Time Without Final Step Statistics

BA Elapsed Time With Final Step Statistics
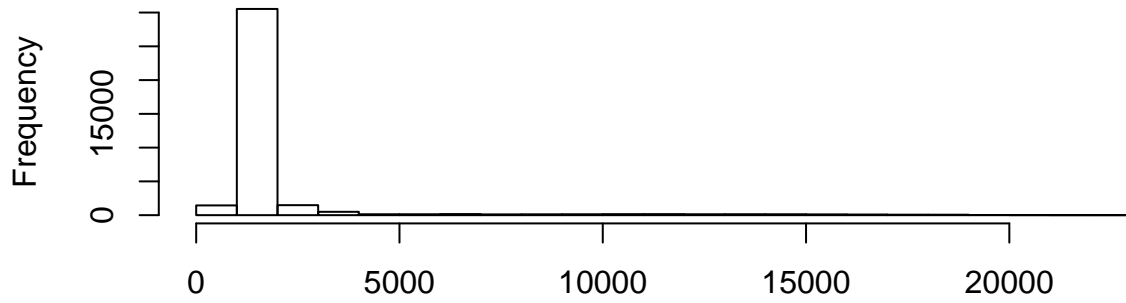
Forwarded Message Counts Per Round
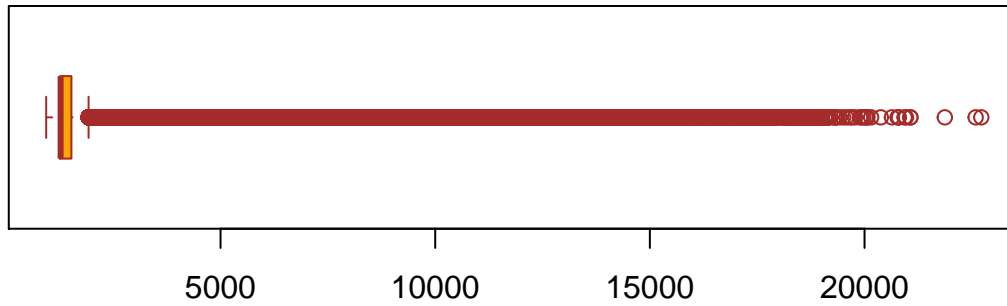
Block Upload Stats


```
##    Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
##     939    1260    1275    1920    1527   22720
```



```
##    Min. 1st Qu.  Median    Mean 3rd Qu.    Max.
## 2000586 2000586 2000586 2000586 2000586 2000586
```

FileName	Count	Min	Mean	Max
nuc10.maas.stat	2107	941	1947.531	21068
nuc14.maas.stat	2311	940	2105.907	20933
nuc15.maas.stat	2124	940	2081.138	20789
nuc16.maas.stat	2011	941	1712.038	19893
nuc19.maas.stat	1895	942	1724.925	18669
nuc2.maas.stat	530	952	1968.543	6001
nuc20.maas.stat	2262	940	1685.383	20799
nuc21.maas.stat	1965	940	1916.921	19161
nuc22.maas.stat	2328	939	1784.413	19932
nuc23.maas.stat	2428	940	1992.638	21068
nuc24.maas.stat	1978	941	1892.708	19338
nuc27.maas.stat	1976	940	1759.742	20153
nuc3.maas.stat	1914	941	2113.831	19412
nuc4.maas.stat	2226	941	1996.019	19974
nuc5.maas.stat	1940	942	2331.499	19573
nuc6.maas.stat	1775	942	1676.119	19200
nuc7.maas.stat	1985	940	1893.670	22720
nuc8.maas.stat	2108	942	1987.501	20965

```
## [1] 35863
```