Init

Init

Open BlockChain File

Load Genesis

Verify BlockChain

isCorrect()

Sync Block

Read Last Block

Get Round Info From Last Block

isNewestRound()

DB Load Producer List From $SystemAccount

DB Load Accounts from Last Block

Fetch Existed Blocks From the Current Round of Each Prodecer

Round

Sync Block

Sync Block

Get Local Last Block Number

Calculate Expected Last Block Number

Send Sync Request To Peers (blockchain lindex with window size m)

Wait For n Chain Ready

Increase Window m

Choose The Longest Chain

Delete Chain

Verify and Replay Each Transaction Inside the Chain

Ban the Peer

success()

Find the Fork Point

Sync Local Blockchain Files

getRound() == currentRound

Read to Broadcast

```
                    ( Round )
                        |
                        v
    +------------------------------------+ <---------------------------- [ Found the Longest Branch ]
--->|       Calculate the Current Slot   | <----------------------+                    ^
|   +------------------------------------+                        |                    |
|                   |                                             |                    |
|                   v                                             |                    |
|              < endOfRound() > ------------------> [ Get the Current Scheduler ]       |
|                   |                                             |                    |
|                   v                                             v                    |
|          [ Lock BlockChain Files ]                        < isSelf() > -----> < Request New Block From the Scheduler > ---> [ Verify and Push the Block into DB ]
|                   |                                             |
|                   v                                             v
|   [ Flush Longest Chain  Stored in DB into    ]      [ Fetch Unpacked Transactions ]
|   [ Blockchain Files                          ]                 |
|                   |                                             v
|                   v                                   [ Calculate the MPT Root ]
|        [ Put Milestone for Current Round ]                      |
|                   |                                             v
|                   v                                   [ Run VM, Generate CPU/MEM Trace ]
|           [ Regenerate Indexs ]                                 |
|                   |                                             v
|                   v                                      [ Update Accounts ]
|        [ Unlock Blockchain Files ]                              |
|                   |                                             v
|                   v                                         [ Create Logs ]
|        < Wait For Next Round >                                  |
|                   |                                             v
+-------------------+                                 [ Pack and Sign the New Block ]
                                                                 |
                                                                 v
                                            [ Push the New Block into Block Propagation Queue ]
```

Transaction

Commit Blocks