PFLOCK Report

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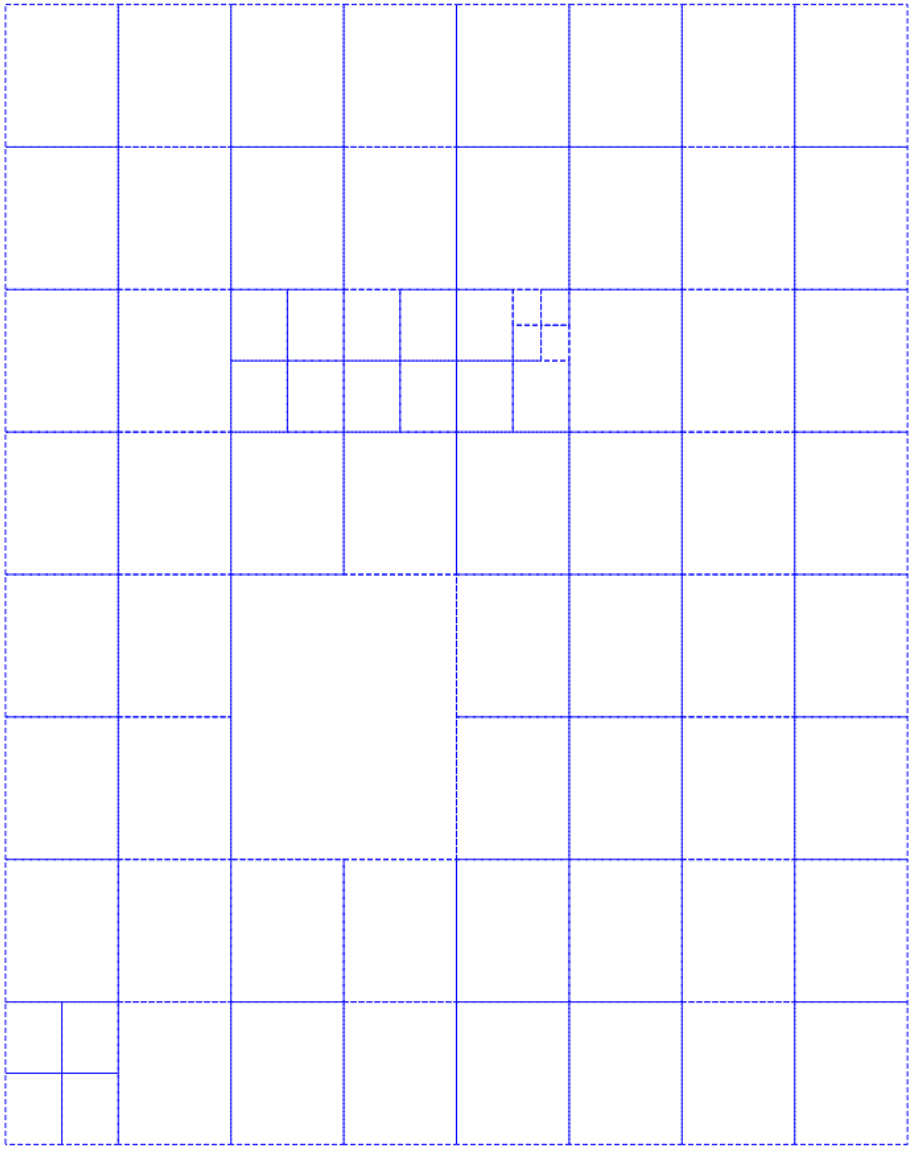
Problems with local quadtree settings...

- Building the local quadtree at each partition was taking most of the time.
- The parameters of the quadtree were quite sensible. Small changes lead to large quadtrees.
- It increses significantly the number of comparisons.

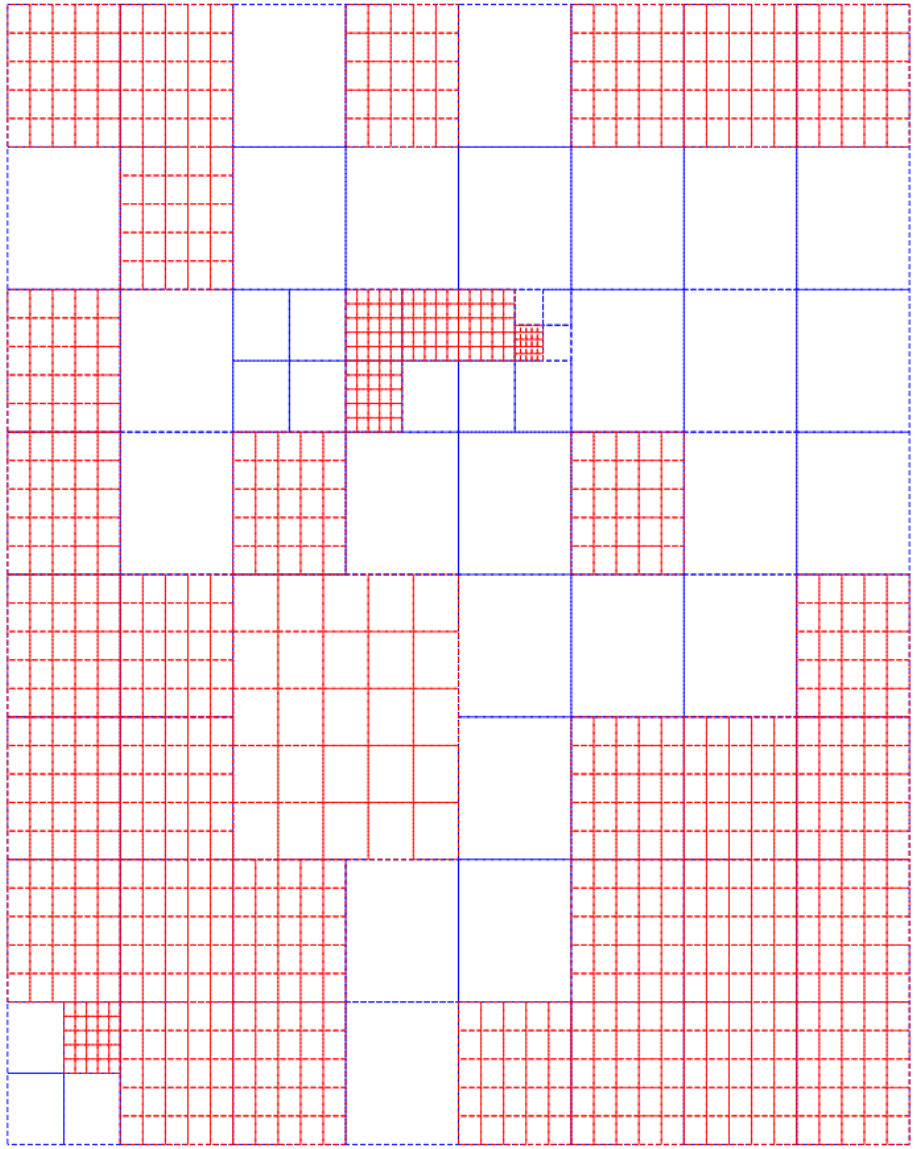
Altenative...

- Using the JTS Quadtree library to build the local indexes (much more stable).
- As the JTS Quadtree does not allow to extract the leaves' MBRs let's use a regular grid to query the index.
- A regular grid is created at each partition and the number of cells is set by the user.
- If partition's size is less than a threshold it will run the index-based approach.

Global grids...



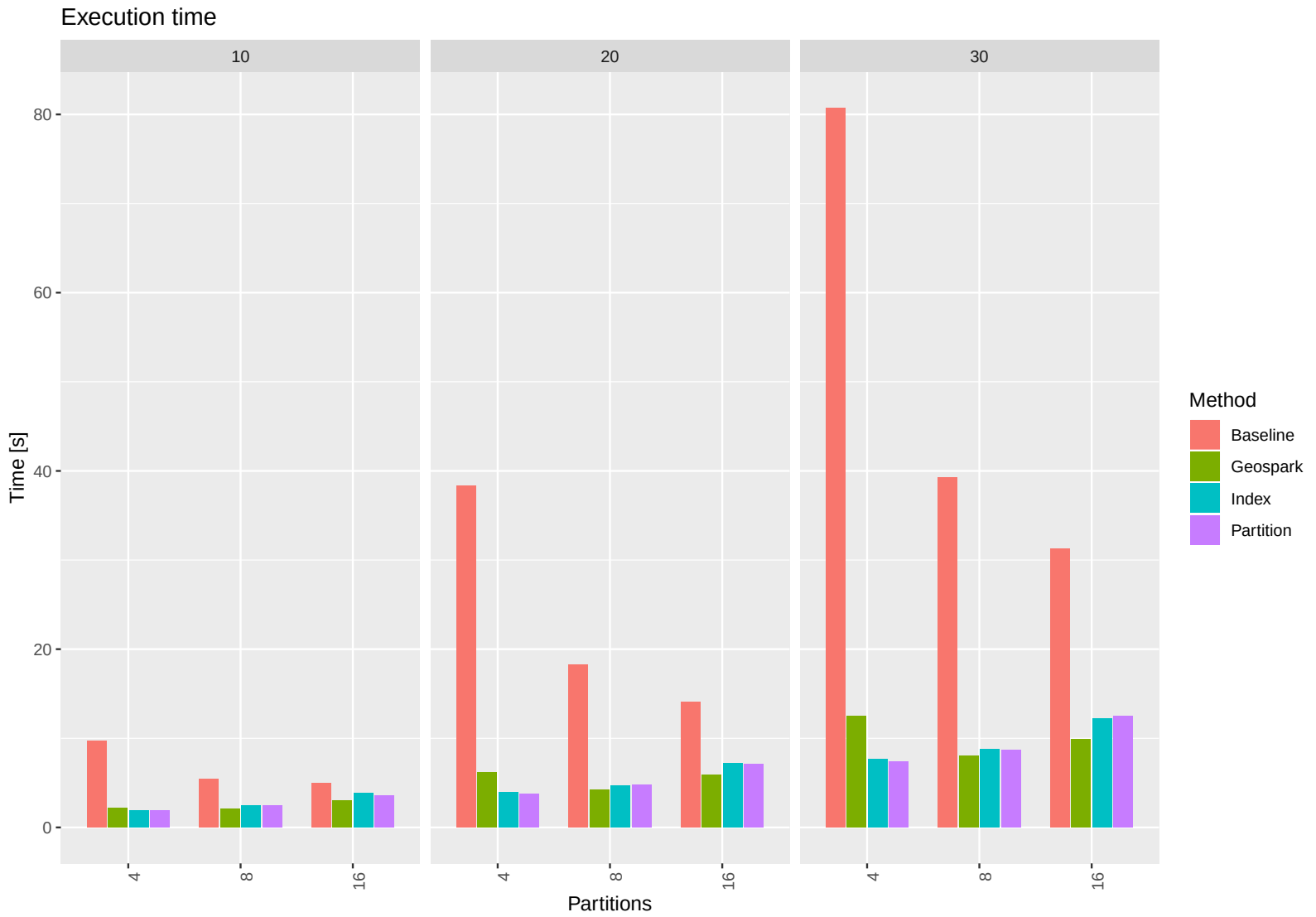
Local grids...



Experiment setup...

- Dataset: LA_10K.
- $\mu = 3$, varying values for ε (from 10m to 30m).
- Running in local mode for now.
- Global partitioning: Quadtree, number of partitions: between 4 to 16.
- Average of 5 runs.

Results...


Execution time
10
20
30
80
60
40
20
0
Time [s]
4
8
16
Partitions
Method
Baseline
Geospark
Index
Partition