PFLOCK Report

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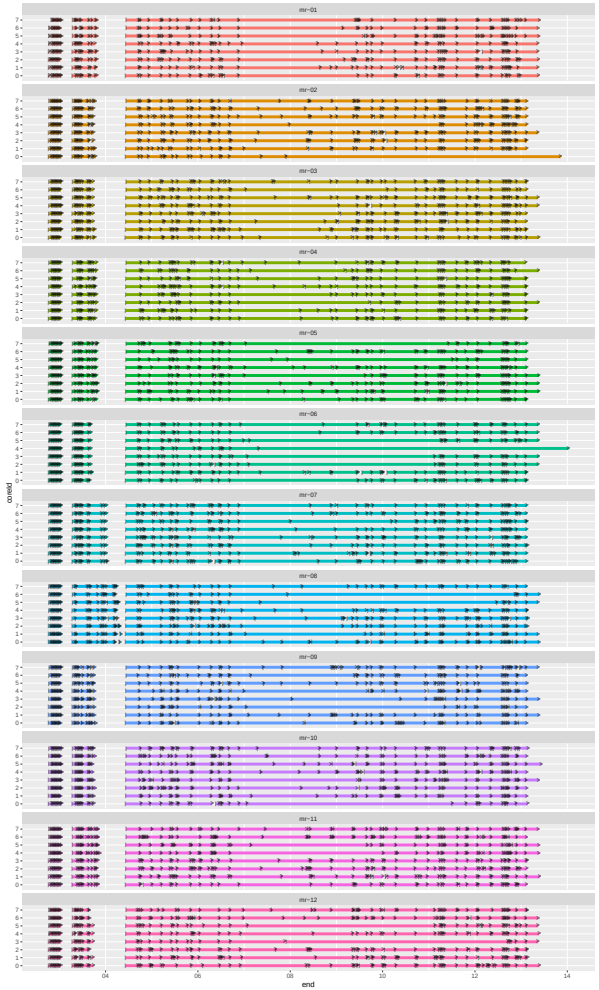
Task ID and Core/Thread mapping

- Technically a mapping between taskId and core/thread is not possible[1]...
  - Apache Spark will run a Task as a Runnable process managed by the JVM.
  - JVM interacts directly with the OS to deal with those processes.
  - There is no guarantee an OS process run in only one core.
- However, based on the lifetime of a Task (launchTime and finishTime) we can explore how concurrent are the Tasks...

[1] More info at `https://tinyurl.com/ycjvxtne`

Task histogram

Task distribution[2]



[2] click to enlarge...

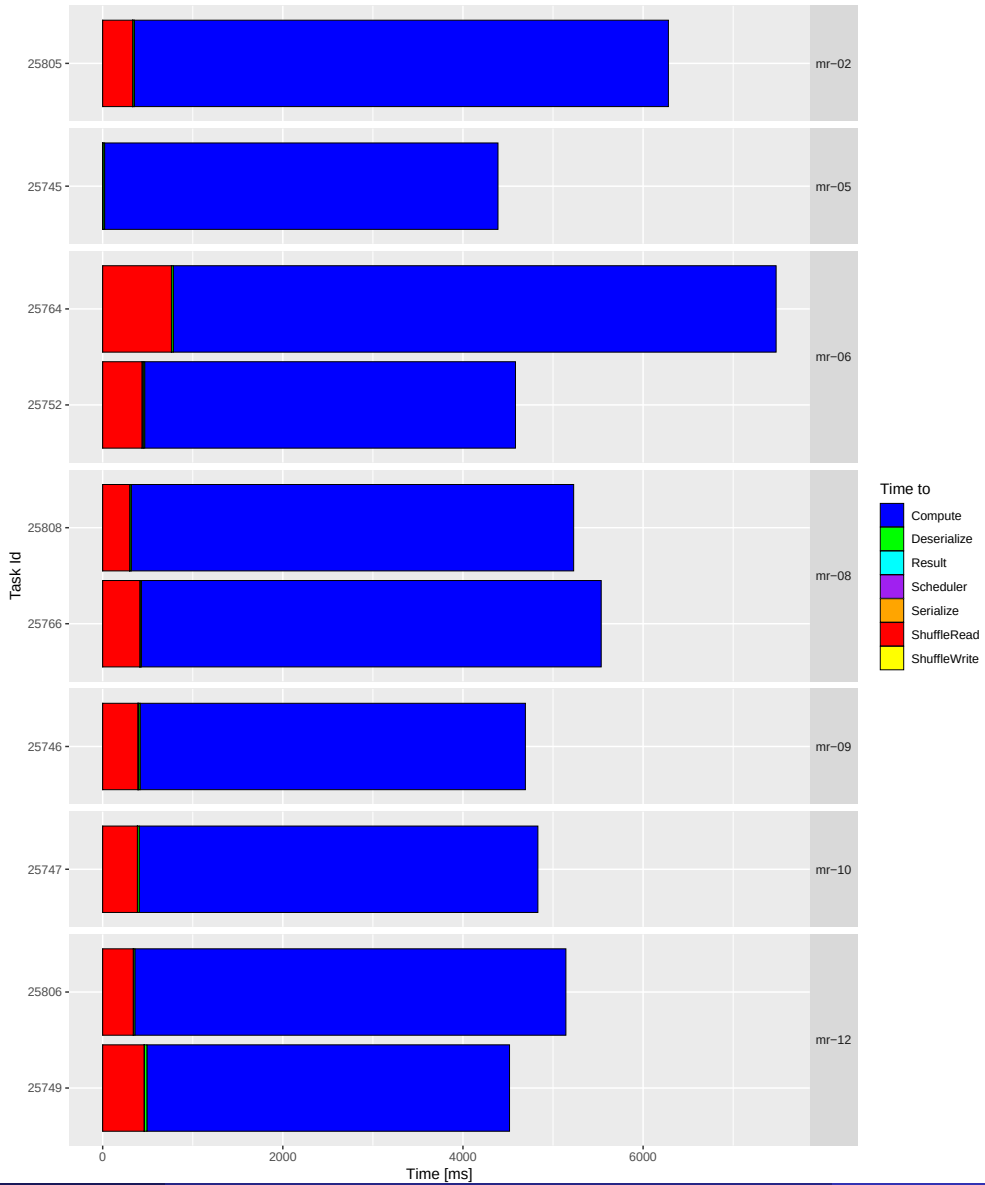
Node usage

	n
Min.	1.00
1st Qu.	8.00
Median	8.00
Mean	7.95
3rd Qu.	8.00
Max.	13.00

1	2	3	4	5	6	7	**8**	9	10	11	12
310	315	489	788	374	697	198	**121763**	4721	616	77	11

Task histogram

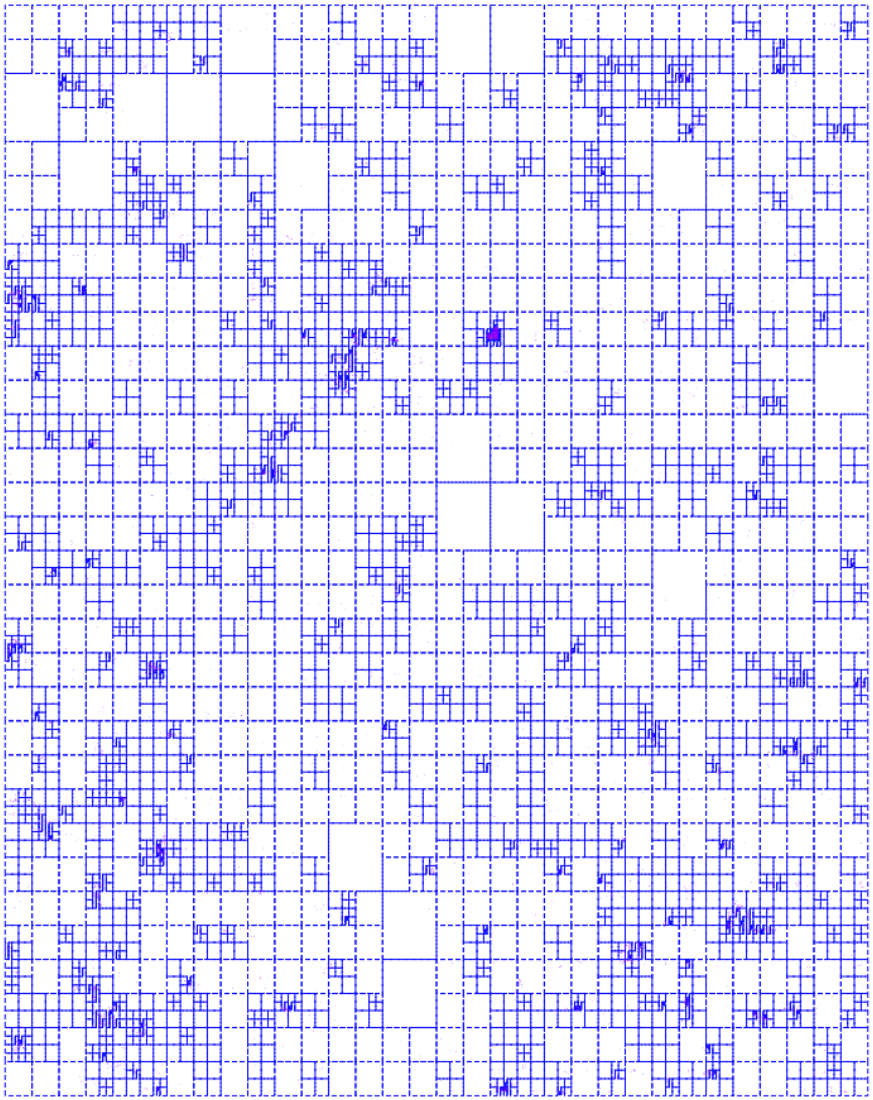
Top 10 tasks by duration



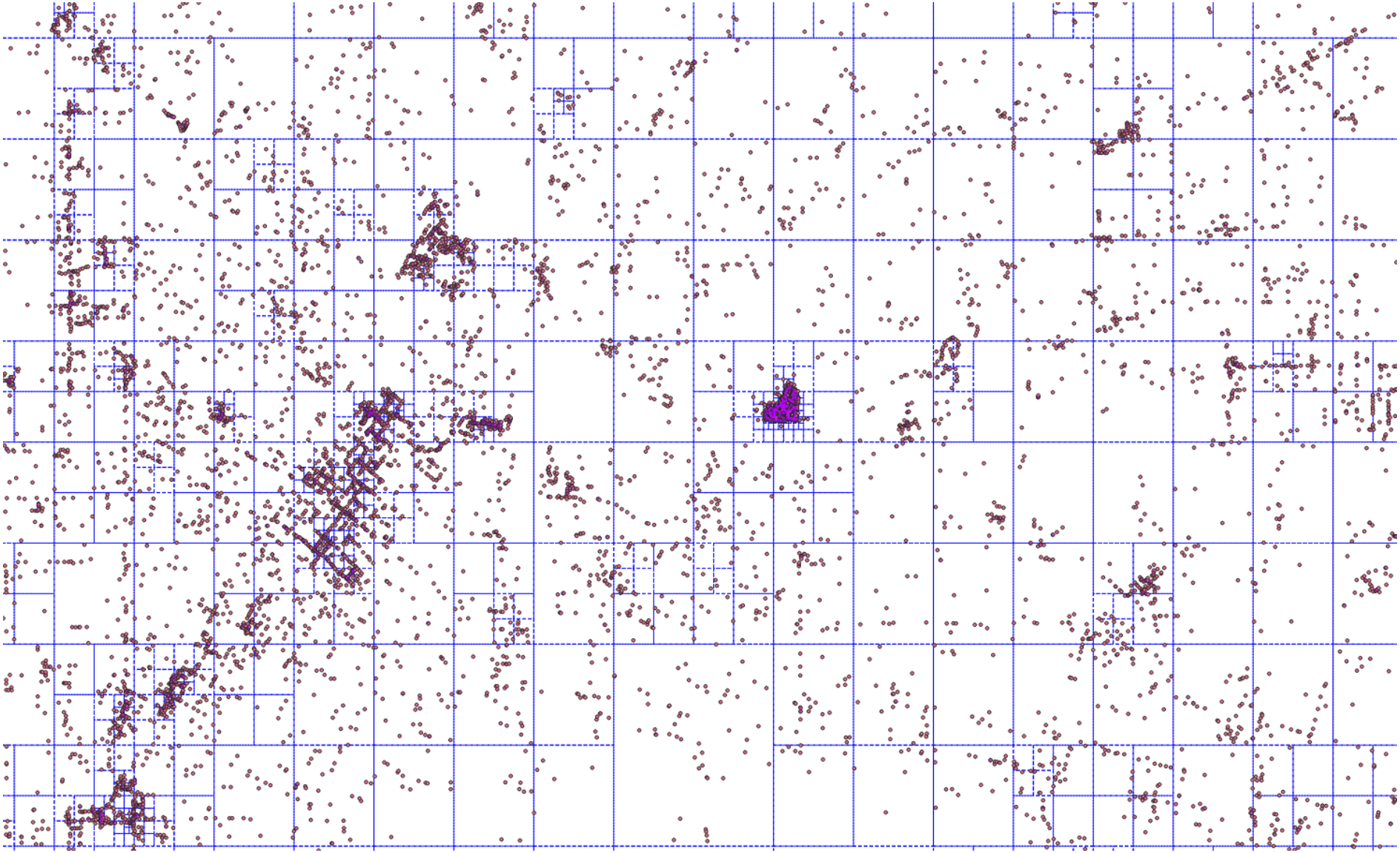
Task-Data Mapping

- Class `TaskContext` allows to collect information about the task execution on runtime.
- Methods `partitionId()` and `taskAttemptId()` give us the ID of the RDD partition and the task it was assigned.

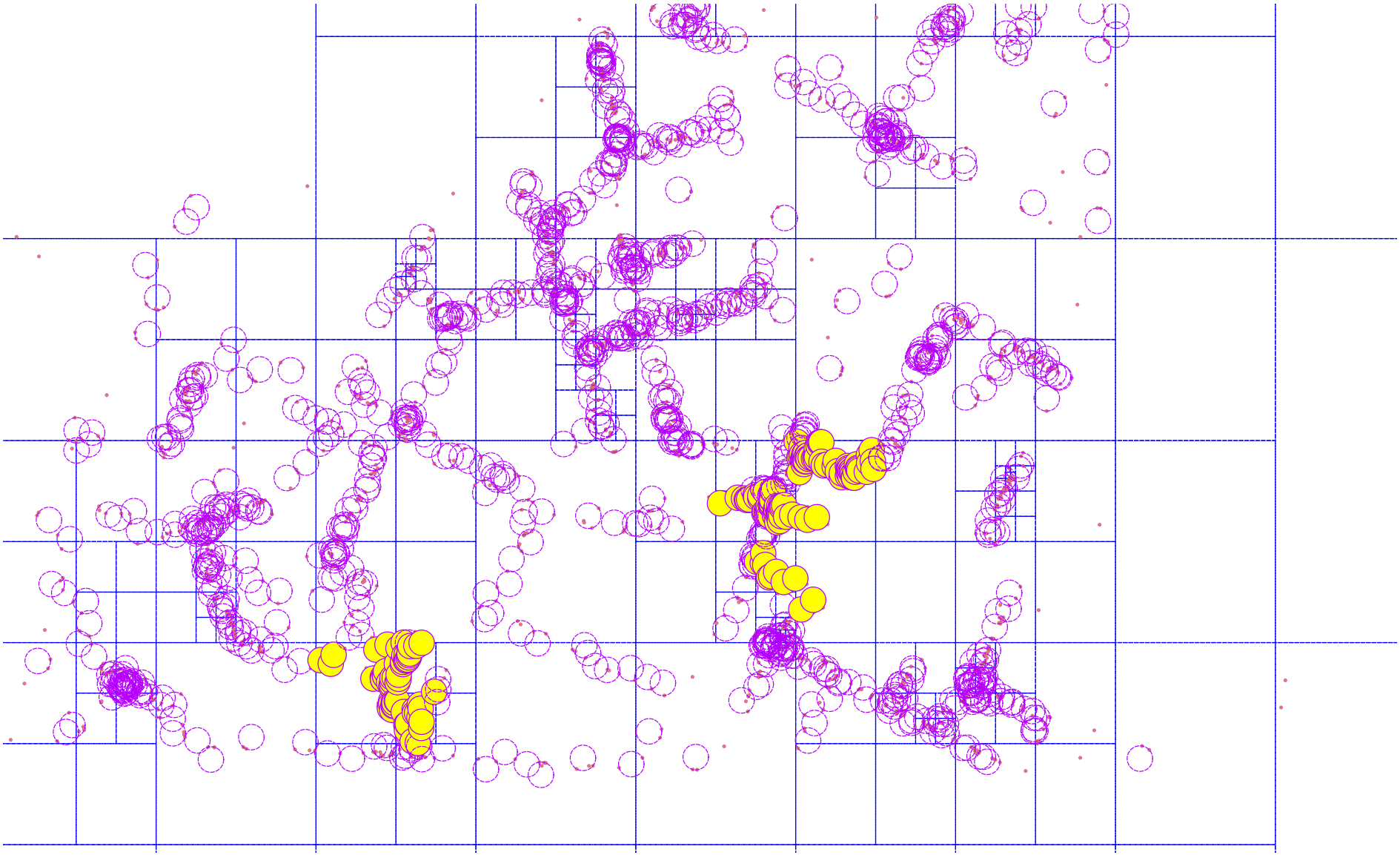
Task-Data Mapping



Task-Data Mapping



Task-Data Mapping



What's next

- Measure the impact of very small partitions.
- Still dealing with shuffle cost.
- Give a try with a different dataset.