

# Using DelftBlue supercomputer for AHN conversion to Potree

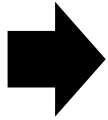
Nauman Ahmed

Research Software Engineer

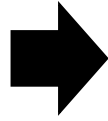
netherlands  
eScience center

# Potree

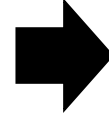
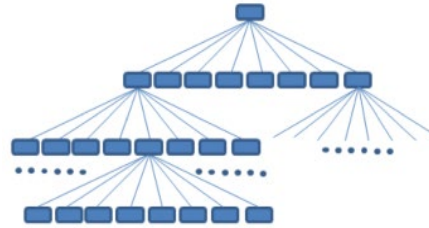
LAZ/LAS



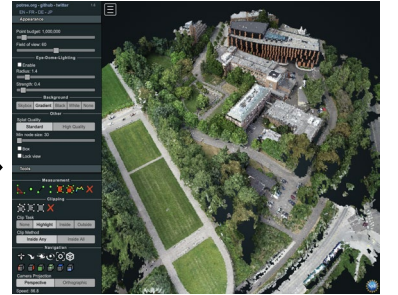
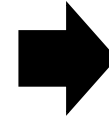
Converter



Octree



Viewer

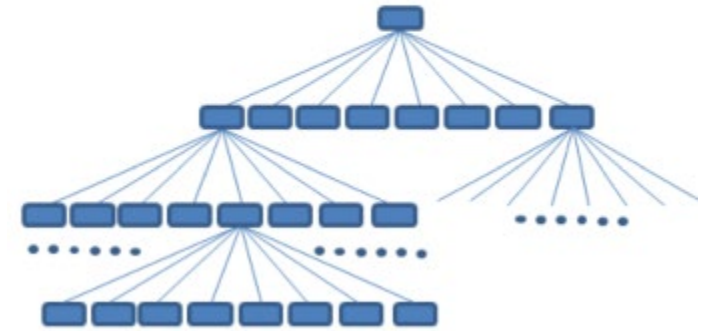
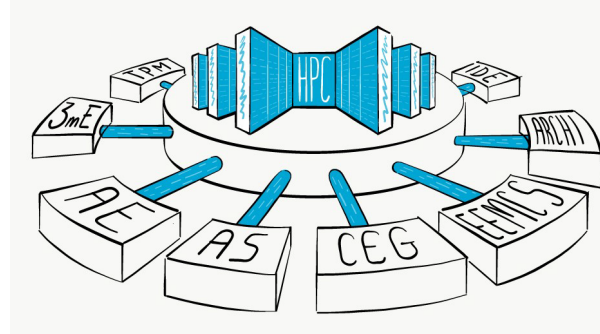


# PotreeConverterMPI

Nauman Ahmed, Thijs van Lankveld, Martijn Meijers, Peter van Oosterom, Vitali Diaz, Edward Verbree



PotreeConverter on DelftBlue



# Problems



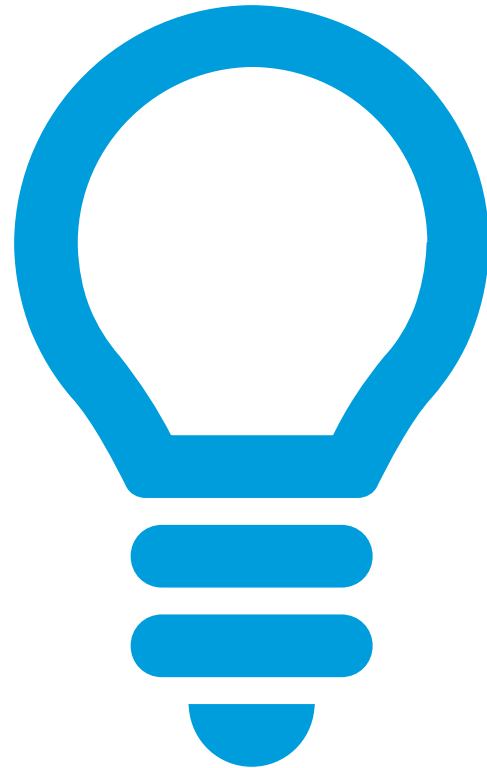


# 2.

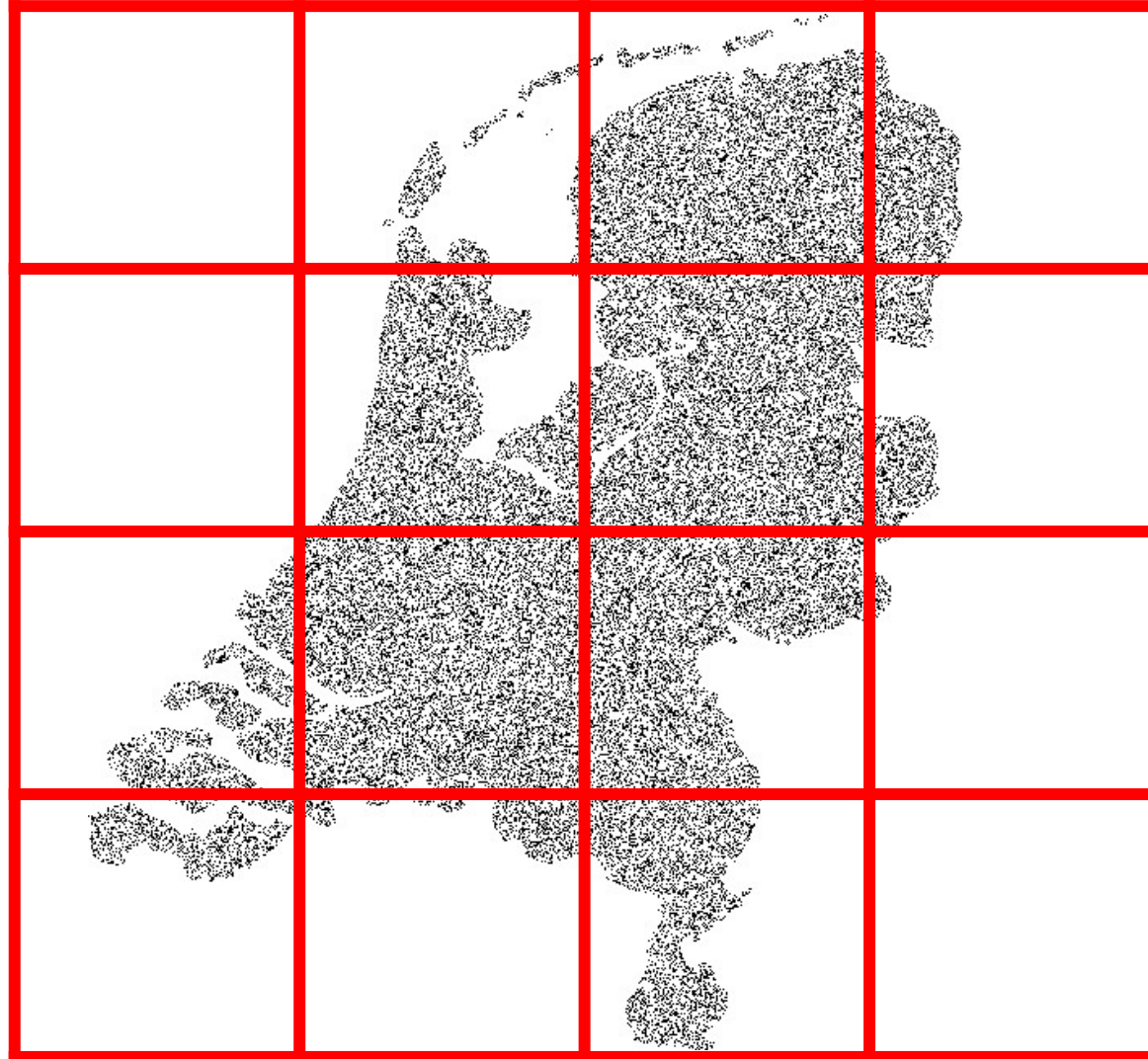
Original implementation is for single compute node



# Solutions

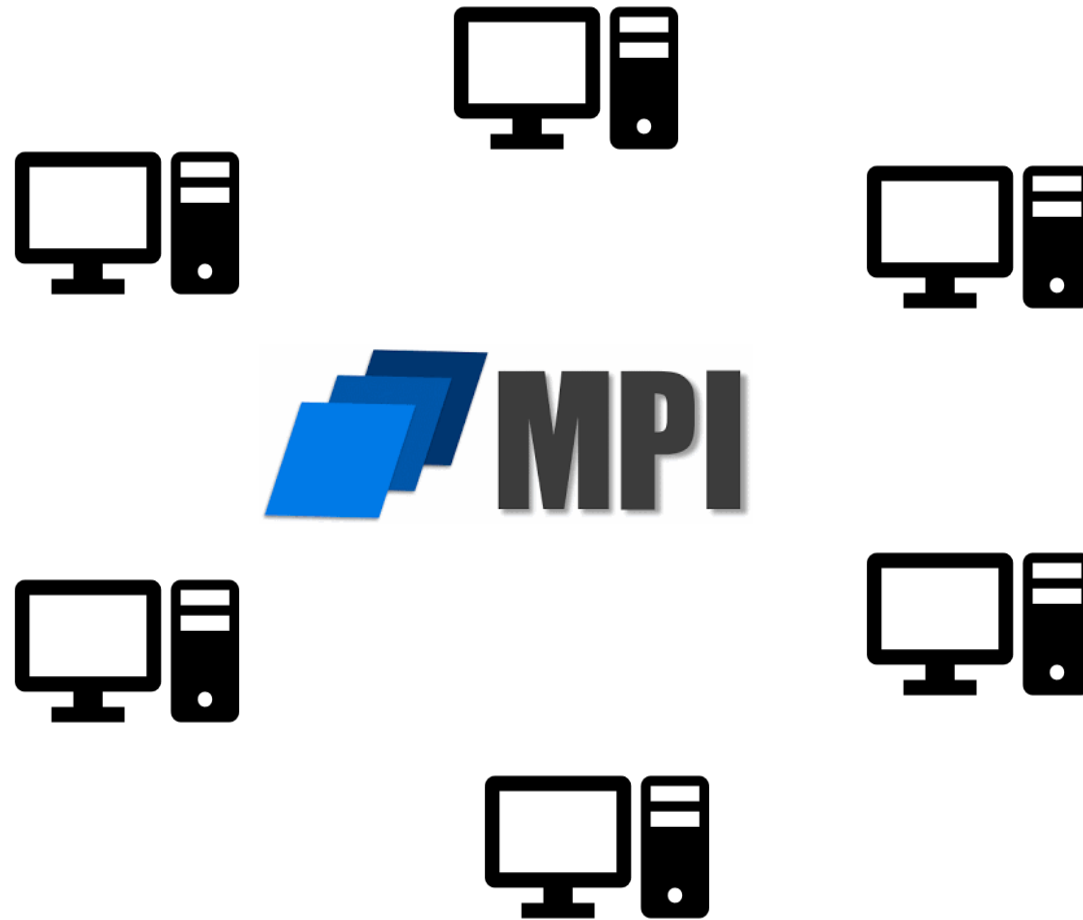


# 1. Partition

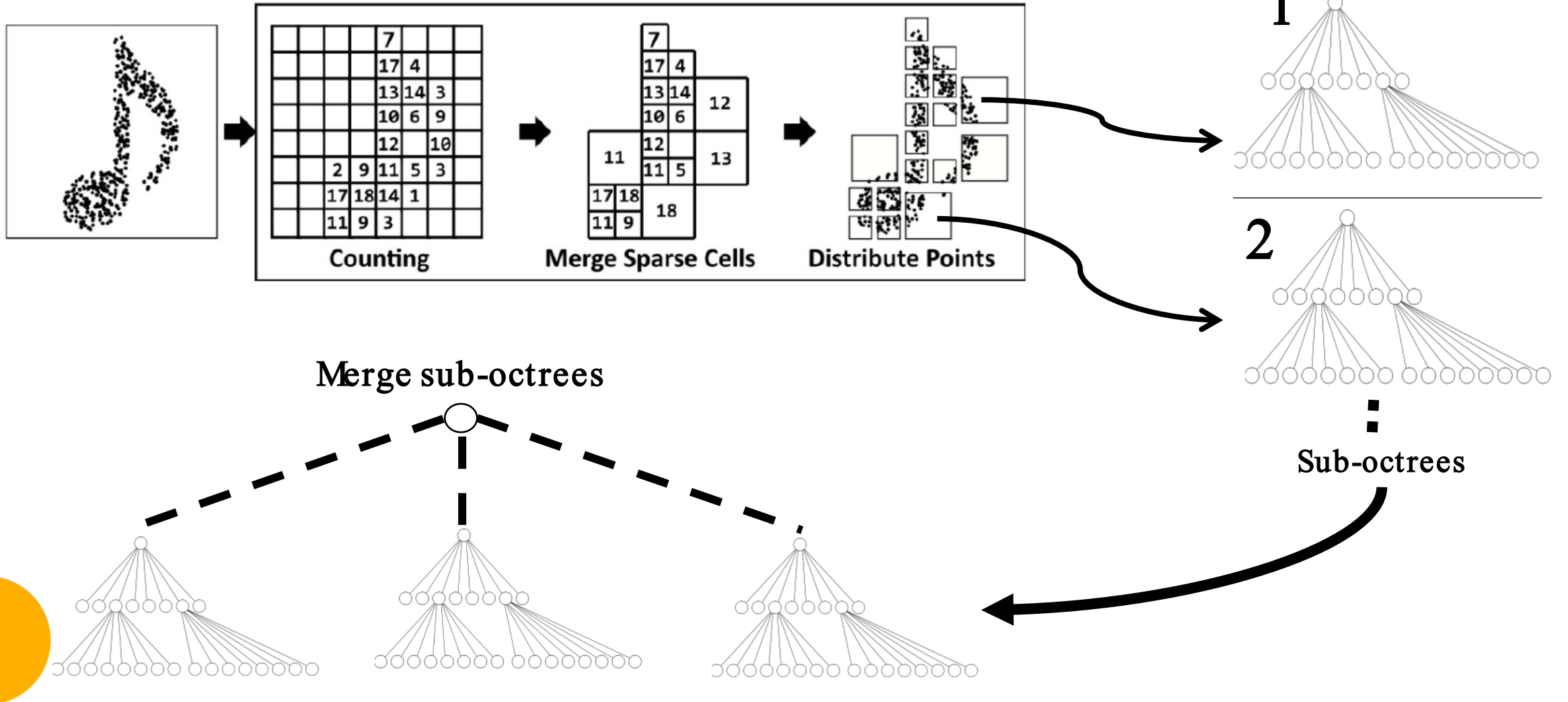




# 2. MPI



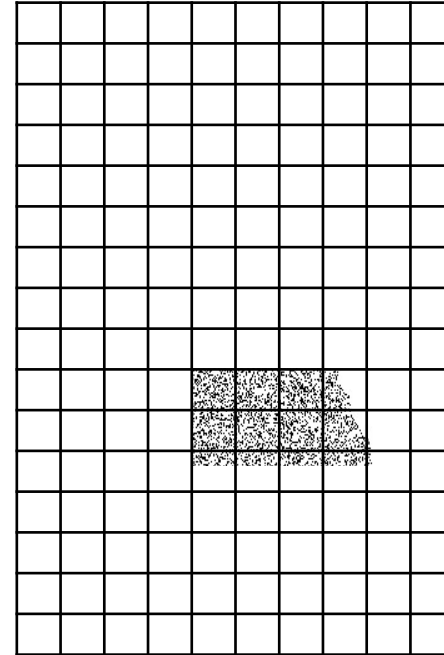
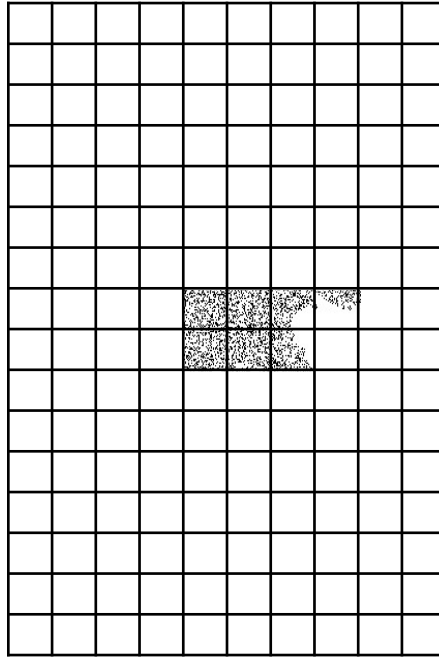
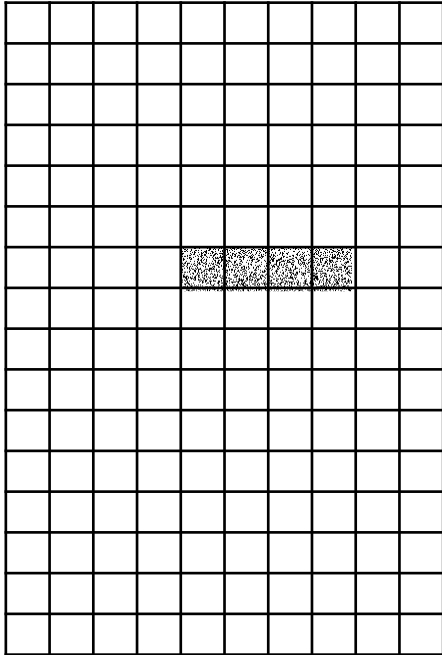
# PotreeConverter



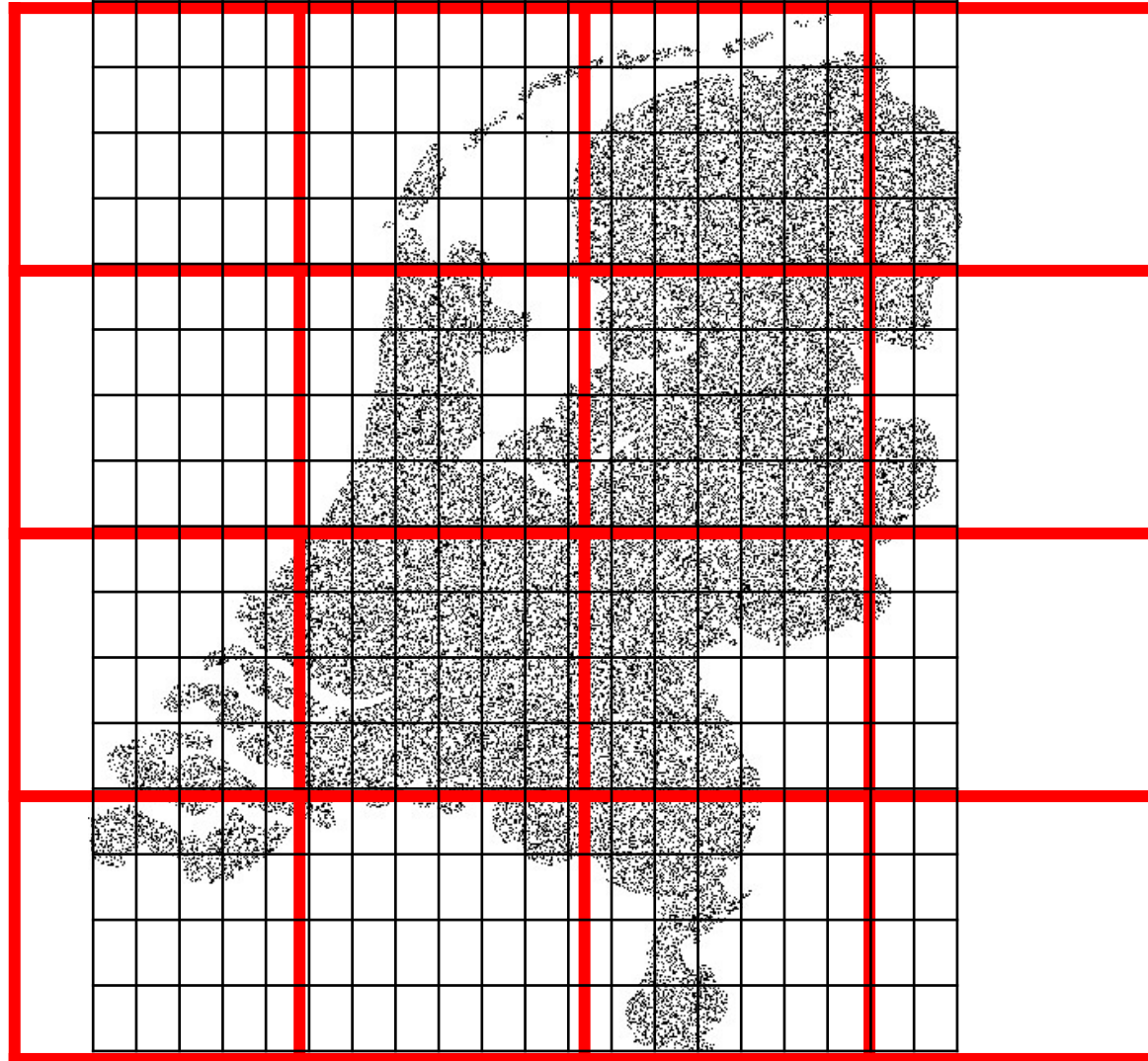
# Potree Converter MPI Counting



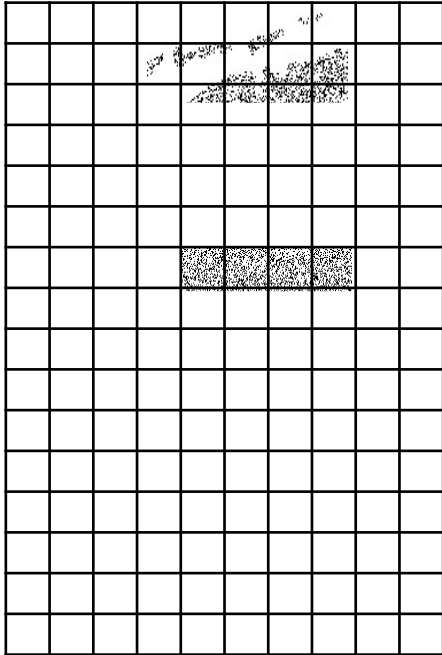
# Potree Converter MPI Counting



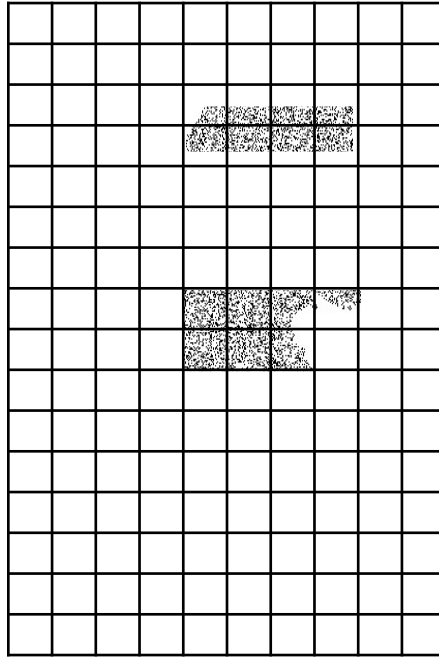
# Potree Converter MPI Counting



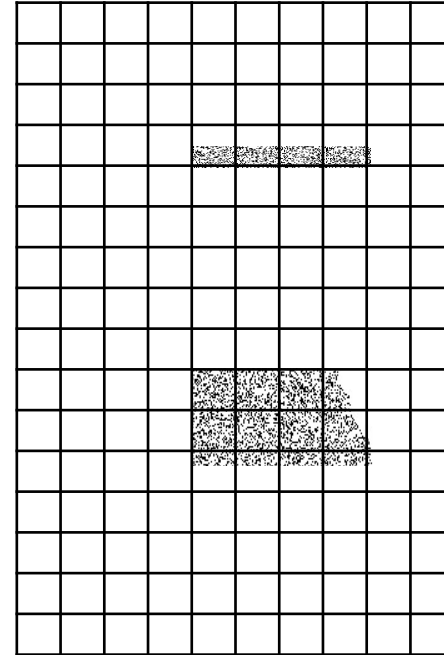
# Potree Converter MPI Counting



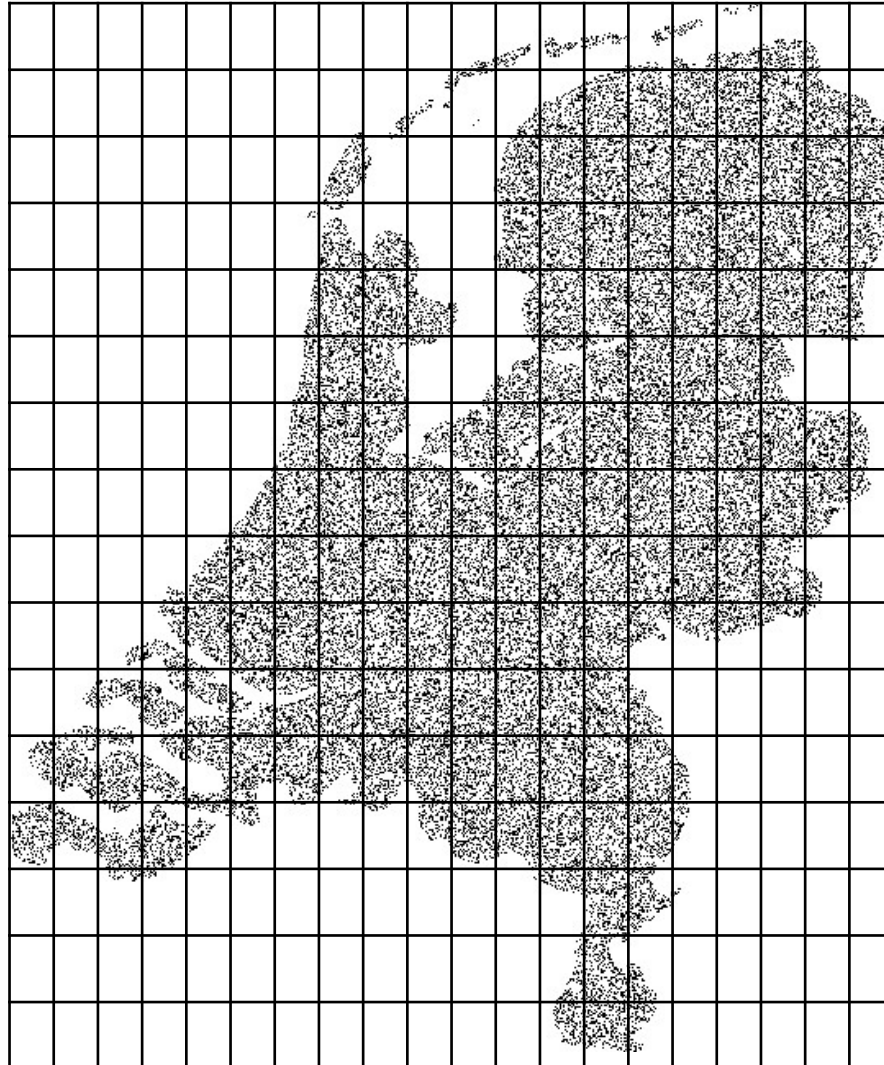
+



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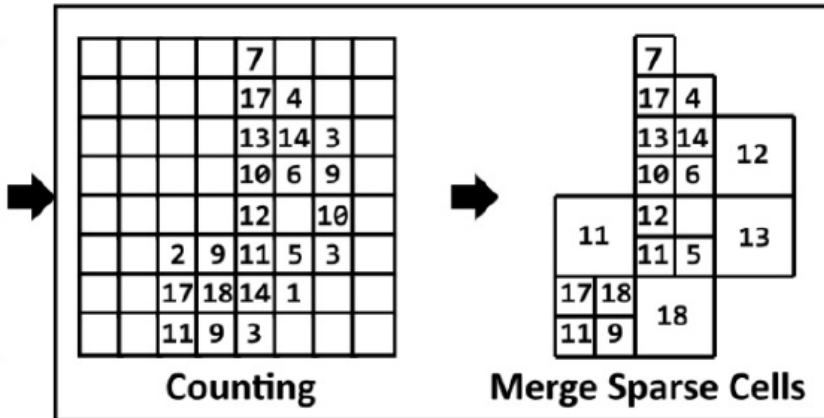


# Potree Converter MPI Counting



# Potree Converter MPI erge sparse cells

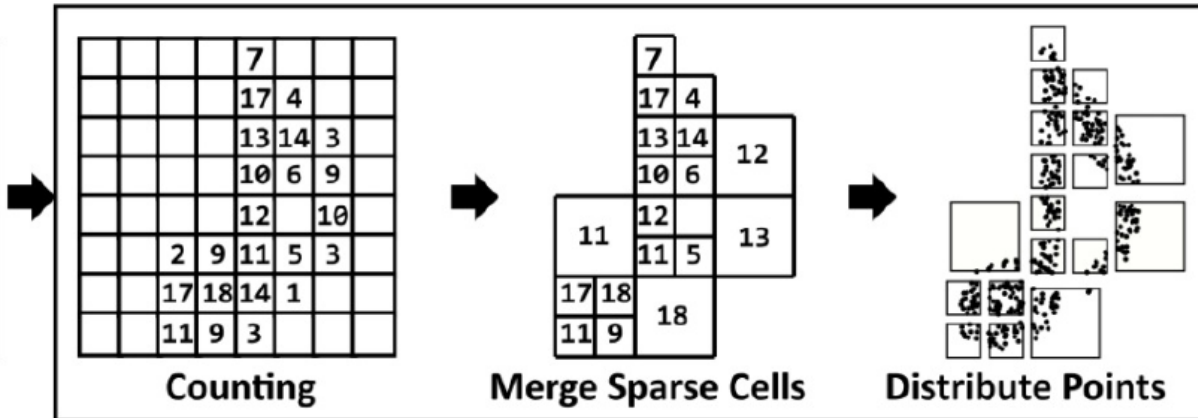
Input



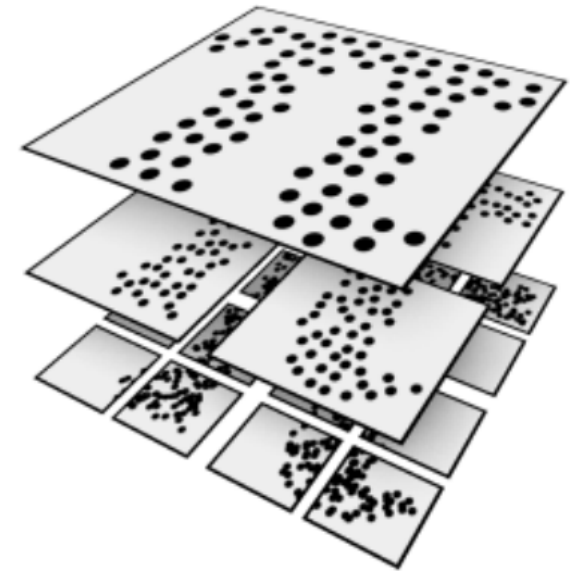


# Potree Converter MPI Distribution & Indexing

Input



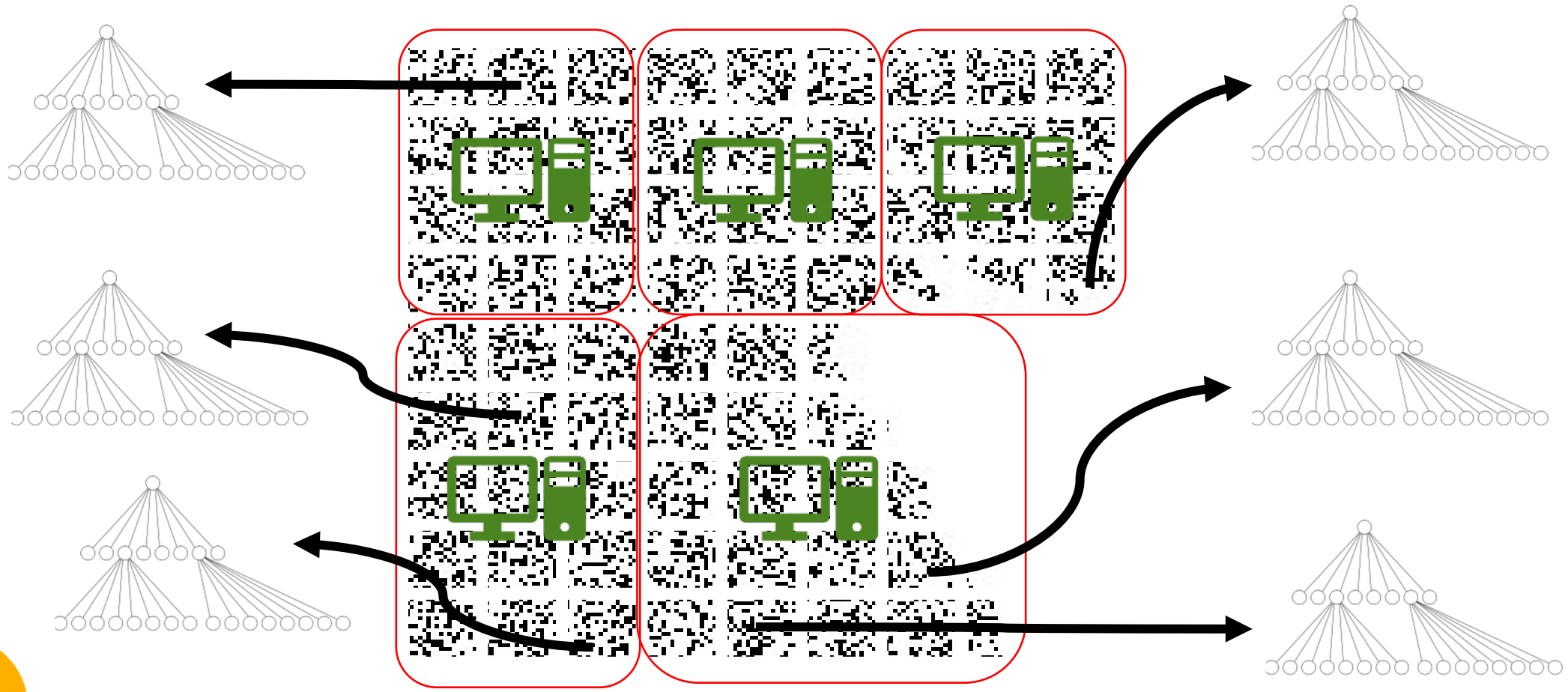
Indexing



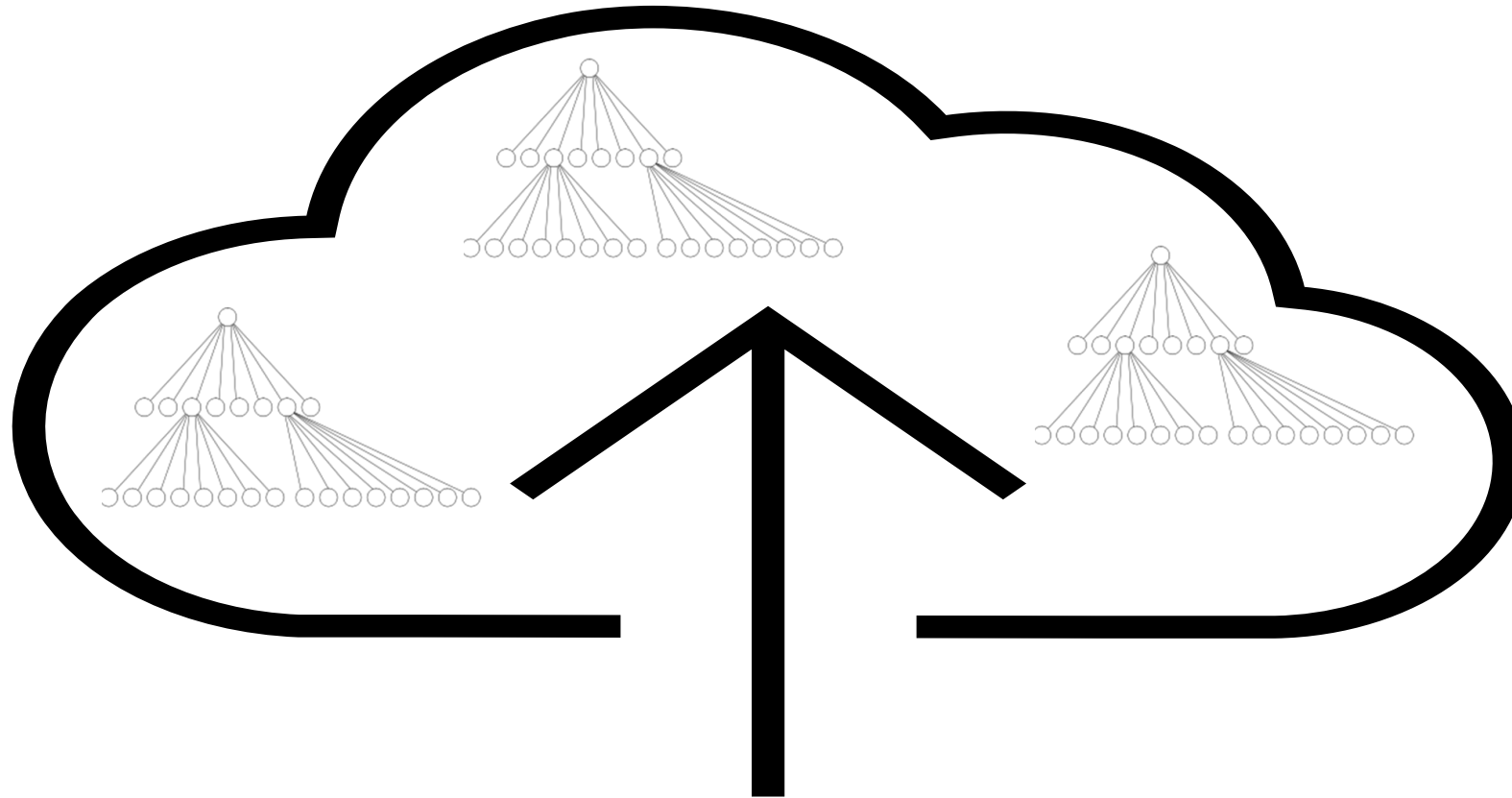
# PotreeConverterMPI Distribution & Indexing



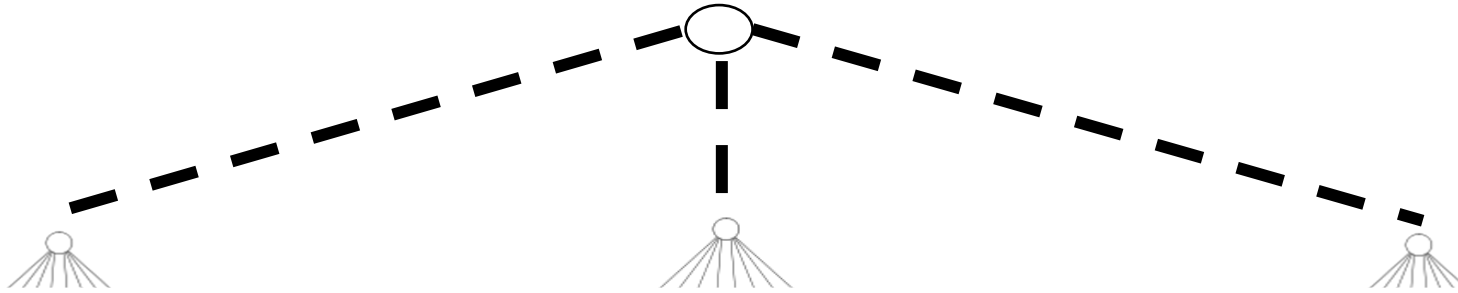
# PotreeConverter MPI Distribution & Indexing



# PotreeConverter MPI Distribution & Indexing

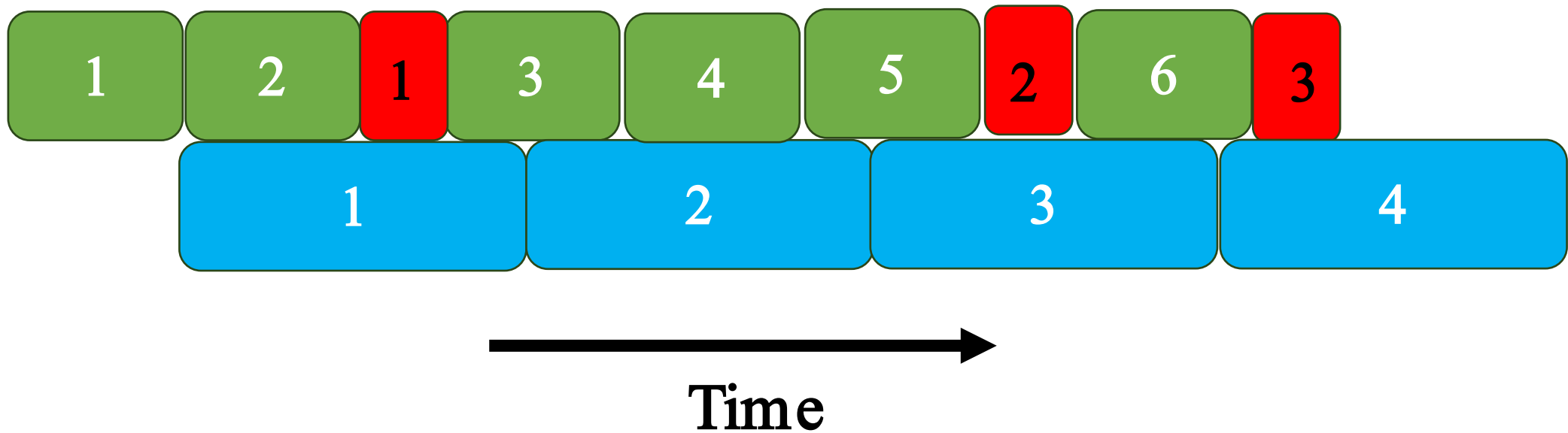


# Merge sub-octrees



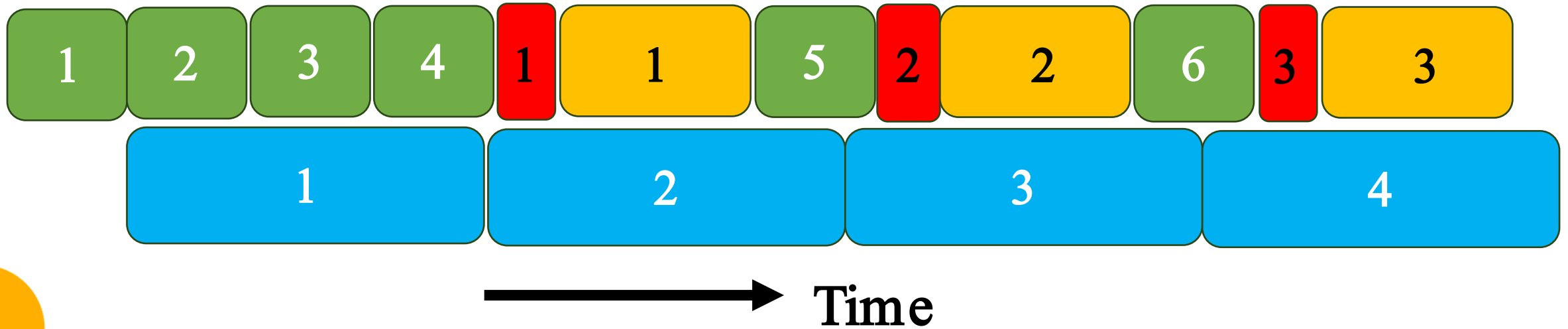
# Partition loader/unloader script

- Copy a partition
- Remove partition
- Counting

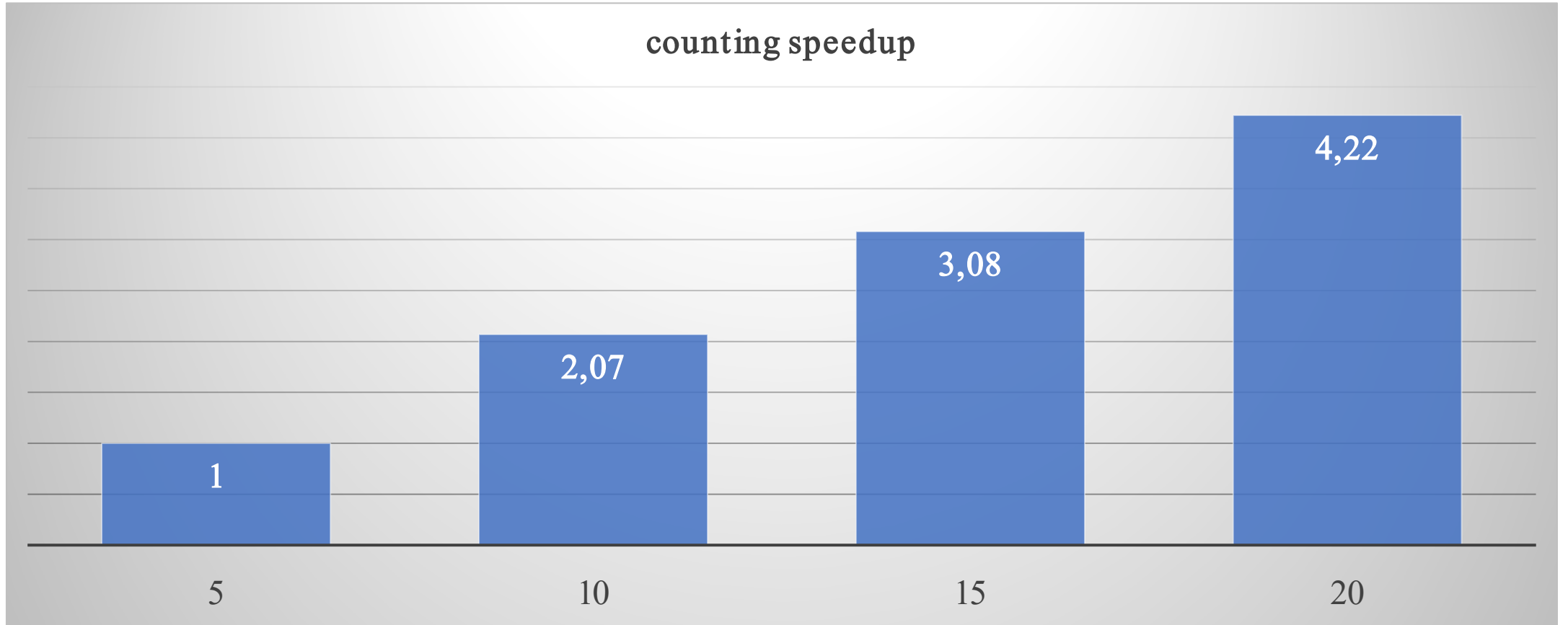


# Partition loader/unloader script

- Copy a partition
- Remove partition
- Move partial output to “BIG” storage
- Distribution and Indexing

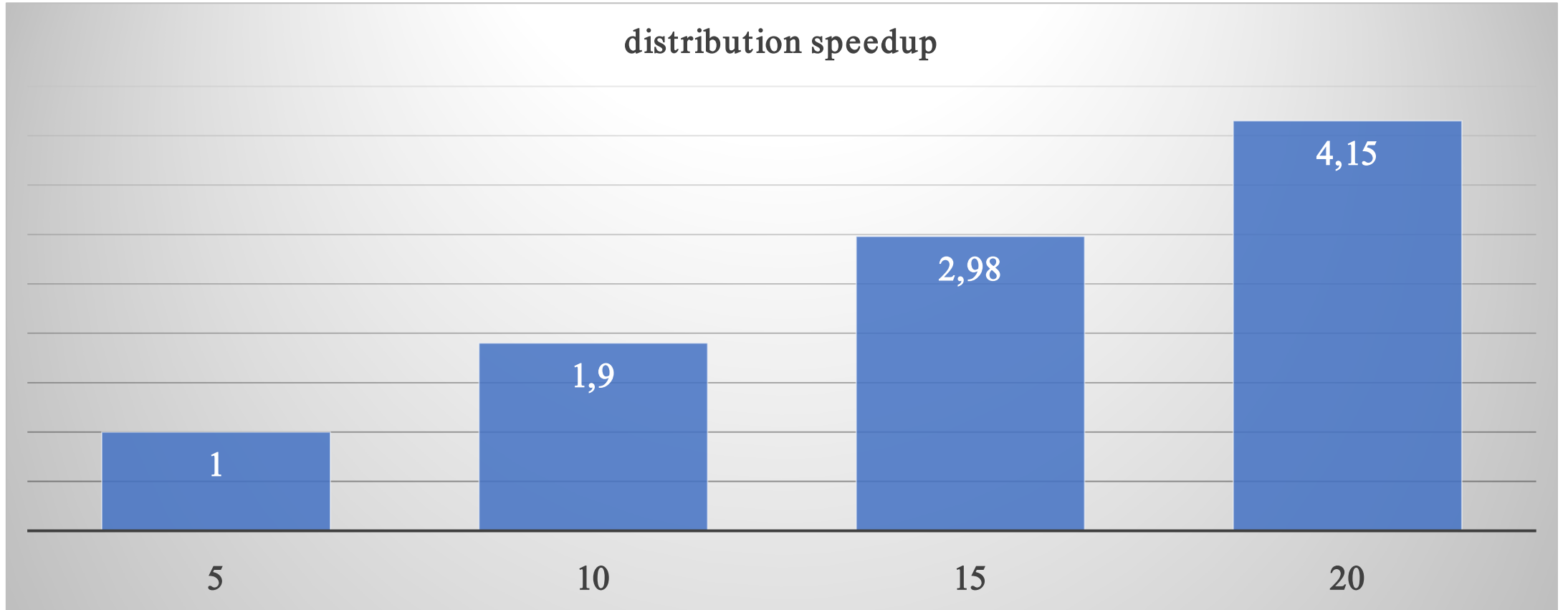


# Counting speedup

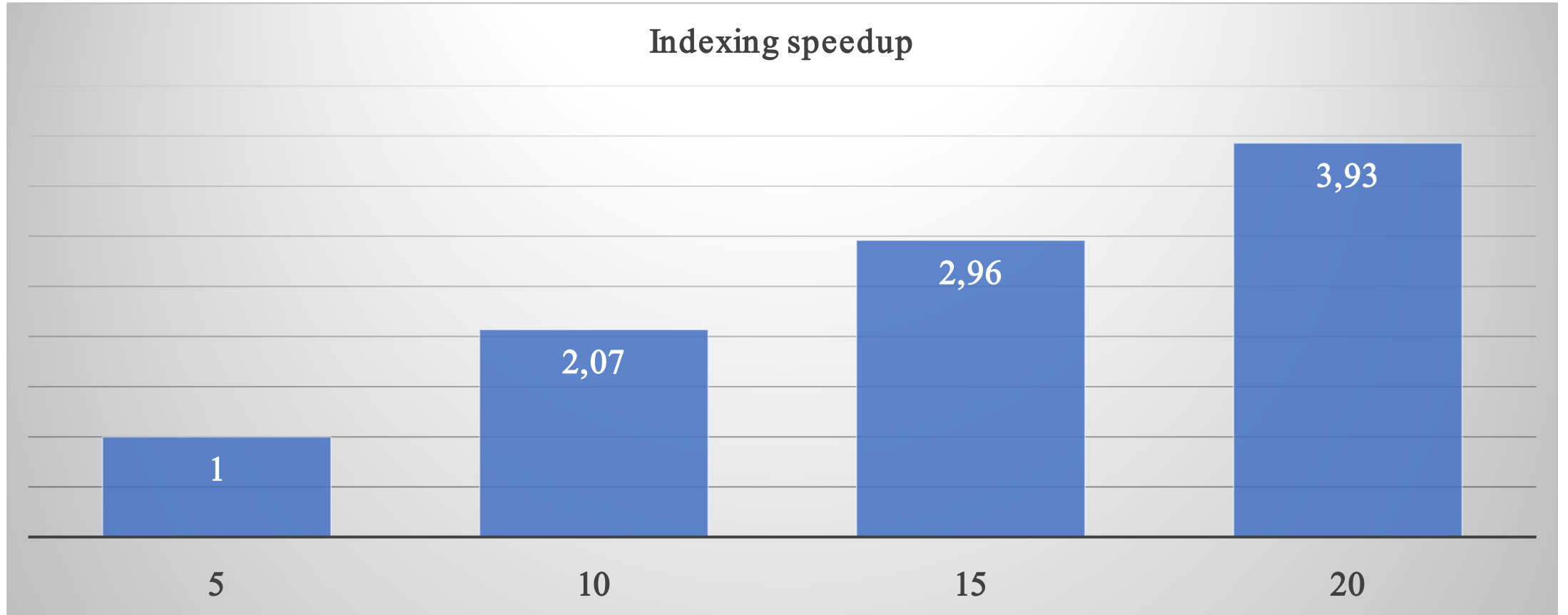




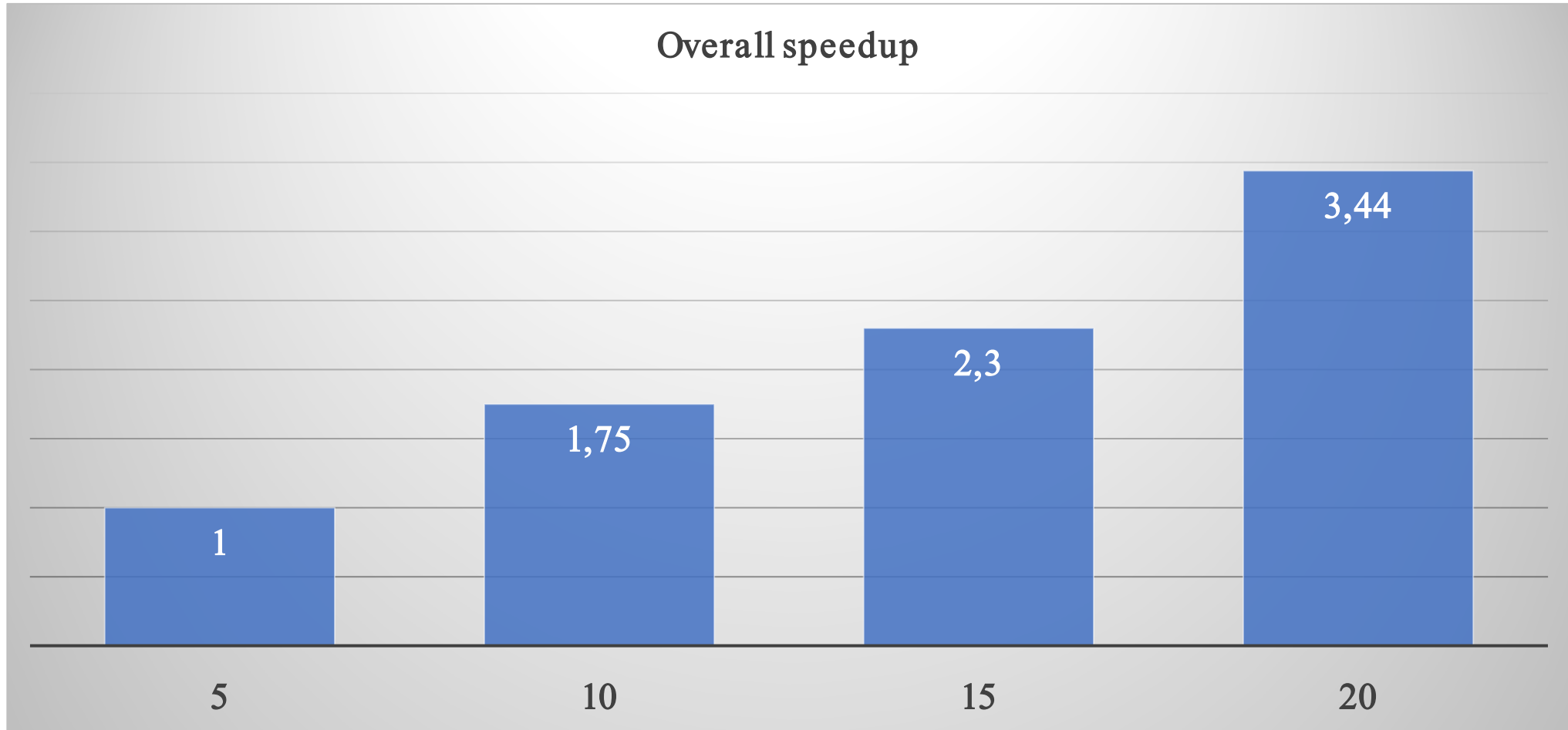
# Distribution speedup



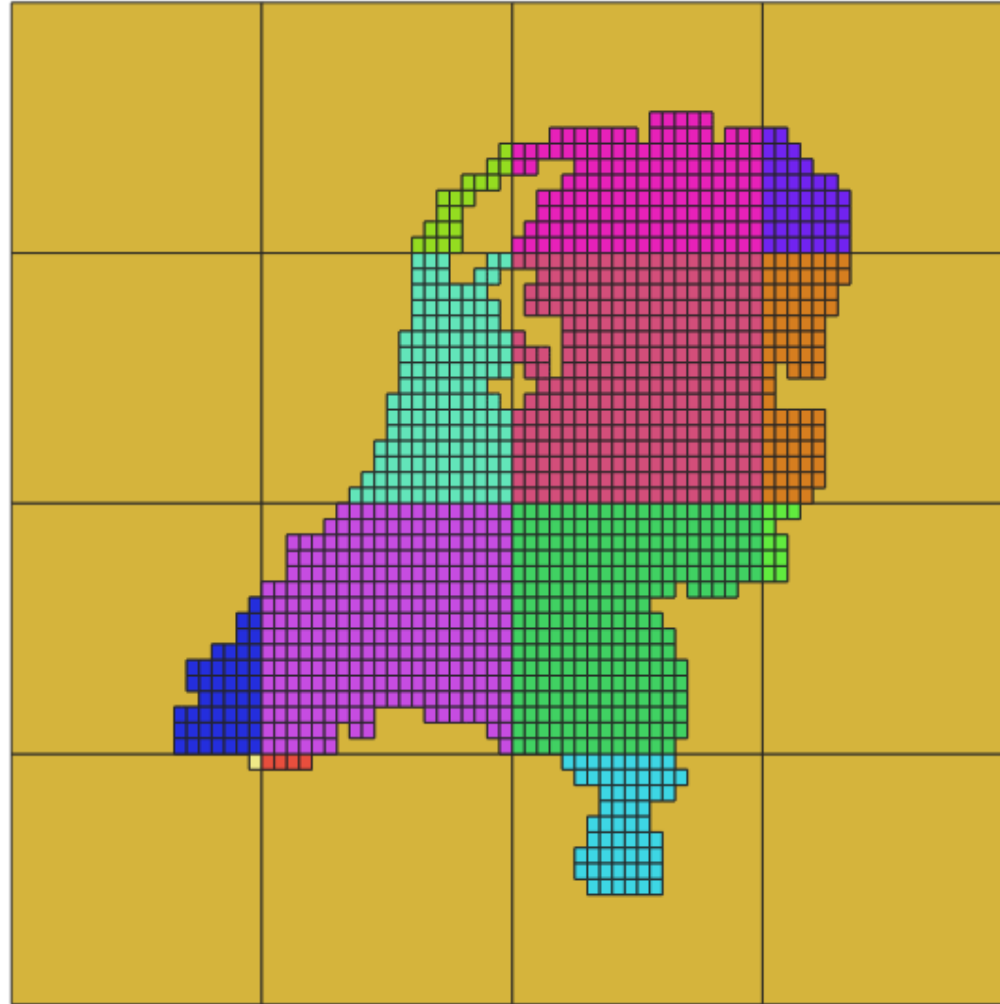
# Indexing speedup



# Overall speedup

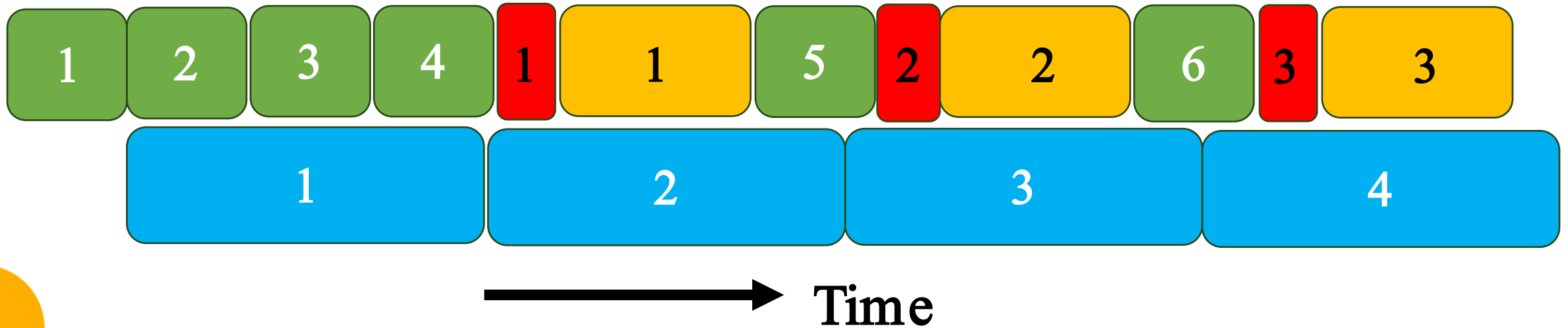


# Limitations



# Further Improvements

- Copy a partition
- Remove partition
- Move partial output to “BIG” storage
- **Counting, Distribution and Indexing**



# Questions and Suggestions?



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