Towards massive parallelism
High Performance Computing for Mechanical Simulation

CONTEXT & OBJECTIVES
code_aster, a legacy code, massively and widely used and recognized but… … Not massively parallel

Basic question: Is it possible to change code_aster into a massively parallel code?

YES WE CAN!

HOW TO DO SO?
The solution consists in cutting out the computation domain

CONSEQUENCES
This change towards massive parallelism has led fundamental changes in the code_aster informatical architecture:

→ Work in progress…

AND SO?
By doing so, we managed to make code_aster massively parallel and make it run thousands of processors for "real-life" problems (linear, non-linear mechanics, static or dynamic)

TARGET MET!

Speed-up of code_aster HPC (blue) compared to ideal (red)

PLANNING
2013: First massively parallel computation
2016: Major architectural redesign
2019: New version available for end users