



Séminaire Informatique Haute Performance @ Campus Teratec

Séminaire n°51 du Jeudi 06 Octobre 2016, 10h, Ter@tec.

Balance-enforced multi-level algorithm for multi-criteria graph partitioning

Jeudi 06 Octobre 2016, Rémi Barat, Doctorant au CEA, présentera les travaux de sa dernière publication.

Voici le résumé de cette présentation qui aura lieu dans la salle de formation du Rez-de-Chaussée à Ter@tec, à 10h.

Balance-enforced multi-level algorithm for multi-criteria graph partitioning

Nowadays, numerical simulations model increasingly complex phenomena. They require deeply coupled multi-physics codes that are designed to run on large distributed memory computers. On these kinds of architecture, data decomposition is critical to achieve good performance. While distributing the data between the processes, two challenges must be addressed: balancing the workload between all processes, while minimizing the communications between processes.

Load balanced partitioning of a mesh with minimal communications can be reduced as a graph or hypergraph partitioning problem. Most of the current approaches do not strictly enforce constraints, returning partitions that are not always valid in respect to the constraints. We present an algorithm which strictly enforces balance constraints for all criteria. We will compare to Scotch and Metis, and comment their respective behaviors on small meshes.
