Interactive Computing Framework for Engineering Applications

Jovana Knežević, Jérôme Frisch, Ralf-Peter Mundani, Ernst Rank
Lehrstuhl für Computation in Engineering
Technische Universität München
Arcisstraße 21, 80333 München, Germany
knezevic@bv.tum.de

Abstract—In this paper, we introduce an integration framework for engineering applications that supports distributed computations as well as visualisation on-the-fly in order to reduce latency and enable a high degree of interactivity with only minor code alterations involved. Moreover, we tackle the problem of long communication delays in the case of huge data advent, which occur due to rigid coupling of simulation back-ends with visualisation front-ends and handicap a user in exploring intuitively the relation of cause and effect.

Keywords: interactive computing; computational steering environment (CSE), multithreading, thread synchronisation