Introduction

ComPat is a science driven project. The urgent need to push the science forward, and stay world leading in simulation driven science and engineering is our major motivation.

- Identified three generic **multiscale computing patterns**: *(Extreme Scaling, Heterogeneous Multiscale Computing and Replica Computing)* as a generic layer between the applications and the (future/emerging) exascale computational environments.
- From the point of view of the applications, the patterns determine the ordering and composition of the single scale models that are coupled within a **multiscale application**.
- The main aim of patterns is to simplify the implementation of HPC multiscale applications and to variously enhance their efficient development, deployment and enhance the applications’ stability and performance during execution in a **distributed HPC Execution Environment**.
ComPat apps & tools

- HPMC Patterns enable toolkits to benefit from co-allocated HPC resources,
- develop startup wrapper scripts for multiscale apps,
- expose new capabilities (checkpointing, rescheduling, restarting),
- automatically prepare job descriptions and MML converters
ComPat environment

- Multi-domain logical integration of HPC resources by ensuring interoperability between various access services (both at middleware and LRMS levels),
- Quality of Service by providing means for co-allocation of various types of HPC resources
- Advanced workflows management, fault tolerance, load balancing
- Fully transparent integration with multiscale coupling libraries and tools
- Energy consumption optimization
Thank You!

More at http://www.compat-project.eu

Krzysztof Kurowski
krzysztof.kurowski@man.poznan.pl