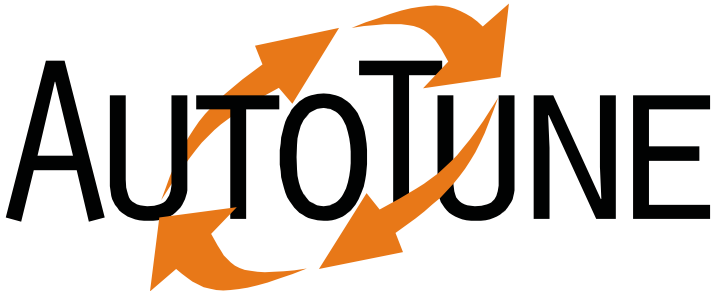

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SEVENTH FRAMEWORK PROGRAMME

AutoTune Goals

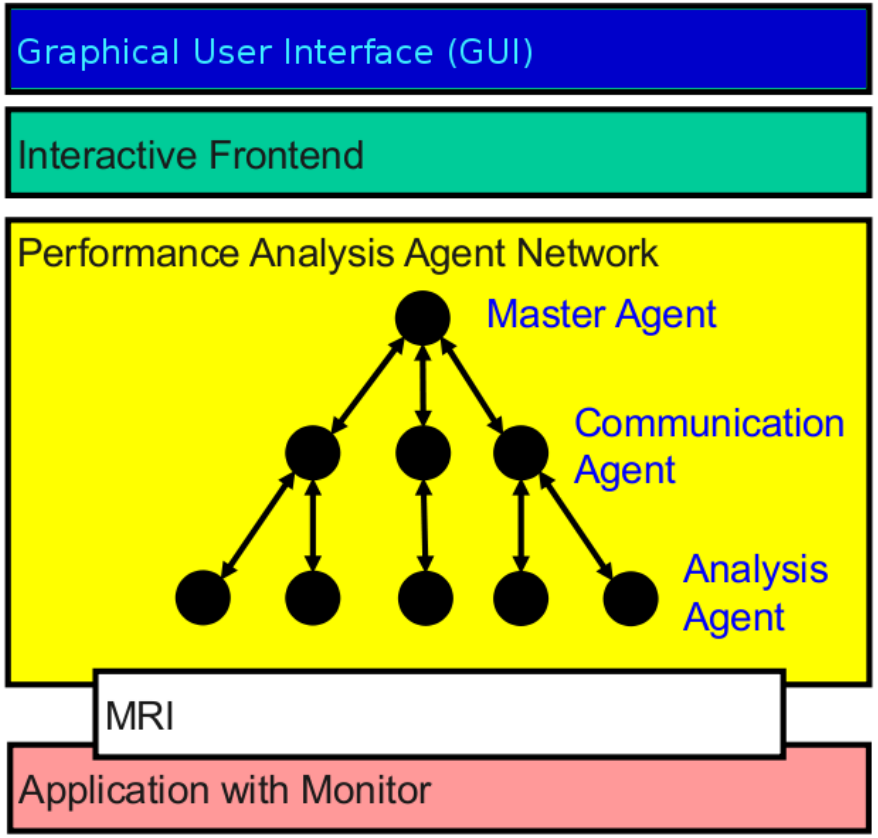
AUTOTUNE
www.autotune-project.eu

- Automatic application tuning
  - Performance and energy
- Parallel architectures
  - HPC and parallel servers
  - Homogeneous and heterogeneous
  - Multicore and GPU accelerated systems
  - Reproducable execution capabilities
- Variety of parallel paradigms
  - MPI, HMPP, parallel patterns

Periscope
Performance Analysis Toolkit

AUTOTUNE
www.autotune-project.eu

- Online
  - no need to store trace files
- Distributed
  - reduced network utilization
- Scalable
  - Up to 100000s of CPUs
- Multi-scenario analysis
  - Single-node Performance
  - MPI Communication
  - OpenMP
- Portable
  - Fortran, C with MPI & OMP
  - Intel Itanium2, x86 based systems
  - IBM Power6, BlueGene P, Cray



http://www.lrr.in.tum.de/periscope

Autotune Approach

AUTOTUNE
www.autotune-project.eu

- Predefined tuning strategies combining performance analysis and tuning
- Plugins
  - Compiler based optimization
  - HMPP tuning for GPUs
  - Parallel pattern tuning
  - MPI tuning
  - Energy efficiency tuning

Periscope Tuning Framework

AUTOTUNE
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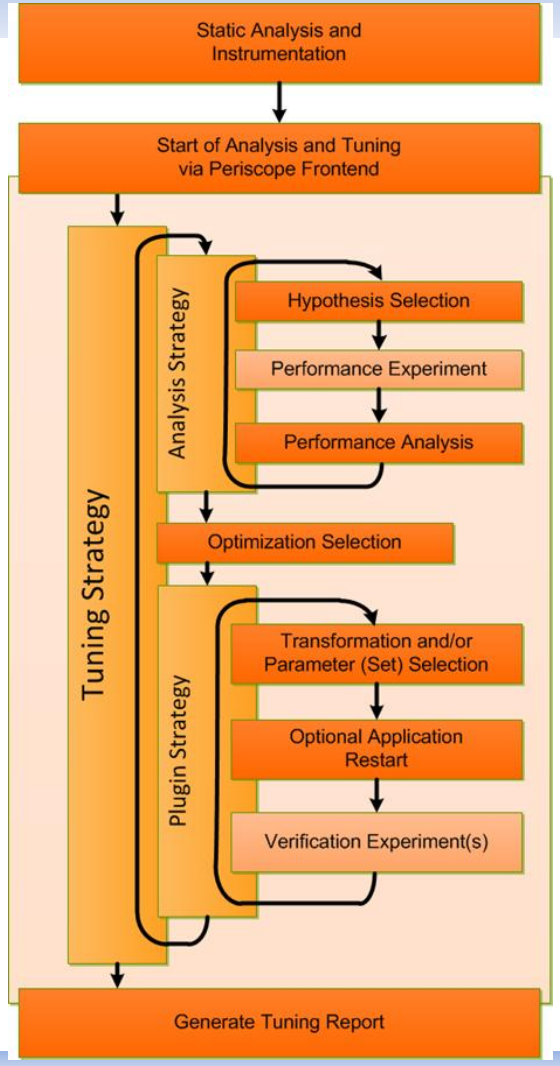
- Online
  - Analysis and evaluation of tuned version in single application run
  - Multiple versions in single step due to parallelism in application
- Result
  - Tuning recommendation
  - Adaptation of source code and /or execution environment
  - Impact on production runs



Expected Impact

AUTOTUNE
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- Improved performance of applications
- Reduced power consumption of parallel systems
- Facilitated program development and porting
- Reduced time for application tuning
- Leadership of European performance tools groups
- Strengthened European HPC industry

Partners

AUTOTUNE

www.autotune-project.eu

- Technische Universität München
- Universität Wien
- CAPS Entreprises
- Universitat Autònoma de Barcelona
- Leibniz Computing Centre
- National University of Galaway, ICHEC

SEVENTH FRAMEWORK PROGRAMME