KOJAK and SCALASCA

Presented by

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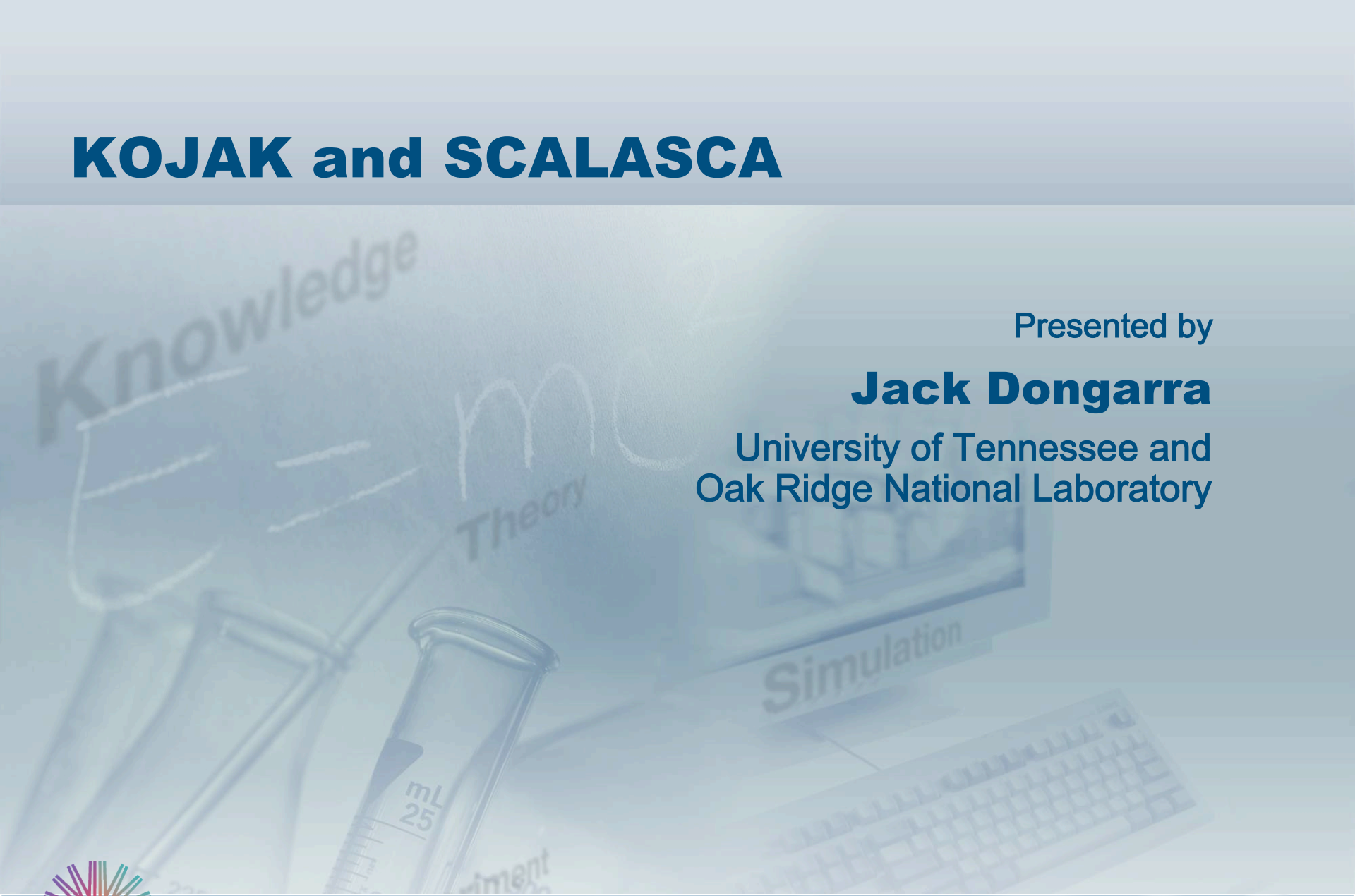


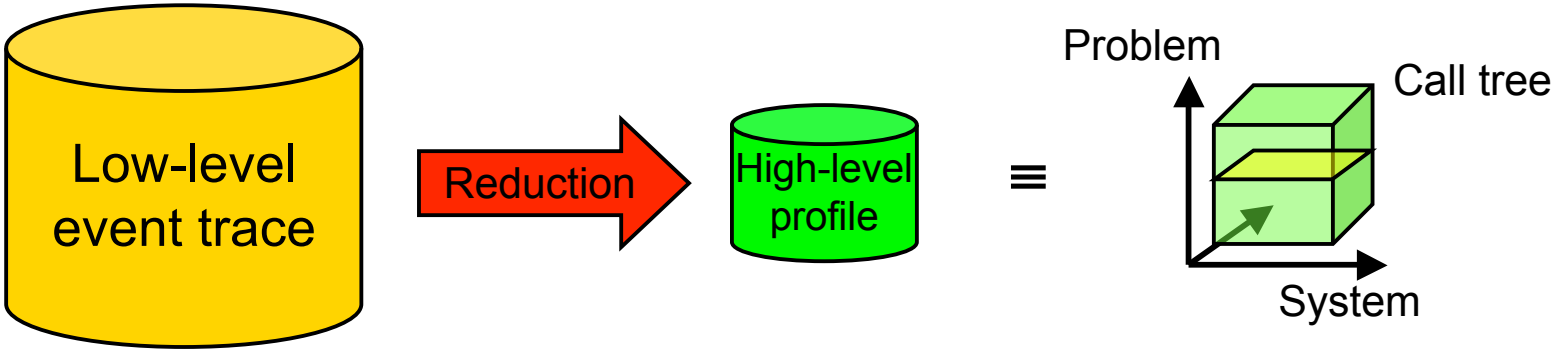
KOJAK

- Software package for automatic performance analysis of parallel applications
  - Message passing and threads (MPI, OpenMP, SHMEM, CAF)
  - Parallel performance
  - CPU and memory performance
- Collaborative research project between
  - Forschungszentrum Jülich, Germany
  - University of Tennessee, USA
- URLs

  http://www.fz-juelich.de/zam/kojak/
  http://icl.cs.utk.edu/kojak/

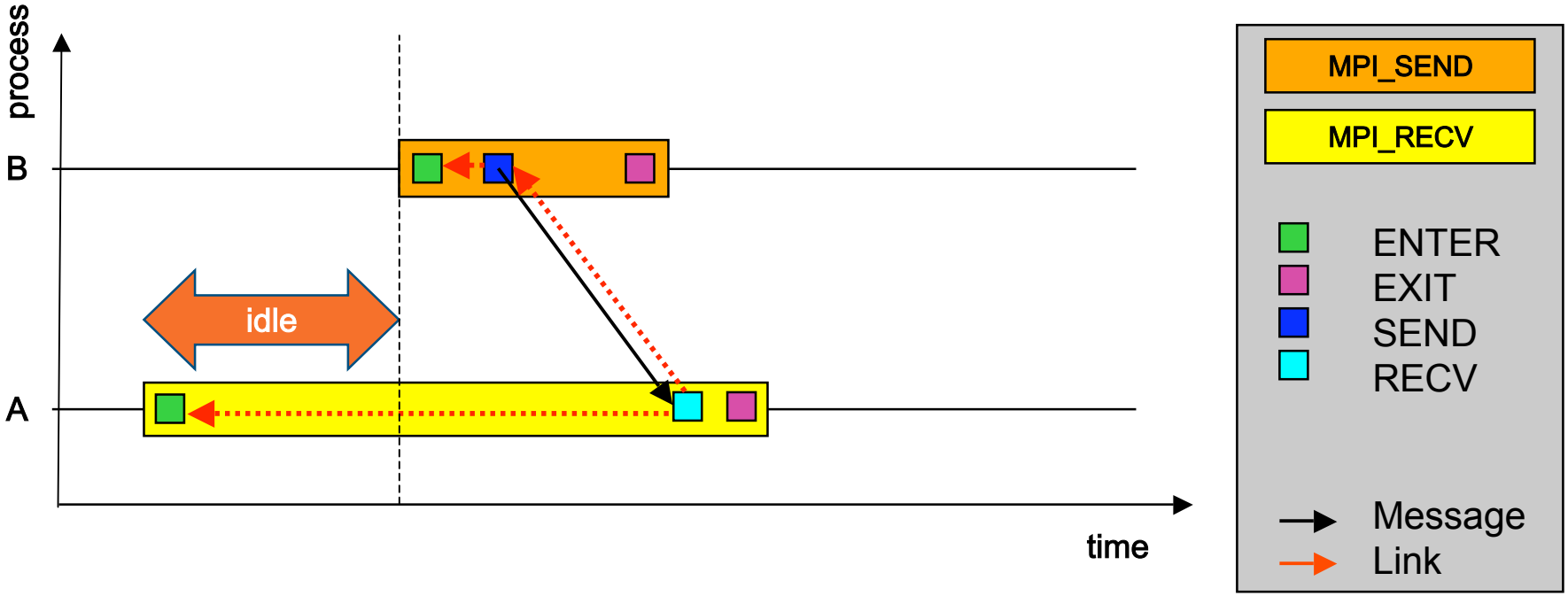
Automatic off-line trace analysis

- Automatic search for patterns of inefficient behavior
- Quantification of significance

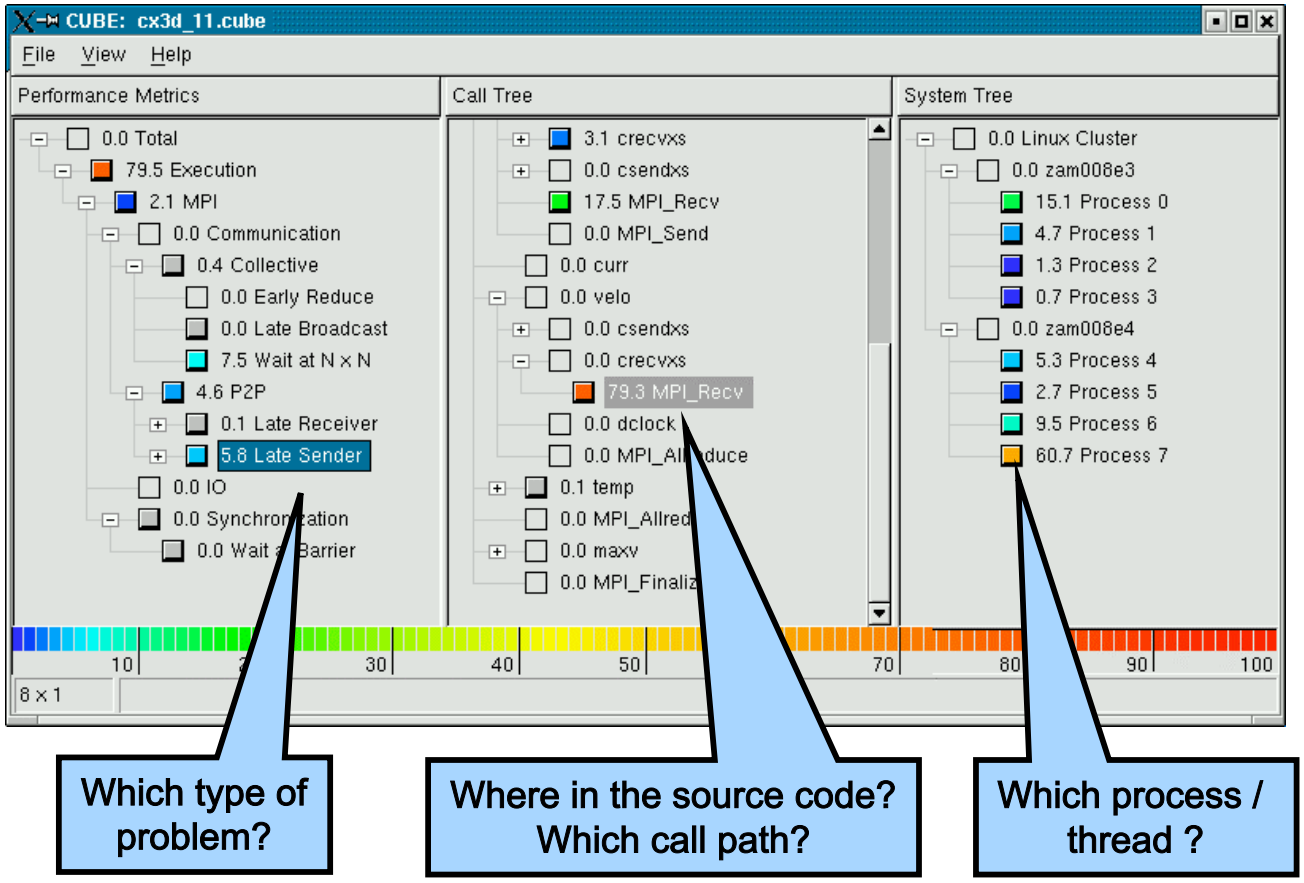


- Data distillation
- Guaranteed to cover the entire trace

Late sender pattern



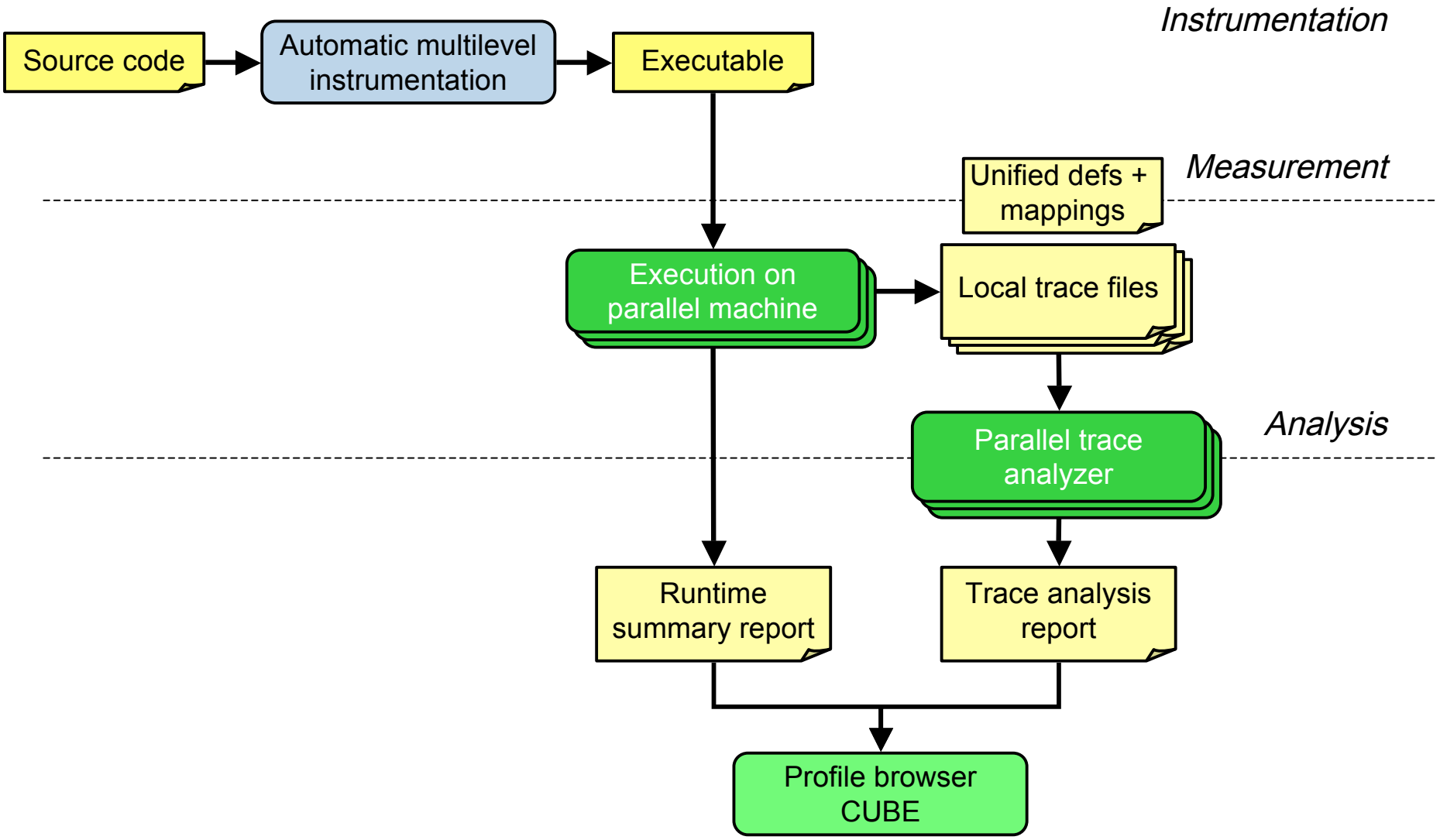
Analysis report



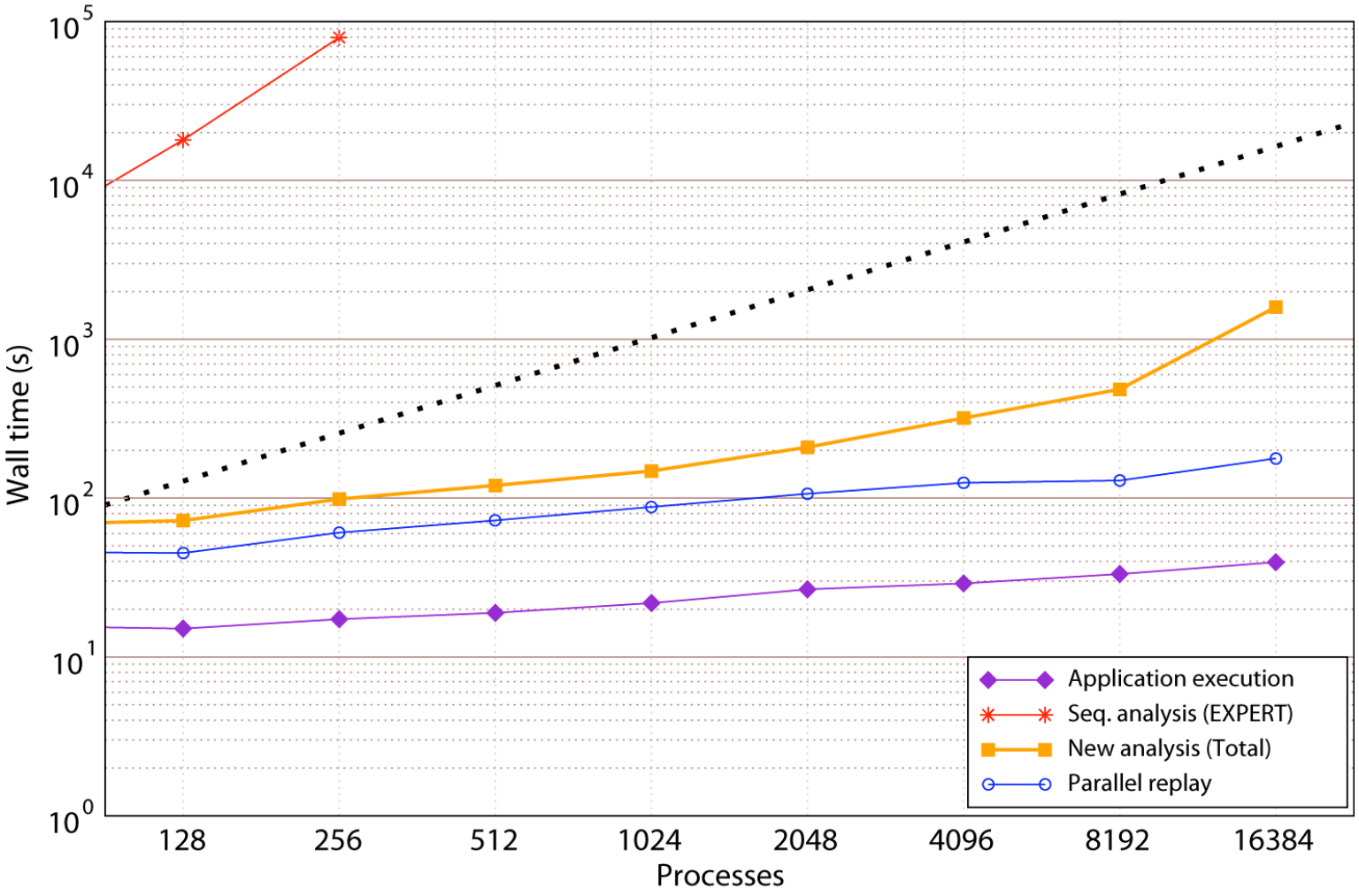
SCALASCA

- Follow-up project to KOJAK
- Started January 2006
- Funded by Helmholtz Initiative and Networking Fund
- Objective: develop a highly scalable version of KOJAK
  - Basic idea: parallelization of analysis
  - Current focus: single-threaded MPI-1 applications
- URL http://www.scalasca.org/

Parallel analysis with Scalasca



Results: SMG2000

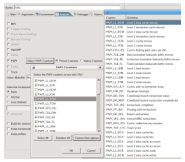


Integrated Tools for high productivity

- Virtual Institute for High-Productivity Supercomputing (VI-HPS)
  - Funded by the Helmholtz Association of German research centers
- Focus on productivity
  - Advanced programming tools for integrated performance analysis and debugging
  - Training and support
- VI-HPS partners and tools
  - Forschungszentrum Jülich, Germany (KOJAK, SCALASCA)
  - RWTH Aachen University, Germany (training, support)
  - Technische Universität Dresden, Germany (VAMPIR)
  - University of Tennessee (PAPI, KOJAK)

High productivity development cycle

PAPI



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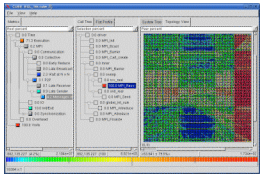


KOJAK / SCALASCA

Forschungszentrum Jülich
in der Helmholtz-Gemeinschaft

Hardware monitoring

Automatic trace analysis

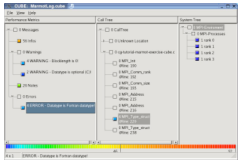
Visual trace analysis

Optimization

Execution

Error correction

MARMOT



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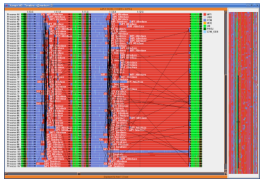
H L R S

VAMPIR



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