



Dziedzinowo zorientowane
usługi i zasoby infrastruktury
PL-Grid dla wspomagania
Polskiej Nauki w Europejskiej
Przestrzeni Badawczej

Scalarm: Scalable Platform for Data Farming

D. Król, Ł. Dutka, M. Wrzeszcz, B. Kryza, R. Słota
and J. Kitowski

ACC Cyfronet AGH

KU KDM, Zakopane, 2013

- About Us
- Problem statement
- Solution
- Contact

Who are we ?



3

- Computer Systems Group AGH
<http://www.icsr.agh.edu.pl/>

- Knowledge in Grids Team
<http://www.icsr.agh.edu.pl/index.php/knowledge-in-grids-team>

- Close collaboration with ACC Cyfronet AGH

What are we doing ?



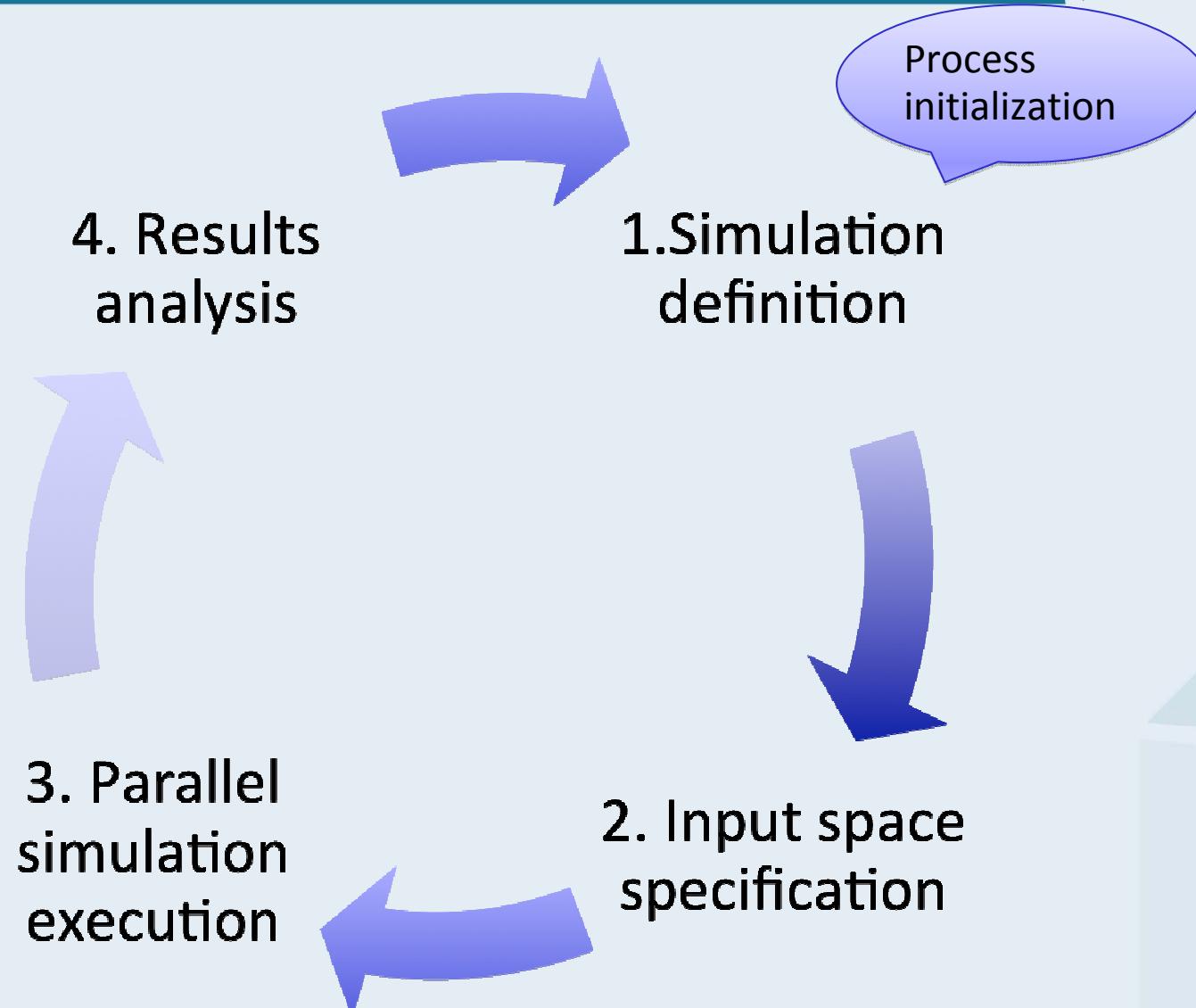
4

- Knowledge supported systems for Virtual Organizations
 - Framework for Intelligent Virtual Organizations
 - Grid Organizational Memory
 - X2R
- Data monitoring and management
 - Service Level Agreement Monitoring
 - QStorMan
- Self-scalable systems
 - Scalarm

A short introduction to data farming



5



What problem do we address with Scalarm ?

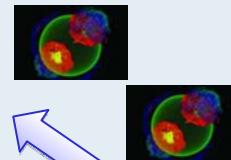


6

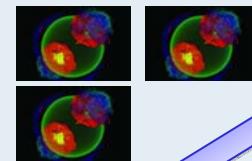
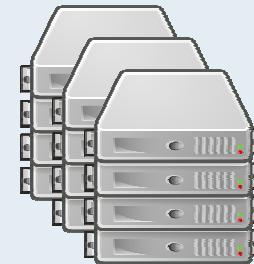
- Data farming experiments with an exploratory approach
- Parameter space generation with support of design of experiment methods
- Accessing heterogeneous computational infrastructure
- Self-scalability of the management part

Typical work flow

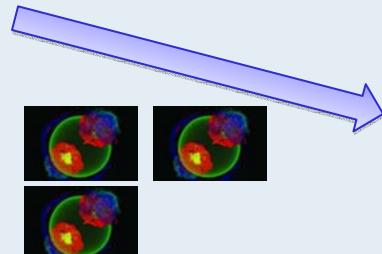
2. A workstation or an institution server



3. National Grid environment

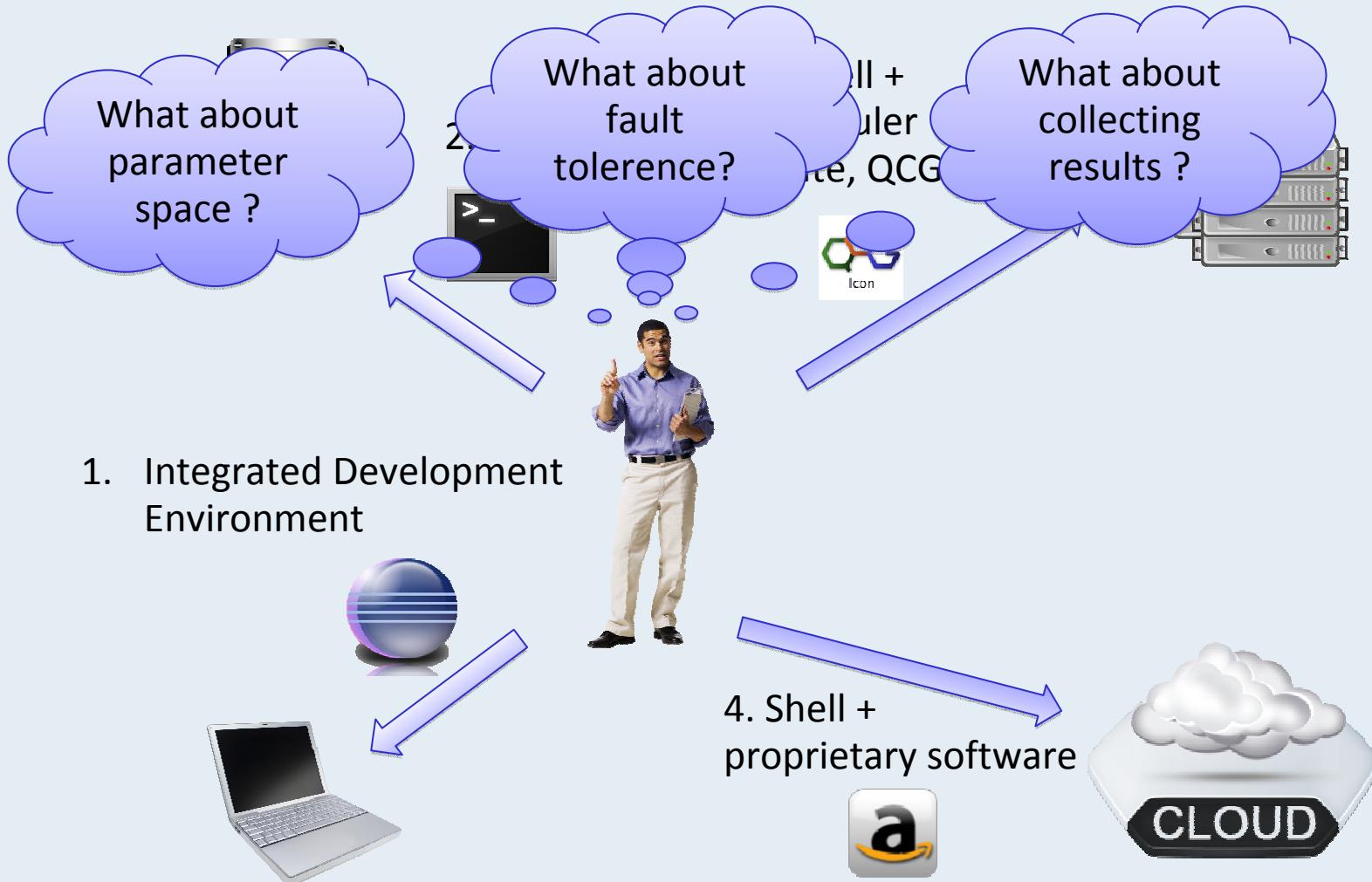


1. Local development



4. Cloud

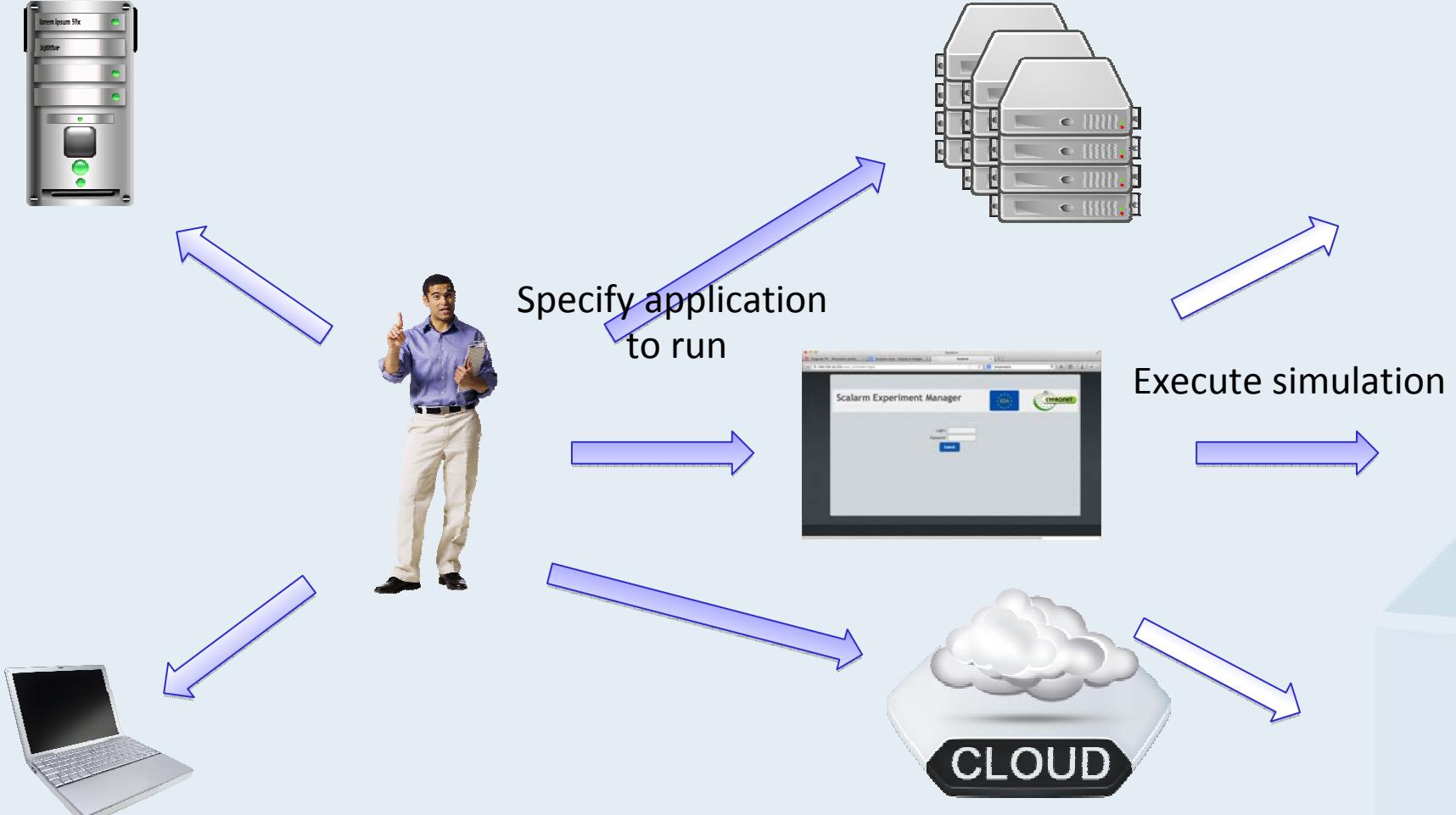
Where is the problem ?



What is our solution ?



9



- Self-scalable platform adapting to experiment size and simulation type
- Exploratory approach for conducting experiments
- Supporting online analysis of experiment partial results
- Integrates with clusters, Grids, Clouds

Use case – Complete platform for data farming



11



Use case – Simulation-as-a-Service



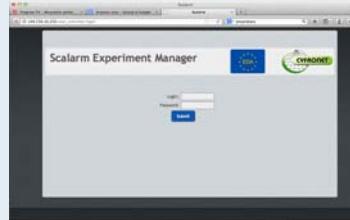
12



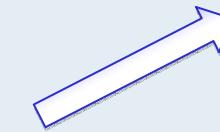
Native
app



API



Execute simulation



But, does it scale ?

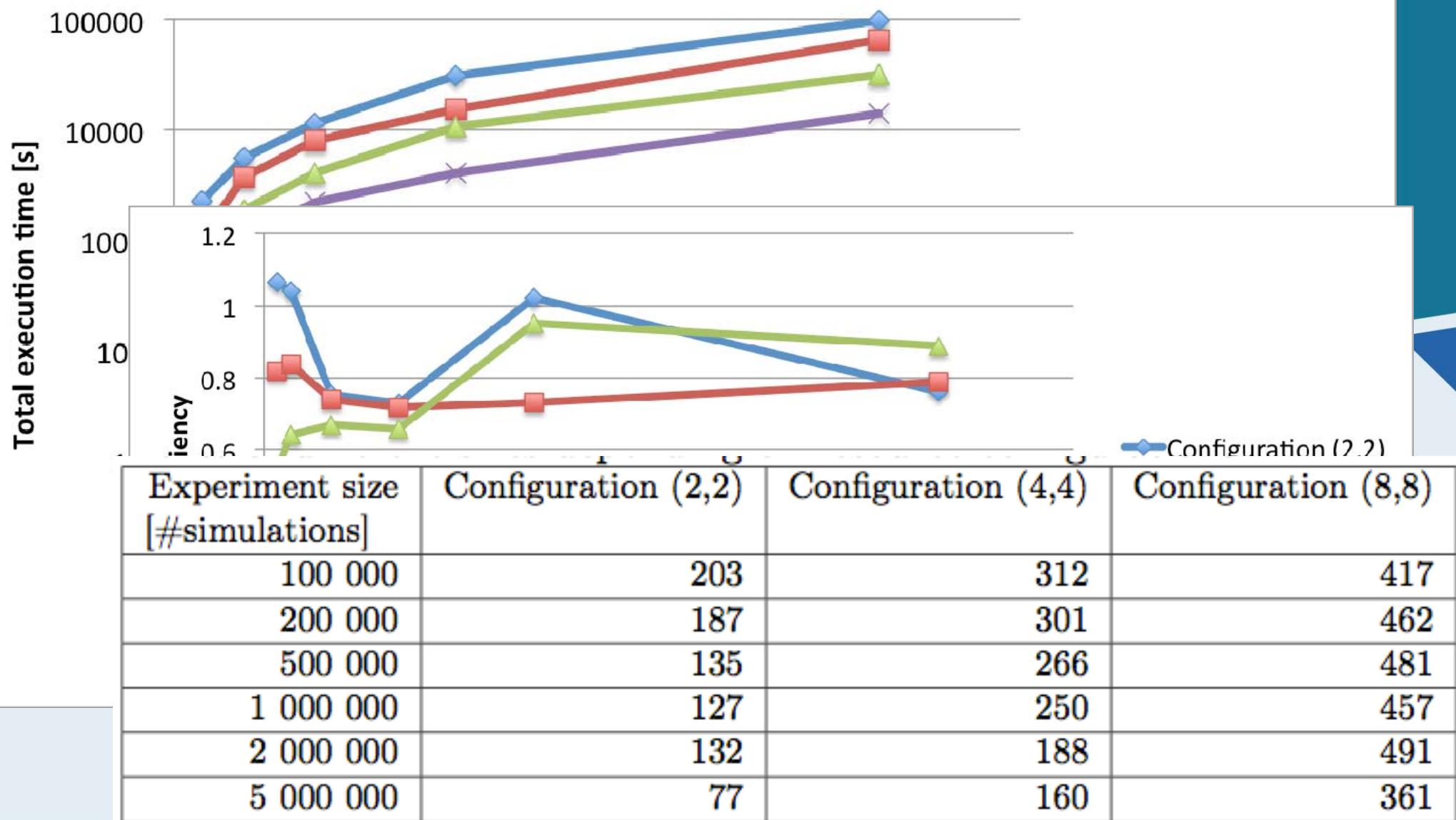


13

Experiment evaluation:

- Experiment size [#simulations]: 100 000, 200 000, 500 000, 1 000 000, 2 000 000
- Computational resources [#servers]: 2, 4, 8, 16
- #Clients: $240 * (\#servers / 2)$

Results



Do you want to know more ?



15

- Talk to us during the conference
- Contact us -> dkrol@agh.edu.pl
- Visit a website -> <http://www.scalarm.com>