Combining Grid, Cloud and Volunteer Computing

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Virtual Atom Smasher

github.com/wavesoft/virtual-atom-smasher

• Interactive **educational** game

• Citizens:
  – **Learn** about science
  – **Contribute** to scientist’s work

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Before

Emmanouil.Katsomallos@cern.ch
After
After

Concise menu
After

Concise menu

New graphics
After

- Concise menu
- New graphics
- Lucid leveling

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Simulation Screen

Connected machines: 2
Live event rate: 554 /s

Overview of Job Metrics

RUNNING
Progress: 11 %

All your metrics should reach the green zone.

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Results View

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Help Screens

You are now running a simulation

We have just started your simulation in a network of computers provided by other players and institutions.

In a few seconds they are going to send results that you can observe in this status screen.

Each one of these simulations are producing virtual particle collisions using the physical parameters that you have provided.

You results are good if your theoretical simulation matches what we have seen in the experiments.

Reference: Measured in the experiments
Simulation: Your simulation results

You can also see how good they match in the circular indicator. The closer to the center, the better the match.
Under the hood

• Page templates
• Code polishing
• CernVM WebAPI integration

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In a nutshell
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So far

• Visual upgrades
• Template utilization
• Code polishing
• **CernVM WebAPI** integration
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Future work
• User feedback assessment
• Audio playback
• Public version release
• CernVM WebAPI further integration

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CernVM WebAPI

github.com/wavesoft/cernvm-webapi
• **Browser API** to install and control local VMs
• **Real-time** interaction with the running instance
• **Automatic** hypervisor installation and configuration
• Beta project
• COVERITY static code analysis
• But...
• C++ testing framework
• Multiplatform
• Based on the xUnit architecture
• Support for variety of tests
In a nutshell
In a nutshell

So far

• Google test integration
• libcernvm testing
In a nutshell

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Future work
• Further test development
• Jenkins integration

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github.com/wavesoft/cernvm-webapi
Thank you for the experience

Virtual Atom Smasher
test4theory.cern.ch/vas

CERN Public Computing Challenge
test4theory.cern.ch/challenge