

# An Alternative Platform-independent GUI For The BOINC Client

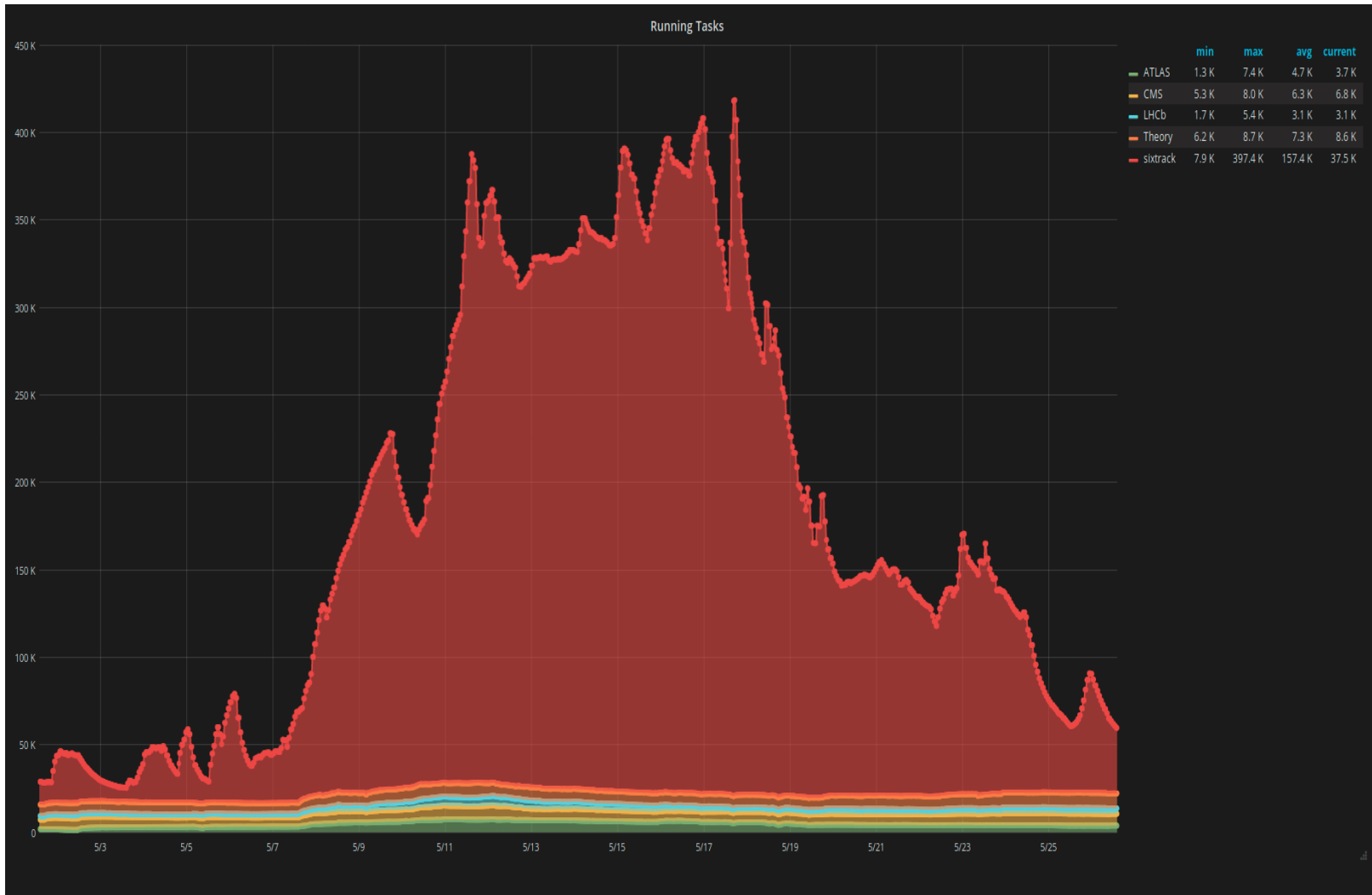
Laurence Field & Nikolas Giannakis & Aleksandra Starzec

# About Us

- Myself
  - Background Physics & Computer Science
  - CERN staff member since 2004
    - Distributed Computing
      - Worldwide LHC Computing Grid
      - Cloud Computing
      - Volunteer Computing
    - HTC/HPC Team
- Nikolas
  - Technical Student
  - BOINC development
- Aleksandra
  - CERN OpenLab/UNIGE Summer Student



# VM Capacity Gap



# The Challenge Web Page

Challenge Dashboard [Log in and see what is your progress](#)

Activity	Progress	Contribution	Ranking
How many jobs you have finished within your CPU	What fraction of the current job is completed	How many simulation jobs you have finished (see progress)	The ranking among the users in this challenge, by number of jobs completed
10 % 0 %	1 % 0 %	1 0	1 0

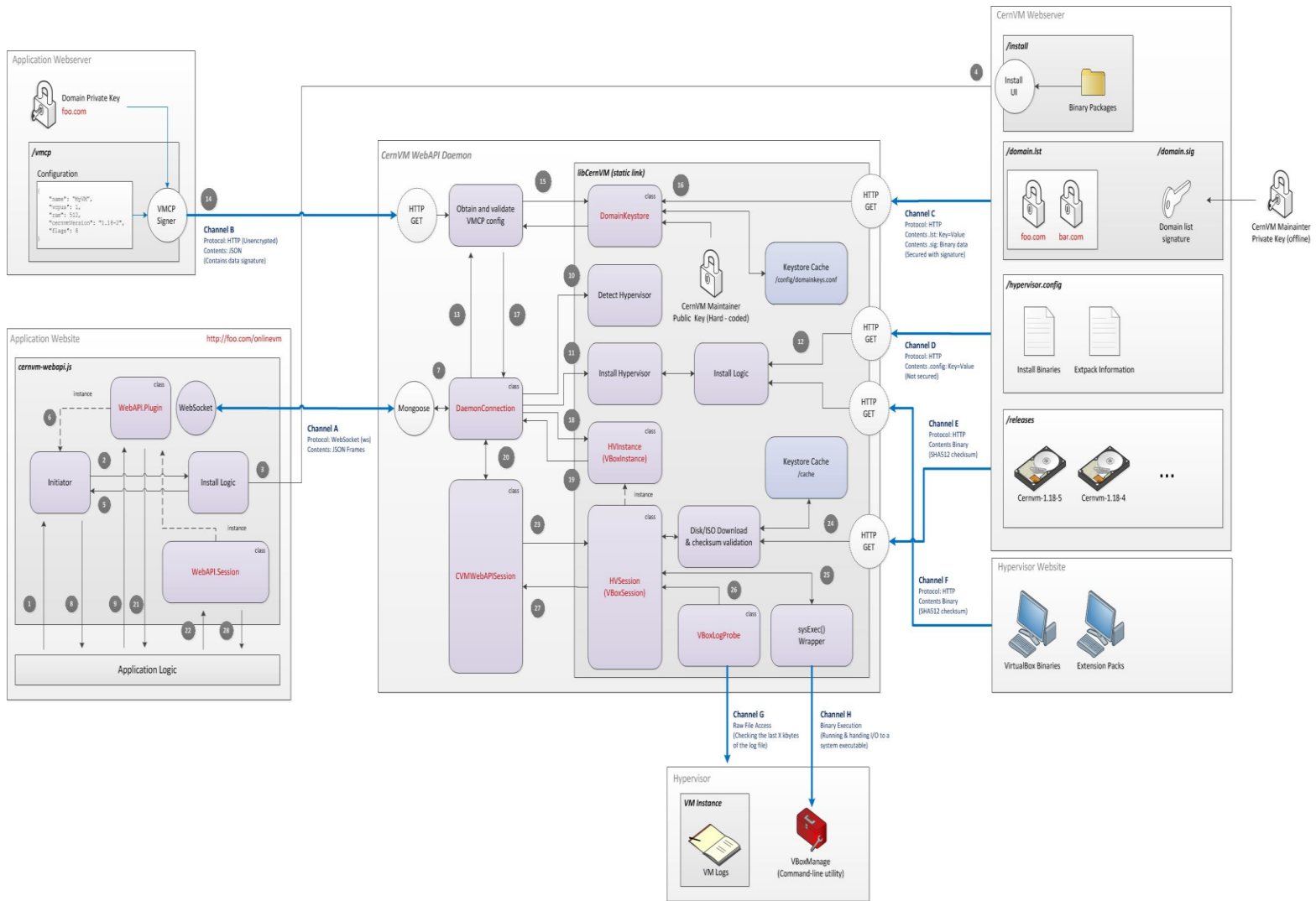
After the challenge... you might be interested to other LHC@home projects!

## You are now ready to start computing!

By clicking the Start button below, we are going to start a Virtual Machine in your computer, which is going to start performing virtual collisions and sending the statistics back to CERN. Click [Log in](#) to track your progress on top right corner keep track of your progress!

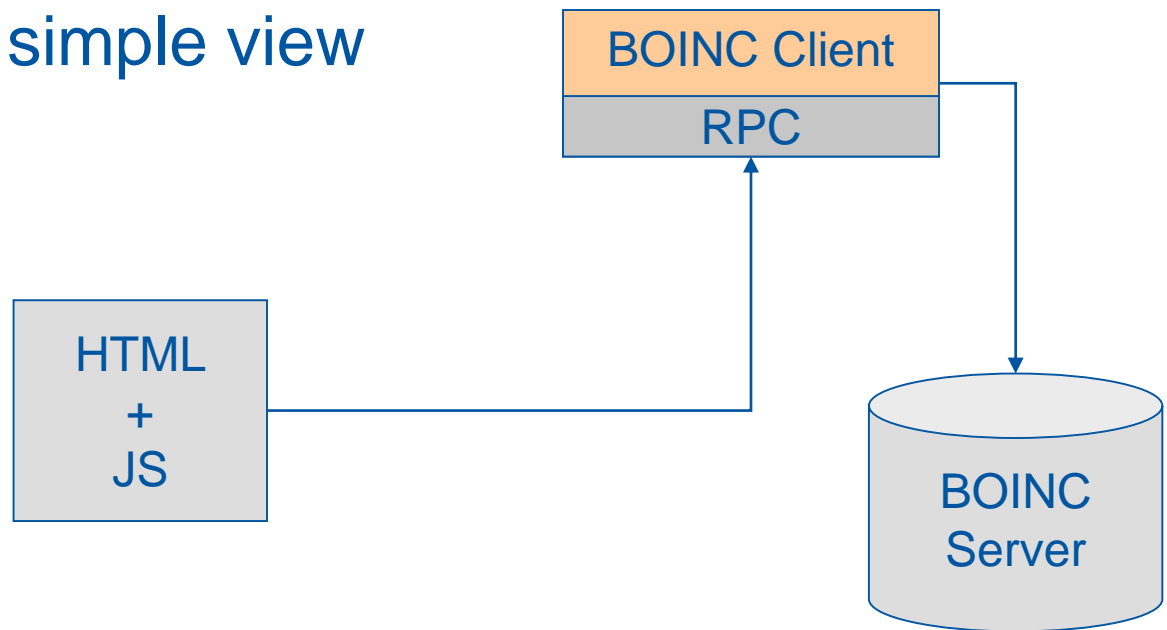
[Start](#) [Log in](#)

# CernVM WebAPI

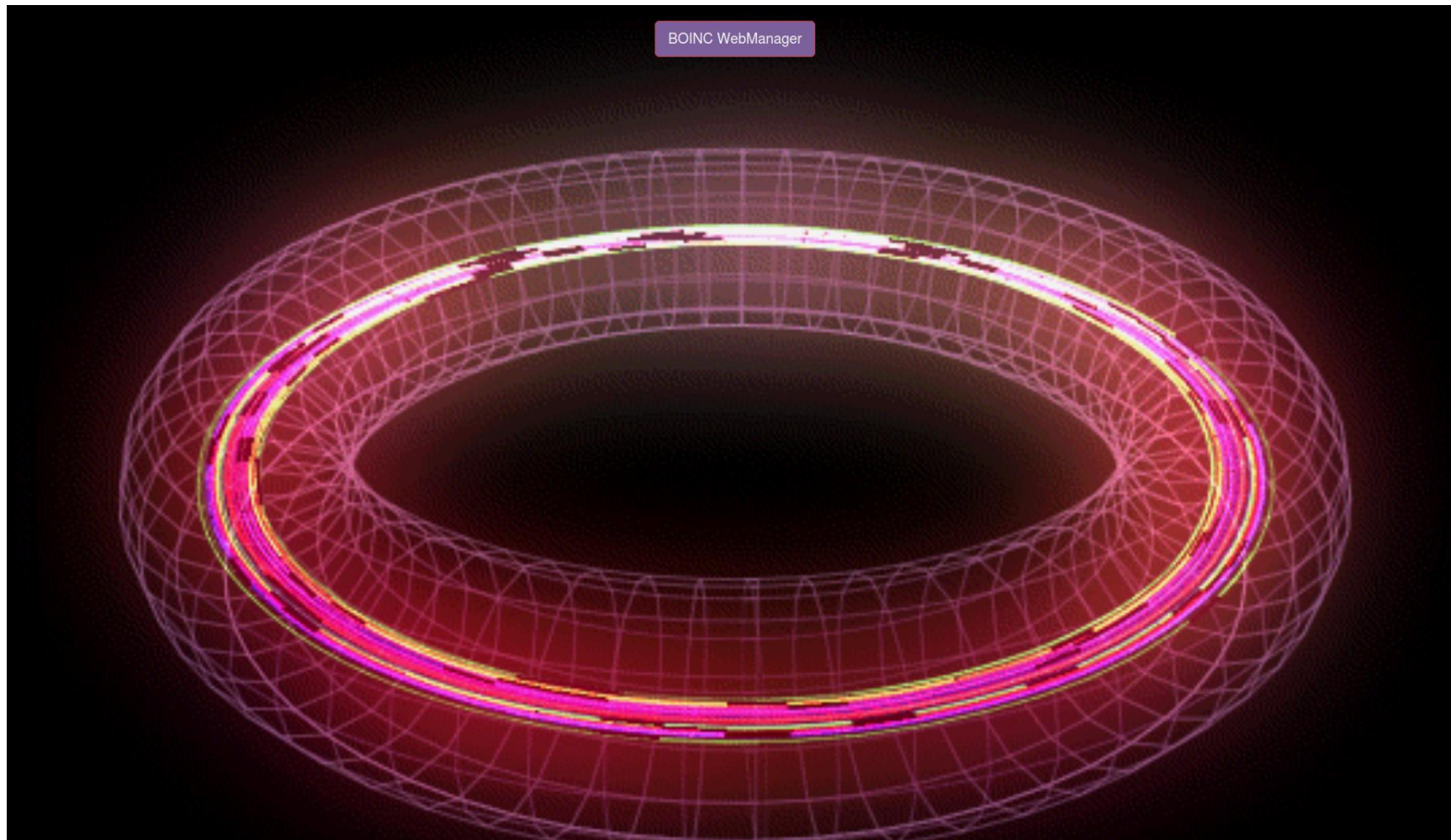


# Framework

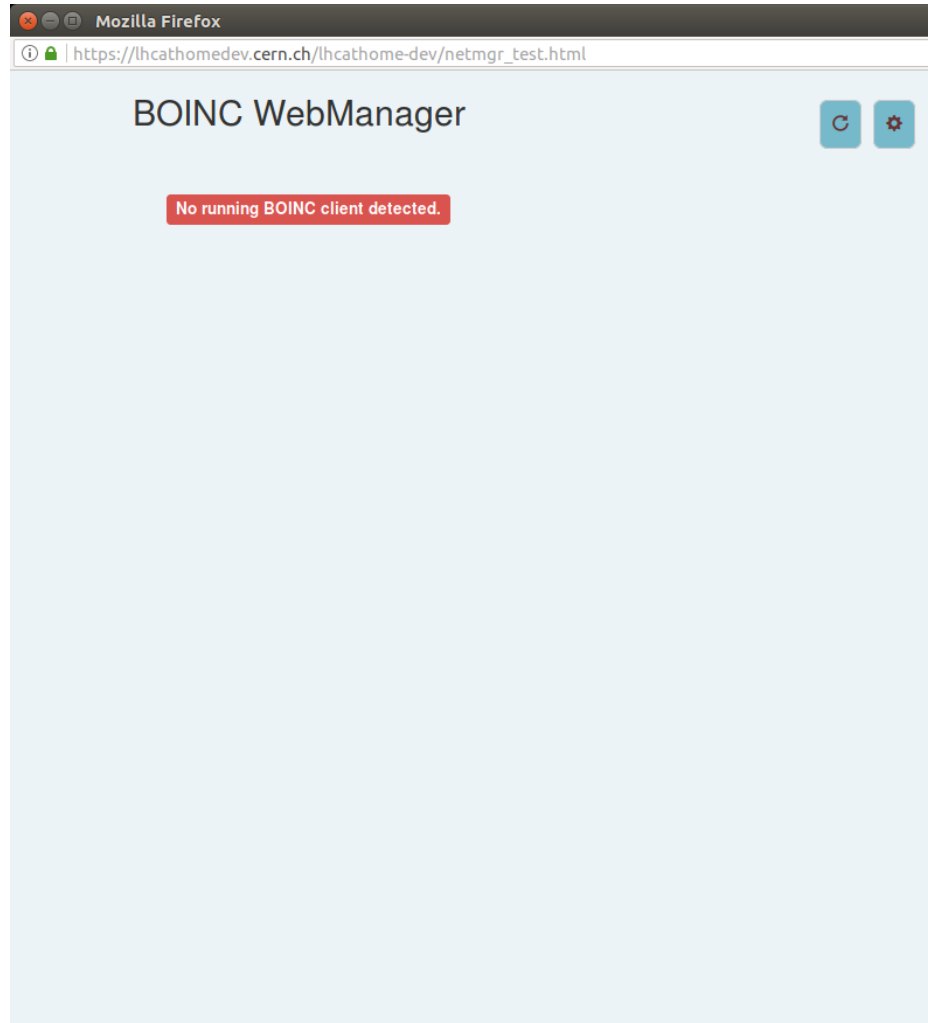
- Use the BOINC client
- RPC WebSocket
- HTML and Javascript
- BOINC GUI simple view



# The Magic Button



# Connecting To The Client





# The Web Manager

The screenshot shows the BOINC WebManager interface in a Mozilla Firefox browser window. The address bar displays the URL `https://lhathomedev.cern.ch/lhathome-dev/netmgr_test.html`. The page title is "BOINC WebManager".

The main content area displays a project named "Theory\_16817\_1503904802.793463\_0" with a progress bar at 1.95%. To the right of the progress bar are three control buttons: a pause button, a play button, and a stop button.

A notification bar at the bottom of the main content area shows the message: "Mon Sep 04 2017 11:42:45 [ lhathome-dev ] This computer has reached a limit on tasks in progre".

The bottom section of the interface includes a dropdown menu set to "lhathome-dev", a "Project Commands" button, and an "Add Project" button. Below these are two status indicators: "Client Status: BOINC v7.6.33" and "VBox Status: BOINC v5.1.22r115126", both displayed in green boxes.

# Event Log

Mozilla Firefox  
https://lhcathomedev.cern.ch/lhcathome-dev/netmgr\_test.html

## BOINC WebManager

Theory\_16817\_1503904802.793463\_0  
1.97%

Mon Sep 04 2017 11:41:44 [...] (to change preferences, visit a project web site or select Preference  
Mon Sep 04 2017 11:41:44 [...] gui\_rpc\_auth.cfg is empty - no GUI RPC password protection  
Mon Sep 04 2017 11:41:44 [...] Running CPU benchmarks  
Mon Sep 04 2017 11:41:44 [...] Suspending computation - CPU benchmarks in progress  
Mon Sep 04 2017 11:42:15 [...] Benchmark results:  
Mon Sep 04 2017 11:42:15 [...] Number of CPUs: 2  
Mon Sep 04 2017 11:42:15 [...] 3247 floating point MIPS (Whetstone) per CPU  
Mon Sep 04 2017 11:42:15 [...] 49819 integer MIPS (Dhrystone) per CPU  
Mon Sep 04 2017 11:42:44 [ lhcathome-dev ] Sending scheduler request: To fetch work.  
Mon Sep 04 2017 11:42:44 [ lhcathome-dev ] Requesting new tasks for CPU  
Mon Sep 04 2017 11:42:45 [ lhcathome-dev ] Scheduler request completed: got 0 new tasks  
Mon Sep 04 2017 11:42:45 [ lhcathome-dev ] No tasks sent  
Mon Sep 04 2017 11:42:45 [ lhcathome-dev ] No tasks are available for Theory Simulation  
Mon Sep 04 2017 11:42:45 [ lhcathome-dev ] This computer has reached a limit on tasks in progress

lhathome-dev Project Commands  
Add Project

Client Status: BOINC v7.6.33  
VBox Status: BOINC v5.1.22r115126

# Main Actions

The screenshot displays the BOINC WebManager interface in a Mozilla Firefox browser window. The address bar shows the URL `https://lhathomedev.cern.ch/lhathome-dev/netmgr_test.html`. The page title is "BOINC WebManager".

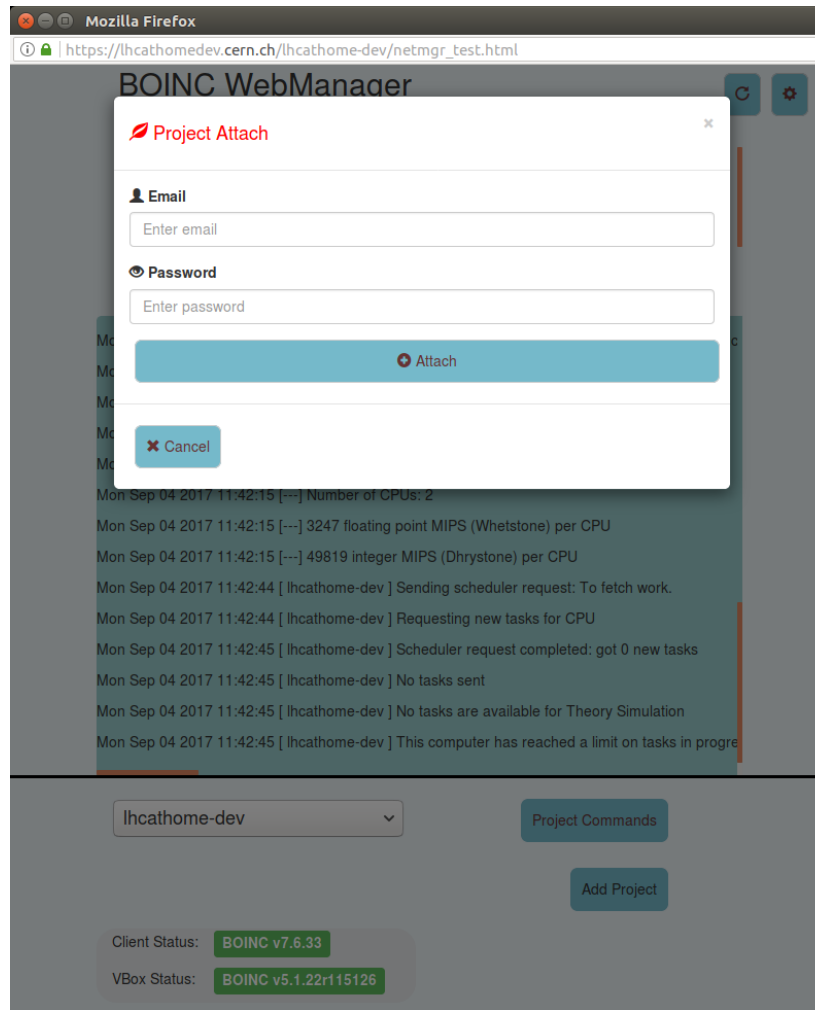
The main content area shows a task titled "Theory\_16817\_1503904802.793463\_0" with a progress bar at 1.99%. Below the progress bar are control buttons for pause, play, and refresh.

A log of system messages is displayed in a light blue box, including:

- Mon Sep 04 2017 11:41:44 [---] (to change preferences, visit a project web site or select Preferenc
- Mon Sep 04 2017 11:41:44 [---] gui\_rpc\_auth.cfg is empty - no GUI RPC password protection
- Mon Sep 04 2017 11:41:44 [---] Running CPU benchmarks
- Mon Sep 04 2017 11:41:44 [---] Suspending computation - CPU benchmarks in progress
- Mon Sep 04 2017 11:42:15 [---] Benchmark results:
- Mon Sep 04 2017 11:42:15 [---] Number of CPUs: 2
- Mon Sep 04 2017 11:42:15 [---] 3247 floating point MIPS (Whetstone) per CPU
- Mon Sep 04 2017 11:42:15 [---] 49819 integer MIPS (Dhrystone) per CPU
- Mon Sep 04 2017 11:42:44 [lhathome-dev ] Sending scheduler request: To fetch work.
- Mon Sep 04 2017 11:42:44 [lhathome-dev ] Requesting new tasks for CPU
- Mon Sep 04 2017 11:42:45 [lhathome-dev ] Scheduler request completed: got 0 new tasks
- Mon Sep 04 2017 11:42:45 [lhathome-dev ] No tasks sent
- Mon Sep 04 2017 11:42:45 [lhathome-dev ] No tasks are available for Theory Simulation
- Mon Sep 04 2017 11:42:45 [lhathome-dev ] This computer has reached a limit on tasks in progre

At the bottom, there is a dropdown menu for "lhathome-dev" with a context menu open showing options: Update, Reset, Detach, Suspend, No More Work, and Detach When Done. Below the dropdown, the Client Status is "BOINC v7.6.33" and the VBox Status is "BOINC v5.1.22r1 15126".

# Join Project



The screenshot shows a Mozilla Firefox browser window displaying the BOINC WebManager interface. A 'Project Attach' dialog box is open in the foreground, featuring an email input field, a password input field, and 'Attach' and 'Cancel' buttons. The background shows a terminal log with system messages and a status bar at the bottom with a dropdown menu set to 'lhathome-dev', 'Project Commands' and 'Add Project' buttons, and client status indicators for BOINC v7.6.33 and VBox Status: BOINC v5.1.22r115126.

Project Attach

Email

Enter email

Password

Enter password

Attach

Cancel

Mon Sep 04 2017 11:42:15 [---] Number of CPUs: 2

Mon Sep 04 2017 11:42:15 [---] 3247 floating point MIPS (Whetstone) per CPU

Mon Sep 04 2017 11:42:15 [---] 49819 integer MIPS (Dhrystone) per CPU

Mon Sep 04 2017 11:42:44 [ lhathome-dev ] Sending scheduler request: To fetch work.

Mon Sep 04 2017 11:42:44 [ lhathome-dev ] Requesting new tasks for CPU

Mon Sep 04 2017 11:42:45 [ lhathome-dev ] Scheduler request completed: got 0 new tasks

Mon Sep 04 2017 11:42:45 [ lhathome-dev ] No tasks sent

Mon Sep 04 2017 11:42:45 [ lhathome-dev ] No tasks are available for Theory Simulation

Mon Sep 04 2017 11:42:45 [ lhathome-dev ] This computer has reached a limit on tasks in progress

lhathome-dev

Project Commands

Add Project

Client Status: BOINC v7.6.33

VBox Status: BOINC v5.1.22r115126

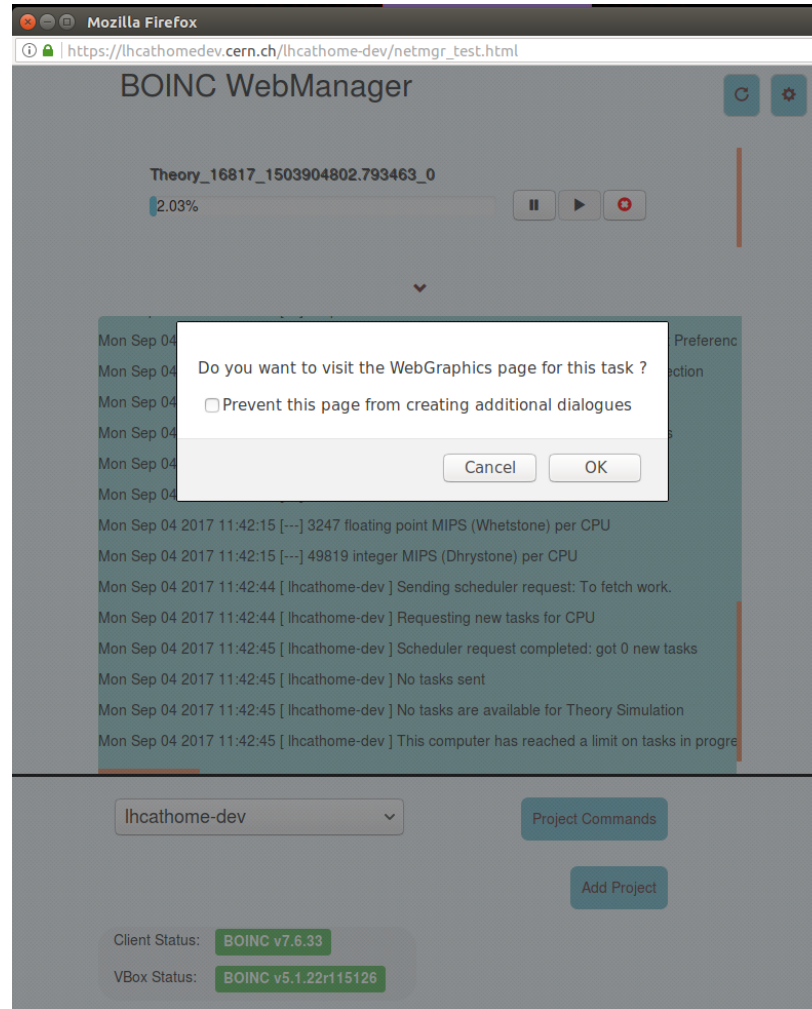
# Task Details

The screenshot shows the BOINC WebManager interface in a Mozilla Firefox browser. The main heading is "BOINC WebManager". Below it, the task name "Theory\_16817\_1503904802.793463\_0" is displayed with a progress bar at 2.03%. A modal window is open, showing the following details:

- Name: Theory\_16817\_1503904802.793463\_0
- State: Running
- Received Time: Mon Aug 28 2017 16:14:04
- Report Deadline: Mon Sep 04 2017 16:14:02
- CPU Time: 00:17:09
- Time Since Last Checkpoint: 00:00:59
- Elapsed Time: 00:21:57
- Estimated Remaining Time: 52:44:05
- Fraction Done: 2.03%
- Virtual Memory Size: 2.29 GB
- Working Set Size: 730.00 MB
- Directory: /slots/0

At the bottom of the modal window is an "OK" button. The background interface includes a dropdown menu set to "lhathome-dev", buttons for "Project Commands" and "Add Project", and status indicators for "Client Status: BOINC v7.6.33" and "VBox Status: BOINC v5.1.22r115126".

# VM Web Port Detection



# The VM Internal View

Test4Theory simulations

Beam: ee  
Process: zhad  
Energy: 183 GeV  
Cuts: -  
Generator: vincia  
Version: 1.0.25\_8.150  
Tune: jeppsson3  
Events: 24000

LOGs

x-axis value	y-axis value (jeppsson3)
-5.0	~2.5 × 10 <sup>4</sup>
-4.5	~2.5 × 10 <sup>4</sup>
-4.0	~2.0 × 10 <sup>4</sup>
-3.5	~1.0 × 10 <sup>4</sup>
-3.0	~0.5 × 10 <sup>4</sup>

Keyboard shortcuts: ← previous image → next image ↑ zoom in ↓ zoom out

Video tutorial

Please, if you find a bug or you think that this application can be improved add an "issue" in the [project repository](#).

5 AGPL 3 Free Software

# Summary

- Prototype client GUI
  - Based on JavaScript and Web Sockets
- Replicated the simple view
  - As a proof-of-concept
- Aiming for “*one click to start*”
  - With VM applications
- Feedback
  - Is this a direction that is interesting?
  - Is anyone else wanting to contribute?