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Rackspace, CERN partner on OpenStack projects

The womb of the web to scale up to 15,000 hypervisors someday

By **Timothy Prickett Morgan**

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Sure, hyperscale data center operators may cope with hellacious big data problems as they spy on everything we do on the intertubes, but what about the poor men and women who have to drink from the data firehose that CERN's Large Hadron Collider spews as it works to rip apart the fabric of space and time? Well, thankfully, they're about to get some help.

CERN has created a division called [openlab](#) [1] that is testbed for emerging technologies that could be useful for researchers as they build their experiments and the IT infrastructure that supports them. Under new a deal between Rackspace Hosting and CERN, openlab will bag a bunch of server nodes, other infrastructure, and people, and work with Rackspace to figure out how to use OpenStack to better manage CERN's systems.

CERN is not new to OpenStack, and in fact it adopted the "Swift" object storage controller (created by Rackspace) as the backend of its storage, even as it was being incorporated into the OpenStack cloud controller three years ago.

The Large Hadron Collider alone generates over 25PB of data per year from the particle-smashing experiments it does while seeking out the Higgs boson and the fundamental forces that drive the universe. In fact, John Engates, CTO at Rackspace, tells *EI Reg* that CERN actually generates more data than that, but ends up dumping a bunch of it because it doesn't have the means to store it all.

In the video clip below, CERN's IT infrastructure manager Tim Bel says that over the long haul the research organization will need a distributed set of systems that have on the order of 15,000 hypervisors to support its various workloads, which is a pretty hefty bunch of virtualized servers – but not on the same scale as a Google data center, mind you, with its 100,000 server nodes.

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Under the agreement that Rackspace and CERN have knocked out, Rackspace is dedicating one full-time employee to openlab to work with a handful of CERN techies to figure out how OpenStack might be used to bring all of the disparate data centers and systems affiliated with CERN under one control framework.

"They are also looking at OpenStack as a way to put APIs on the front of their supercomputers," says Engates. If OpenStack gets better at bare-metal provisioning – it has a ways to go – this could be a significant help to all HPC centers, who are generally loathe to put a virtualization layer between their applications and the raw iron because of the performance overhead penalty it imposes. Then again, CERN's IT manager was already counting how many hypervisors he would need at some point in the future to support the organization's workloads, so it looks like CERN will be virtualizing at least some of its work on its clusters.

Rackspace will contribute its own OpenStack distribution, embodied in its hybrid cloud offering and related services, under the deal. To get going, CERN is scrounging around to steal two dozen server nodes from various labs to get a proof-of-concept cloud together. This prototype OpenStack cluster will then be linked to the Rackspace public cloud in London, with the goal of figuring out how to federate the local and remote cloudy systems to share workloads.

For its part, Rackspace is excited to be getting into the HPC racket.

"We have never really played in research, higher education, and other technical spaces," says Engates, "but we are getting traction now, thanks to OpenStack." ®

Links

1. <http://openlab.web.cern.ch/>

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