

CUSTOMER CASE STUDY

PURDUE UNIVERSITY

Purdue uses Rackspace® OpenStack® Private Cloud to run big data analytics and equip students with the big data skills used by leading web-scale companies.

BUSINESS

A public research university located in West Lafayette, Indiana with the oldest computer science department in the United States.

CHALLENGES

Needed a cloud platform to power a curriculum that provides students with cutting-edge data analytics skills and prepares them for real-world jobs at leading tech companies.

SOLUTION

Rackspace OpenStack Private Cloud

OUTCOME

Purdue has built two separate courses using their OpenStack private cloud, which allows students and faculty to quickly spin up new server clusters, work across different operating systems, and access the latest technology on a semester-by-semester basis.



Purdue University is home to the oldest computer science program in the country. A few years ago, a computer science researcher at Purdue was awarded a grant from Intel to add big data technology to the school's undergraduate database curriculum.

This excited the faculty and staff for a number of reasons. Over the last decade, Purdue has produced more engineering students than any other institution in the U.S., and the faculty is constantly looking for new ways to ensure the school is offering courses in the latest and most cutting-edge technologies and preparing its graduates for the real world.

As a land-grant institution, which Purdue has been designated since its establishment in 1869, the university has an obligation to contribute to the workforce and have a positive impact on the local and national economy. Producing graduates well-versed in big data meant developing students with real-world skills that leading tech companies are actively seeking.

"The operations and expertise we have received from Rackspace is fantastic."

**AMIYA MAJI, SCIENTIFIC APPLICATION ANALYST,
PURDUE UNIVERSITY**

To provide students with the necessary hands-on experience, a cloud platform was clearly a must, but the faculty wasn't sure which one to use. They ultimately chose an OpenStack private cloud due to its flexibility and the fact that Rackspace would operate it with a 99.99% uptime guarantee.

The faculty then created a curriculum which would become the basis for two courses the university offers today. The first course covers the development of software using database systems and the second, which is more specialized in nature, teaches students how to build a database engine.

A NEW CLUSTER FOR EVERY SEMESTER

Flexibility is a huge asset for all educators, and for Aaron Rogers, the TA who has been teaching the undergraduate big data course at Purdue, the flexibility OpenStack offers has been a dream come true.

"At the beginning of every semester, I can spin up a new cluster of virtual machines, install these big data tools, and give students access to the cluster," Rogers said.

"This gives us a tremendous amount of flexibility and allows us to create a clean environment for the students every semester," he said.

The tools the students are using are also under heavy development, and by spinning up new environments for them to utilize, students get access to the latest tools and technologies. Some 200 students have already undergone at least one of the courses, and Rogers estimates 86,000 server hours have been used/logged since the courses' inception.

"Feedback in the labs has been great," Rogers said. "Students are excited to get hands-on with the tools and then go compete in the workforce – and it is competitive – we're giving them a real leg up when they go to a web-scale company and try to get a job."

"Rackspace helped us during the development phase of the labs. We needed a lot of iterations to redesign, tweak our labs, change it. So I think Rackspace provided us with flexibility in terms of reconfiguring, redesigning, and it made the development quite smooth."

WALID AREF, PROFESSOR OF COMPUTER SCIENCE, PURDUE UNIVERSITY

OPENSTACK PRIVATE CLOUD DELIVERED AS A SERVICE

Rackspace worked with Purdue to architect and deploy their OpenStack private cloud. Once it was live, ongoing support and maintenance remained part of the equation.

The fact that Rackspace was on-hand 24x7x365 from initial deployment to the day-to-day cloud operations was not lost on Purdue's Scientific Application Analyst Amiya Maji.

"We needed that expertise and a structured approach from someone who had previous experience," Maji said.

Maji and others continue to be impressed by the ongoing support and operations they receive from Rackspace and described it as a friendly relationship marked by prompt, informative responses.

"I've gotten a lot of nice responses from Rackspace," Maji said.

"Very informative, very precise, and it specifically covers the information I need to know or what I had asked for."

Moving forward, Purdue sees OpenStack in a continuing role as the engine driving big data studies, but some are looking to harness its power for research as well. Because the university is a research institution, the OpenStack platform could play a key role in future experimentation and analysis.

"We've been successful in using OpenStack to educate the students, but my colleagues and I would also like to put it to use for research," said Professor Walid Aref, who also teaches big data courses at Purdue.

"Rackspace gives us great flexibility in the operating systems we use, the tools we install, it's so fast and so painless. We jump from OS to OS. We can install whatever tools we want."

AARON ROGERS, GRADUATE STUDENT AND TA, PURDUE UNIVERSITY

"Rackspace has made this easier," he said. "Because scientists like to focus on the science and not the technology, Rackspace support lets us focus on our research and less on the administration side of the stack, which is quite important."

ABOUT RACKSPACE

Rackspace, the #1 managed cloud company, helps businesses tap the power of cloud computing without the complexity and cost of managing it on their own. Rackspace engineers deliver specialized expertise, easy-to-use tools, and Fanatical Support® for leading technologies developed by AWS, Google, Microsoft, OpenStack, VMware and others. The company serves customers in 120 countries, including more than half of the FORTUNE 100. Rackspace was named a leader in the 2015 Gartner Magic Quadrant for Cloud-Enabled Managed Hosting, and has been honored by Fortune, Forbes, and others as one of the best companies to work for.

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