



Success Story

Cloud Computing

Changchun University of Technology

With cloud computing growing in importance for organisations of all kinds, CCUT wanted to ensure that its students gained skills in creating and running cloud services. The university is using SUSE® OpenStack Cloud and SUSE Linux Enterprise Server to run a private cloud that supports not only multiple test and development environments for students but also a major online examination platform. The SUSE solutions also save floor space and reduce power consumption at CCUT.



Overview

Founded in 1952, Changchun University of Technology (CCUT) is a key university of Jilin Province in China. Offering undergraduate and postgraduate degrees in arts and sciences, science, law, business management, economics, and education, the university's curriculum is specially designed to emphasise the technological aspects of these fields of study. CCUT has a total enrolment of 16,000 full-time students and 880 faculty members.

Challenge

CCUT conducts a broad range of research around cloud computing and big data processing, and always aims to adopt cutting-edge products from leading vendors. This strategy ensures not only that students have the best tools available for their research, but also that they gain useful hands-on skills that will aid them in their

future academic or commercial careers. In the past, the university provided a large number of different PCs for student use, each of which might have multiple different operating systems installed on it. Managing these varied systems and keeping them running efficiently was a major drain on administrator resources.

Jianwei Guo, Lecturer at the College of Computing at CCUT, said: "So that we could provision test and development environments to students faster and more efficiently, we set out to create a private cloud. This would also provide students with valuable experience in building and administering cloud environments."

Solution

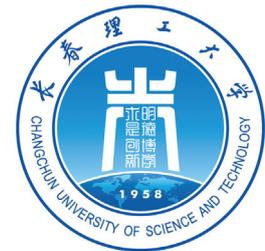
After reviewing several options, CCUT decided to deploy SUSE OpenStack Cloud, which provides all of the virtualised compute, networking and storage components required to create and manage private clouds.

"Our previous experience with SUSE Linux Enterprise Server gave us confidence that SUSE OpenStack Cloud would be reliable and easy to manage," said Jianwei Guo. "The environment is very comprehensive, and includes tools for backing up and migrating data, as well as the integrated Xen virtualisation technology."

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JIANWEI GUO

Lecturer, College of Computing
Changchun University of Technology



Changchun University of Technology at a Glance:

Changchun University of Technology (CCUT) is a key university of Jilin Province in China, offering undergraduate and postgraduate courses to 16,000 full-time students.

■ Industry and Location

Education, China

■ Products and Services

SUSE Linux Enterprise Server
SUSE OpenStack Cloud

■ Results

- + Saves on external support costs with rapid recovery in the event of unplanned outages
- + Cuts floor space, power and cooling requirements with a consolidated IT infrastructure
- + Reduces administration time with a unified management interface
- + Minimises need for maintenance with a stable deployment of Xen virtualisation on SUSE Linux Enterprise Server

“Using SUSE Linux Enterprise Server with Xen virtualisation keeps everything stable and minimises the need for maintenance.”

JIANWEI GUO

Lecturer, College of Computing
Changchun University of Technology

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CCUT is currently running SUSE OpenStack Cloud on SUSE Linux Enterprise Server across 15 physical servers. The organisation's private cloud is used to provide sandbox environments to computing students and also to support research projects and host course materials. New virtual machines can be fired up in a matter of minutes, and because they run on the central servers, there is effectively no incremental cost to the university.

“We are now using SUSE OpenStack Cloud to host our experimental courses in computing,” says Jianwei Guo. “Previously, students were using environments created on multiple different machines and managed in different ways. Now, we have a centralised and standardised environment for setting up virtual machines, and all students connect to them via RDP from any other machine. This ensures greater reliability and efficiency while also simplifying system administration.”

In the past, CCUT had experimented with using a private cloud environment based on Red Hat Enterprise Linux, but had encountered problems when restarting domains after unexpected shutdowns. “We do not have a guaranteed power supply like a commercial data centre,” says Jianwei Guo. “If we needed to restart after a power cut, it used to be slow and difficult, and we needed to rely on support from outside China. With SUSE Linux Enterprise Server and SUSE OpenStack Cloud, we no longer experience disruption of this kind.”

Results

SUSE OpenStack Cloud provides a flexible private cloud at CCUT that supports multiple different student environments on a centralised platform. The university saves on floor space, power and cooling, because it can run multiple environments efficiently on the same centralised hardware, achieving higher utilisation than in the past. A unified management interface makes it fast and easy to set up new virtual environments, and web-based management cuts administration time and support costs.

“The management interface for SUSE OpenStack Cloud is very user-friendly, and we have automated the creation of new virtual machines to accelerate the process,” says Jianwei Guo. “Using SUSE Linux Enterprise Server with Xen virtualisation keeps everything stable and minimises the need for maintenance.”

CCUT is also using SUSE OpenStack Cloud on a server for student feedback tools, which offer 16,000 students the ability to evaluate the teaching they receive. “Our experience suggests that the SUSE technology is fully ready for production in commercial environments,” says Jianwei Guo. “Using the solution and working with each component is giving our students an excellent foundation in the principles of cloud architecture, design, deployment and administration. This practical knowledge will certainly help them in their future careers.”



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