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Why Singapore’s Yale-NUS College is using Red Hat technology

And how a team of just nine will run the college of 1250 staff and students.
The new Yale-NUS College in Singapore wants students to have a liberal arts experience that stands out in the region. The IT team running the college’s systems need to find novel ways to enable new digital solutions. Here’s why the college is working with open source provider Red Hat to find the solutions.

Yale-NUS wants to minimise wastage and increase flexibility, and run as a “lean institution”, Darwin Gosal, Senior Manager for IT Infrastructure and Services, told FutureGov.

The college, which was set up by Yale University and National University of Singapore, has 300 students now, but will ultimately have 1000 students and 250 staff supported by just nine IT staff. And the IT setup needs to be just as lean as the team.

Researchers, students and administrators will all use the same pool of computing resources, Gosal said. In a traditional university set up, the IT systems used for scientific research are separate from those used for teaching and administrative purposes. But for a “lean institution like ours we don’t have the luxury of two completely different data centres”, Gosal said.

When a class needs to be taught, the IT team can scale down background research systems and create a virtual environment that students can log on to using their own laptops.

Even when there are consecutive lessons, it’s easy for the team to tear down the existing virtual systems and bring up new ones since all the resources are sitting on cloud, Gosal said.

The college’s use of cloud technology is also different from how others’, he added. “We are heavy on using
public cloud infrastructure,” he said. It uses a private cloud setup by Red Hat, but “we do understand that to be economically competitive, we cannot just rely purely on our own private cloud. So we are using public cloud as well,” Gosal said.

To be able to run all these systems with as few people as possible, without needing to train them additionally, the college decided to go with open source Linux systems for all their infrastructure. They were looking for a single operating system which would be able to handle all the hardware they have, and “there is no solution out there other than Linux” to achieve this, Gosal believes.

The college was already biased towards open source, however. “We have a strong preference for choosing open source solutions”, Gosal said, because it provides the choice to set up the systems on their own or use the services of a vendor like Red Hat.

The team decided to go with Red Hat because “we are running enterprise applications and there is a certain level of reliability” from using their services since IT is run by a small team, he said.

One challenge was coming up with metrics to measure the performance of the systems, Gosal shared, since the college was set up in just 2013 and did not have any previous systems to compare to. The team is benchmarking itself against “major players in cloud infrastructure”. “We are trying to build infrastructure that is comparable with their level of agility,” he said.

The team started working with Red Hat in December, and expects to complete work in May.

Gosal estimates the budget to be S$500,000 (US$365,791). The training costs are “not a lot” because the staff are well-versed in Linux and do not have to pick up any other technology.

The college has been running for less than two years, but already it is ambitious about serving its students and staff, while keeping costs low and operations clean.

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Medha is a journalist based in our Singapore office, specialising in Open Government and public administration in South and Southeast Asia. Originally from Calcutta in India, she studied Economics at the National University of Singapore.

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