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## Cloud to power research number-crunching

By [Victoria Ho](#)

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**SINGAPORE--The cloud will pave the way for more educational institutions to get compute muscle needed for research efforts, a leading local researcher has predicted.**

Francis Lee, vice chairman of research at Nanyang Technological University's (NTU) school of computer engineering, said research efforts require an insatiable amount of compute resources, but are typically hampered by limited funding with which to build larger data centers.

Speaking Wednesday at a media presentation hosted by Hewlett-Packard, Lee noted more institutions are banding together to help reach the economies of scale provided by the likes of large cloud infrastructure providers.

HP Labs' director Christopher Whitney pointed out that providers such as [Amazon](#) with its EC2 service, possess the scale to offer customers prices as low as **10 cents per hour**. In contrast, NTU's own smaller grid would only be able to offer a comparable service at US\$2 to US\$3, he said, describing the difference in scale.

A larger grid infrastructure provided as a service would offer institutions the compute power at a lower price, Whitney added.

According to NTU's Lee, the prohibitive cost of a cloud project stems from not only hardware required to power an internal cloud, but VMware licenses as well.

NTU, he noted, is currently running a testbed on open source [Xen virtualization](#). VMware, however, is preferred to power the school's public cloud for its students, because VMware's [virtualization management tools](#) provide "more flexibility", he added.

"We can tinker around with Xen, but virtualization management is the differentiator," said Lee.

Lee added that older distributed computing setups such as on-campus grids or even the [SETI@Home project](#) are insufficient for research efforts because they lack the flexibility required by multiple users and more complex computations.

Projects such as SETI@Home, he explained, are "only suitable for workloads", where a single task can be "chopped up" into chunks of distributed tasks. Such parallel processes are unsuitable for

### Cloud momentum gathering in S'pore

HP released Wednesday research indicating 50 percent of Singapore technology decision-makers have implemented or are planning to embark on cloud computing initiatives within the next 12 months.

In a poll of 100 technology executives, six out of 10 cited reduced operating cost as the most appealing benefit of cloud computing.

The biggest adoption barriers were lack of familiarity with cloud computing technology, upfront cost of implementation and incompatibility with existing systems.

Only 8 percent said they would rely solely on a public cloud; most said they would deploy a private cloud or take a hybrid approach, citing security as the main reason to keep a private setup.

research efforts supporting different users and cannot handle different projects at once, he said.

Citing the [Open Cirrus](#) initiative, a joint effort to build a cloud-computing research testbed, Lee said such collaborations are becoming the backbone of research efforts.