

Hotter might be better at energy-intensive data centers

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New research examines the issue of temperature management in data centers, and suggests that allowing warmer temperatures than are normally recommended might be justifiable.

As data centres continue to come under scrutiny for the amount of energy they use, researchers at University of Toronto Scarborough (UTSC) have a suggestion: turn the air conditioning down.

"We see our results as strong evidence that most organizations could run their data centers hotter than they currently are without making significant sacrifices in system reliability," says Bianca Schroeder, a UTSC assistant professor of [computer science](#).

As data centres have proliferated they have required more energy, accounting now for about 1 percent of global [electricity usage](#). A sizeable fraction of that is the cooling necessary to keep the machinery functioning properly.

But in a paper called Temperature Management in Data Centers: Why Some (Might) Like It Hot, Schroeder and her UTSC colleagues found that warmer temperatures than are normally recommended might be able to save energy without negatively impacting equipment reliability and [longevity](#).

Data centres typically operate at temperatures from 20C to 22C. Estimates show that just 1 degree increase in temperature could save 2 to

5 percent of the energy the centres consume. Schroeder says that most data centres could probably increase temperatures much more than that.

To conduct the study, the researchers collected data from data centres run by [Google](#), Los Alamos National Labs, and others. They also directly tested the effect of [temperature](#) on equipment performance in their lab. Their data showed that higher temperatures either weren't associated with negative effects on the equipment, or else the negative effects were smaller than predicted.

More information: The paper can be found here dl.acm.org/citation.cfm?id=2254778. It was presented at the ACM Sigmetrics conference in London in June.

Provided by University of Toronto Scarborough

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