BREVET DE TECHNICIEN SUPÉRIEUR
SERVICES INFORMATIQUES AUX ORGANISATIONS

SESSION 2017

SUJET

ÉPREUVE E 1- CULTURE ET COMMUNICATION
Sous-épreuve U12 - EXPRESSION ET COMMUNICATION EN LANGUE ANGLAISE

Durée : 2 heures **Coefficient : 1**

Matériel autorisé : DICTIONNAIRE UNILINGUE

CALCULATRICE NON AUTORISÉE POUR CETTE ÉPREUVE

Dès que le sujet vous est remis, assurez-vous qu'il est complet.
Le sujet comporte 4 pages, numérotées de la page 1/4 à 4/4.

Datacentre cooling upgrades: Helping operators decide where best to invest

Installing datacentre cooling used to be relatively straightforward, with the onus[1] being on ensuring there were sufficient cooling units in place to keep the tin running effectively, if not always in the most cost-efficient way.

According to a recent Emerson Power Systems survey, half of all US datacentres are on course to have their cooling systems upgraded over the coming 12 months, while around 40% have already undergone a refresh sometime in the past five years. The Emerson survey is sticking to the idea that air cooling is the way forward for most facilities, and that's before you consider the possibility that some companies opt out of running on-premise datacentres altogether and move to cloud. However, given the huge advances that have occurred in cooling technology over the past five years or so, operators would be well-advised to investigate what other options are available to them.

The industry has come a long way since the early days of liquid cooling. The arrival of total immersion technology – where equipment is hermetically sealed from the surrounding liquid – is certainly proof of that, and has had a transformational effect on the philosophy of datacentre cooling, for example. Whether or not they choose to take advantage of this opportunity depends on if they are prepared to redesign their datacentre from scratch, or would prefer to build on what is already there.

Quocirca senior analyst Clive Longbottom says there are various factors influencing this choice. For example, he says the use of a total immersion system enables organisations to make the most of high-performance computing (HPC).

"With some of these high-performance processes, the chips can get really hot, by using these types of total immersion solutions, you can really over-clock the system," says Longbottom. On the other hand, there are cost-effective, air cooling-based systems that offer a credible alternative.

Another cost-effective option is to deploy an evaporative cooling-based adiabatic system, which relies on water as a cooling mechanism. The system works by evaporating water (in its normal, liquid state) and using the resultant water vapour to cool the ambient air. [...]

While air has its adherents, like Virtus, the use of total immersion technology, such as the one being offered by Iceotope, offers a new dimension entirely. Not only does it provide

[1] onus : responsibility

the means for HPC, but the heat generated can also be reused. Wider use of total immersion technology could have big ramifications for the way datacentres are constructed, or even pave the way for them to become entirely extinct. This is no idle fantasy, because doing away with all the paraphernalia[2] associated with cooling means there is no longer a need to house servers, storage and racks in a dedicated building any more.

As Quocirca's Longbottom points out, "Iceotope products are totally self-contained, there's no splashing about - they look like chest freezers."

Iceotope founder and technology director Pete Hopton agrees: "If you look at the traditional datacentre, it costs an awful lot to kit out with all the bits of paraphernalia that you need.

"Thinking about it, a datacentre is almost like kitting out[3] a clean room : the need for well-regulated air conditioning with all the ducts that are required. With us, it's just a box in a corner of the office," he says.

What this means is that not only are there no cooling issues, but also no problems with noise (as the servers are contained within the liquid), as well as no requirement to filter air, meaning the equipment can be housed in much dirtier environments. That's not to say that there are not concerns with this approach. As Longbottom points out, Iceotope has to be highly engineered and there is little economy of scale.

Having said that, the Iceotope approach could transform the way datacentres will be run. There's a paradox here: does the datacentre of the future mean that there's no actual need for a datacenter? If it does, then a whole lot of thinking about corporate infrastructure will have to change.

Max Cooter, *Computer Weekly*, July 8, 2016

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[2] paraphernalia : equipment
[3] kit out : equip

QUESTIONS

PREMIÈRE PARTIE *(10 points)*

Vous rédigerez **en français** un compte rendu du texte.
Votre compte rendu devra comprendre une brève introduction qui indiquera la source et le thème du document. Vous synthétiserez et reformulerez les idées essentielles du texte.
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Vous êtes Alan /Julia Parson, consultant en informatique.
George Anderson, le directeur d'une start-up, vous contacte car il s'interroge sur les meilleures façons de stocker les données de son entreprise.
Vous lui adressez une note dans laquelle vous lui présentez les différentes solutions envisageables en précisant leurs avantages et leurs inconvénients.
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