



**LE RÉSEAU DE CRÉATION
ET D'ACCOMPAGNEMENT PÉDAGOGIQUES**

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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

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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.

BTS – Services informatiques aux organisations	SESSION 2017	
Épreuve E1 – Culture et communication. Sous-épreuve U12 - Expression et communication en langue anglaise.	SUJET	
17SIE1ANG-ME AGP-1	Coefficient : 1	Page 1/4
	Durée : 2 heures	

Datacentre cooling upgrades: Helping operators decide where best to invest

Installing datacentre cooling used to be relatively straightforward, with the onus¹ 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.

5 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
10 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
15 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
20 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.

25 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

BTS – Services informatiques aux organisations	SESSION 2017	
Épreuve E1 – Culture et communication. Sous-épreuve U12 - Expression et communication en langue anglaise.	SUJET	
17SIE1ANG-ME AGP-1	Coefficient : 1	Page 2/4
	Durée : 2 heures	

30 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 paraphernalia² associated with cooling means
there is no longer a need to house servers, storage and racks in a dedicated building any
35 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
40 you need.

"Thinking about it, a datacentre is almost like kitting out³ 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
45 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.

50 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

² paraphernalia : equipment

³ kit out : equip

BTS – Services informatiques aux organisations		SESSION 2017	
Épreuve E1 – Culture et communication.		SUJET	
Sous-épreuve U12 - Expression et communication en langue anglaise.		Coefficient : 1	Page 3/4
17SIE1ANG-ME AGP-1		Durée : 2 heures	

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.

Une brève conclusion personnelle qui dégage l'intérêt du document dans une perspective professionnelle sera valorisée.

(200 mots +/- 10 %) *Vous indiquerez impérativement le nombre de mots utilisés.*

DEUXIÈME PARTIE (10 points)

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.

Vous rédigerez la note **en anglais**.

(200 mots +/- 10 %) *Vous indiquerez impérativement le nombre de mots utilisés.*

BTS – Services informatiques aux organisations	SESSION 2017	
Épreuve E1 – Culture et communication.	SUJET	
Sous-épreuve U12 - Expression et communication en langue anglaise.	Coefficient : 1	Page 4/4
17SIE1ANG-ME AGP-1	Durée : 2 heures	