TAKING THE HEAT OUT OF DATA CENTRE COOLING

ExuviB

The data centre marketplace is crowded with new and emerging technologies claiming to offer a panacea for some of the principal challenges faced by the industry, namely the need to improve efficiency, and to run more powerful servers at a time when energy costs are spiralling.

Although manufacturers may claim that their products improve performance and / or efficiency and promise reductions in OpEx spending, there is little *objective* data to confirm how these technologies might bear up to closer scrutiny.

Rather than generalised findings, what end users are really interested in is how new technologies might perform under the *specific* conditions for which they are required, whether they can be integrated with legacy equipment, and their compatibility with hardware and software.

Given that the burden of increased manufacturing costs is also being passed on to the end user, clients have never been more aware of the potential impact of choosing the wrong products, particularly when these may be unproven.

Acknowledging the concern with evidence-based procurement and increasing emphasis on ROI, we have recognised that there is an appetite for independent research - in the form of Proof of Concept studies - that will help clients mitigate the risk of choosing the *wrong* technology.

Involving the design and implementation of small-scale test environments which mirror the conditions required by the client, POCs can facilitate performance evaluation and assess compatibility of different hardware and software applications. Equipped with robust empirical data that is specific to the business conditions defined by the client, this can help identify whether the technologies under consideration can be scaled-up to meet their business requirements.

Applying a variation of the Design for Six Sigma methodology, our approach is to 'design by fact'; in other words, by establishing the relationship between evidence and conclusions.

An example of how it works

A client wishes to build a 200kW high performance compute suite to support one of its buisness units. It also has other data centre upgrade and new build projects in the pipeline. It is interested in how immersion cooling might work in terms of server performance, energy efficiency, and ROI but is reluctant to commit its budget without confirmation that the technology can meet its business requirements.

Define phase

We will undertake a scoping exercise to establish where the business is currently at, where it is hoping to go within given timeframes, and any critical to quality questions that need to be translated into measurable product and process requirements.

Design & implementation phase

From here, we would be able to identify particular technologies to be integrated into a small-scale test environment, replicating the conditions required by the client. Being vendor-agnsotic, we work with a range of partners and manufacturers across the data centre supply chain which are willing to provide demonstration and discounted products for testing.

Measurement phase

Robust testing methodology is used to measure against strictly defined performance criteria. This involves applying defined upper and lower specification limits / acceptable parameters for each business process.

Analyse

Data is then organised into functional categories to enable the interrogation of technology capability against performance criteria. This will facilitate comparison of results from different solutions, and with baseline data.

Verify

Working with the client, we undertake an assessment of any variables, interrelationships, compatibilities, achievements, and limitations, as well as lessons learned.

Test options start at 10kW and can be scaled up to 200kW. With an optimum test period of 6-12 weeks, this will illustrate scalability of solutions, and provide end users with enough information to determine whether technologies and solutions meet performance criteria. This is also ample time to assess deployment implications, including those relating to maintenance and health and safety.