

Nominee: Asperitas

Nomination title: The Datacentre of the Future

Asperitas launched the Immersed Computing® at the Cloud Expo Europe in London in March of this year. Immersed Computing® is a concept driven by sustainability, efficiency and flexibility.

The datacentre industry is at the peak of its growth. New datacentres are continuously being built and the challenges for datacentres are growing as fast as the industry itself. This growth is accompanied by a high demand for high density datacentres and cloud platforms. The main cause of the increasing demand is the Internet of Things (IoT), big data and a global move to cloud based computing.

Immersed Computing® embraces the most efficient model for operating IT, Total Liquid Cooling, which reduces the energy footprint of IT alone with 10-45% by eliminating fan energy. It allows for warm water cooling which provides even more energy savings on cooling installations.

Total Liquid Cooling by completely immersing the IT components in liquid. With Total Liquid Cooling there is hardly any energy loss and IT equipment is made very energy efficient, eliminating kinetic energy (fans) from being used by the IT. Since water conducts electricity, an intermediate dielectric substance is required which requires forced or convective transfer of heat. This dielectric can be oil or chemically based. The infrastructure and power advantages are maximised with this approach and the energy footprint is fully optimised.

In addition to this, the technology uses natural convection, resulting in a strong decrease in the required amount of cooling systems.

In July Asperitas presented a vision on the datacentre of the future including innovative datacentre design concepts. The vision is focused on the energy transformation to usable heat and flexible deployment where heat is required in a larger scale, with constant heat demand. Datacentres can also be placed as a separate building in residential and industrial areas.

This creates the potential for a connected datacentre web consisting of mainly two types of datacentre environments.

- Core Datacentres

- **Micro Edge Datacentres**

The micro data centers optimally don't require any overhead installations for cooling or no-break systems. The cooling of the servers is facilitated by sourcing cold water from the heat user, thus creating a synergy between different industries. Due to the minimised overhead, these nodes can be deployed in large quantities near or within network hubs for urban or office areas or even as part of a non-data center facility which can directly benefit from the reusable heat. This allows for fast network access and simple energy reuse.

Asperitas is currently working on several projects in Europe aiming to contribute to the most sustainable datacentre developments. Our vision is that datacentres could be truly sustainable and transform themselves towards energy producers with Immersed Computing®. Asperitas is taking a leading role in projects to make use of the full innovation and sustainability potential in the first Immersed Computing® deployments.

Asperitas has been nominated since the launch of Immersed Computing® for various industry awards: Datacloud Europe (Best Energy Solution 2017), DCS awards (Datacentre Facilities Innovation the Year), Ecosummit 2017 (green and smart startup), Accenture Innovation Awards (Clean & Affordable Energy and Circular Economy categories), Frisse Dingen Award 2017 (Sustainable Innovation), KIJK Magazine (Best Tech Idea 2017).

Quality Mark: Frisse Dingen for sustainable innovations contributing to the energy transition.

Memberships: Green IT Amsterdam, Datacentre Alliance, European Technology Platform for High Performance Computing (pending).

Startup competitions: Asperitas has been selected as an innovative European startup by leading startup platforms and events like: Websummit 2017, Bits & Pretzels 2017 and EU Utility Week 2017.

Asperitas has been working with an ecosystem of around 20 advisory, technology, development and commercial partners like: University of Leeds, Aircraft Development and Systems Engineering (ADSE), Brink Industrial, Aqualectra, Super Micro, Total and Schleifenbauer. Asperitas is recognised and supported by the Netherlands Enterprise Agency as a promising new Cleantech company.

Why nominee should win

Since the launch in March 2017 Asperitas has received much recognition and interest from various angles. Varying from Award Nominations and publications to concrete projects where Immersed Computing® will change the way datacentres are operating currently.

In a world where sustainability and circularity is becoming vital, because of the increase of the Internet of Things (IoT), big data and a global move to cloud based computing, Immersed Computing® is the solution that can make a difference by reducing the energy footprint and reuse of heat scenarios can be deployed.