



Immersion Cooling, High Performance Cooling for HPC.

The design of modern HPC centers is mostly dictated by legacy constraints, both in terms of hardware and of the infrastructure necessary to host and keep the machinery running in a safe operational environment.

The time it takes to prepare the server halls, the space wasted due to power dissipation limits imposing a sparsely populated setup and the sheer amount of electricity required just to cool down the hardware all greatly impact on the TCO of anyone in need of HPC capabilities.

But what if there was a better way that would allow everyone to consume less energy, save space and be, therefore, more eco-friendly? An option that would allow those building data centers to decrease capital costs and allow their customers to deploy any type of IT hardware in a faster, easier, safer and more scalable way?

We, at Submer Immersion Cooling, believe we have developed such a solution through our revolutionary SmartPod technology, which leverages our uniquely designed synthetic liquid, the SmartCoolant, and its Cooling Distribution Unit (CDU) companion to achieve an unprecedented level of:

- Energy efficiency by consuming up to less than 50% of an air cooled data center thus reaching a Power Usage Effectiveness (PUE) coefficient of <1.03 ;
- Density due to a dissipation capacity of over 50 kW in the space of two standard racks, therefore saving $> 85\%$ of physical space;
- Eco-friendliness not only due to the energy and space saved but also thanks to the biodegradable liquid solution which not only cools the servers but can also transport the heat efficiently, to be easily reused for other purposes.

Our product is also modular and composable, for a much faster deployment, scalability and servicing of any size of installation.

Born of HPC and made for HPC: we developed our solution using extensive CFD analysis to ensure a homogeneous operating environment for all components of a server, with $3C \leq \Delta T \leq 5C$, thus providing a uniform and protected medium for the machines to compute in.

Our SmartCoolant is kind to the environment and kind to hardware, extending hardware life by $>80\%$.

With concrete plans to “scale-out” and “scale-up” our Immersion Cooling solution, from anything to containerized edge deployments to complete data centers, we firmly believe we are addressing the most pressing needs of HPC centers around the



globe, by enabling them to produce valuable scientific discoveries in a faster, cheaper and more environmentally friendly way.