

European Exascale System Interconnect & Storage

www.exanest.eu

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What ExaNeSt is all about:

System architecture for Exascale and datacentric HPC

- Fast, distributed *in-node* non-volatile-memory **Storage**
- Low-latency *unified* **Interconnect** (compute & storage traffic)

Extreme compute-power density

- Advanced *totally-liquid* **Cooling** technology (ICEOTOPE)
- Scalable packaging for 64-bit ARM-based Microservers

Real scientific and data-center applications

- Applications used to identify system requirements
- Tuned versions will evaluate our solutions

System prototype used for real-life evaluations

- Interconnect + storage + compute + applications
- *1000+* ARM cores in 3 liquid-cooled chassis



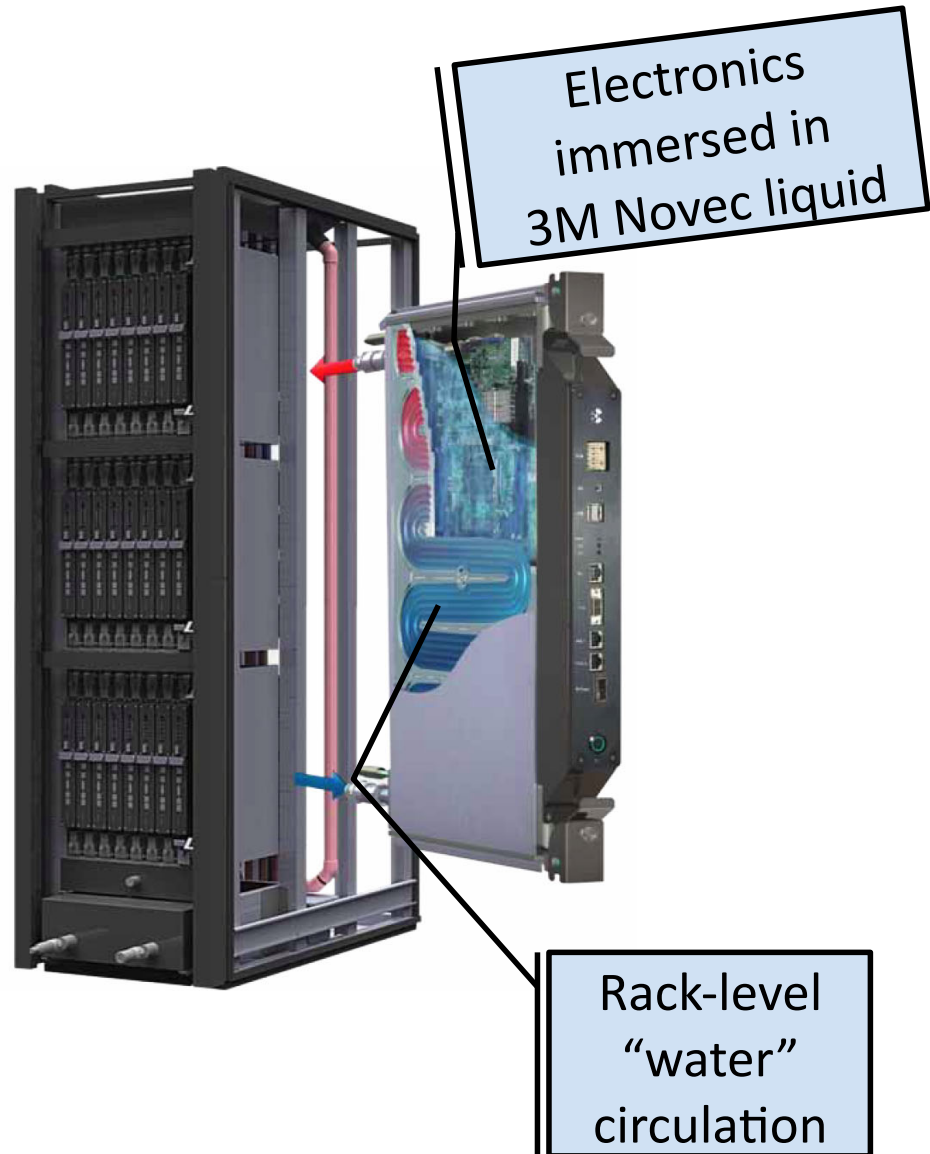
Racks using total liquid cooling

ICEOTOPE current solutions

- Immersed liquid cooled systems based on convective cells
- 60 kW per rack
 - 800 W per blade

Enhancements planned during ExaNeSt

- Next generation Iceotope cooling technology
- target up to 240 kW/rack



Collaborations with:

EuroServer: Green Comp. Node for European μ Servers (2013-2016)

- UNIMEM address space model among ARM compute nodes
- Storage and I/O shared among multiple compute nodes

ExaNoDe: European Exascale processor-memory Node Design

- ARM-based Chiplets on silicon Interposer

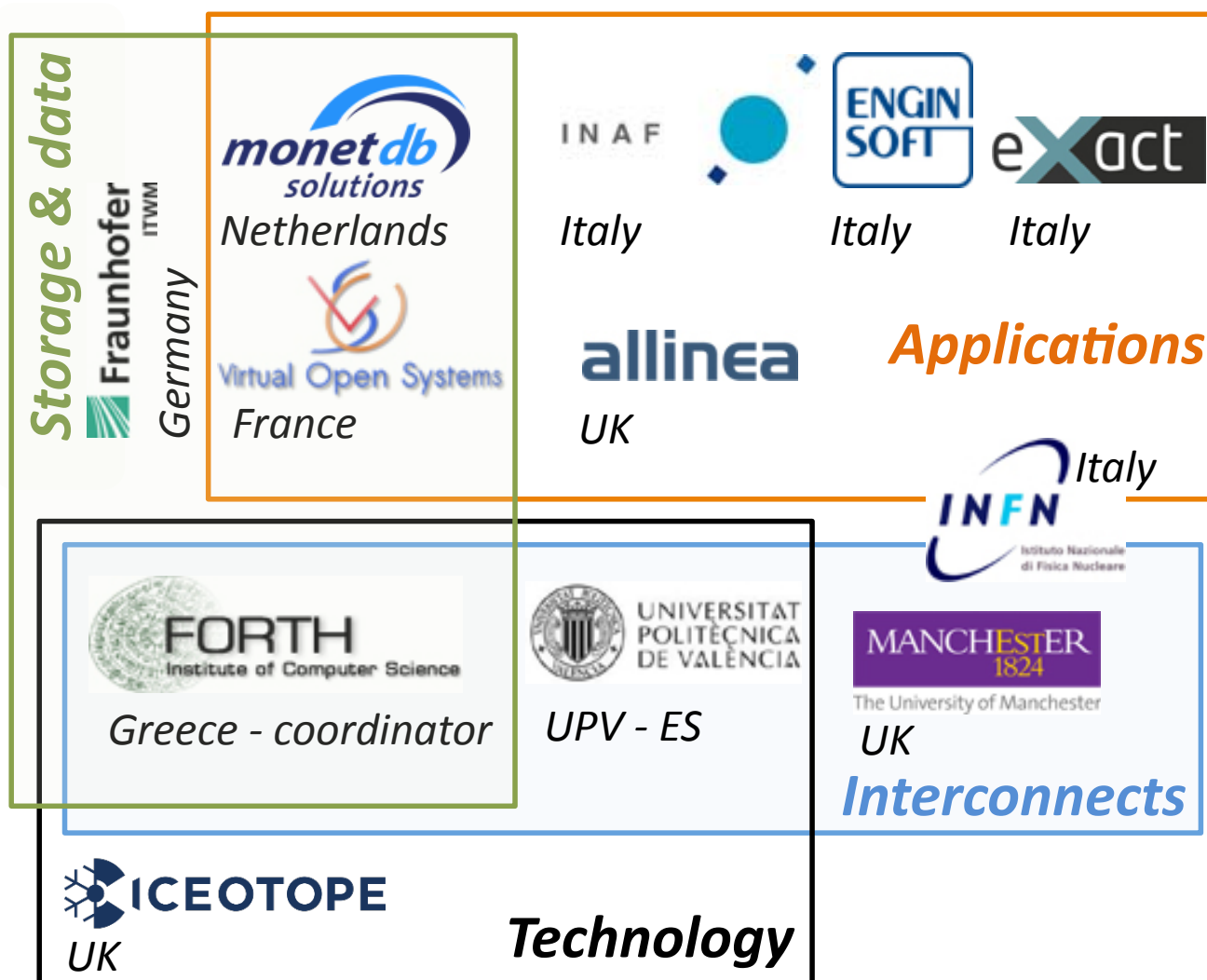
ECOSCALE: Energy-efficient Heterogeneous Computing at exaSCALE

- Heterogeneous infrastructure (ARM + FPGAs), programming, runtimes

Kaleao Ltd.: new generation platforms, by converging compute, storage, and networking into efficient, compact, transparent server solutions

Plus others to grow out of today's meeting...

The ExaNeSt Consortium





European Exascale System Interconnect & Storage

- Interconnection Network
- In-node Storage
- Advanced Cooling
- Real Applications

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