

Empowering Research through the High-Level Support Team (HLST)

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Why was the HLST created?

Protože si to uživatelé přáli, ředitelé o tom snili a členové týmu HLST věděli, že nemají hudební schopnosti na to, aby rozhoupali pódium – a tak se místo toho rozhodli rozhýbat váš kód!

Why was the HLST created?

Because the **users wanted it**, the **directors dreamed it**, and the **HLST team** members knew they didn't have the musical skills to rock a stage—so they **decided to rock your code** instead!

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High-Level Support Team (HLST)

Created based on your needs and feedback.

Our mission

To help researchers achieve better and faster research goals, reduce troubleshooting, and free up more time for breakthroughs.

Accelerate Your Research

- **Optimized Code and Workflow Guidance**
 - Run larger, more complex simulations with improved efficiency.

The HLST team empowers researchers by optimizing code and ensuring resource efficiency.

Simplify Your Experience

- Swift troubleshooting to minimize research downtime and keep your research on track.
- Tailor tools and configurations that meet your project's specific needs.

Think of HLST as your hands-on support, eliminating barriers to high-performance computing.

Enable Complex Research and Collaboration

- Cross-disciplinary support tools to facilitate teamwork across the fields.
- Expert assistance in data management for efficient handling of large datasets.

HLST provides solutions that make collaborative and complex research feasible.

Access to Cutting-Edge Technology

- Leverage the latest HPC tools, including AI accelerators, GPUs, and custom hardware configurations.
- Support for scalability, ensuring that as your projects grow, we adapt to enable larger-scale initiatives.

Our team keeps you at the forefront of technology, ensuring your research benefits from the latest advancements.

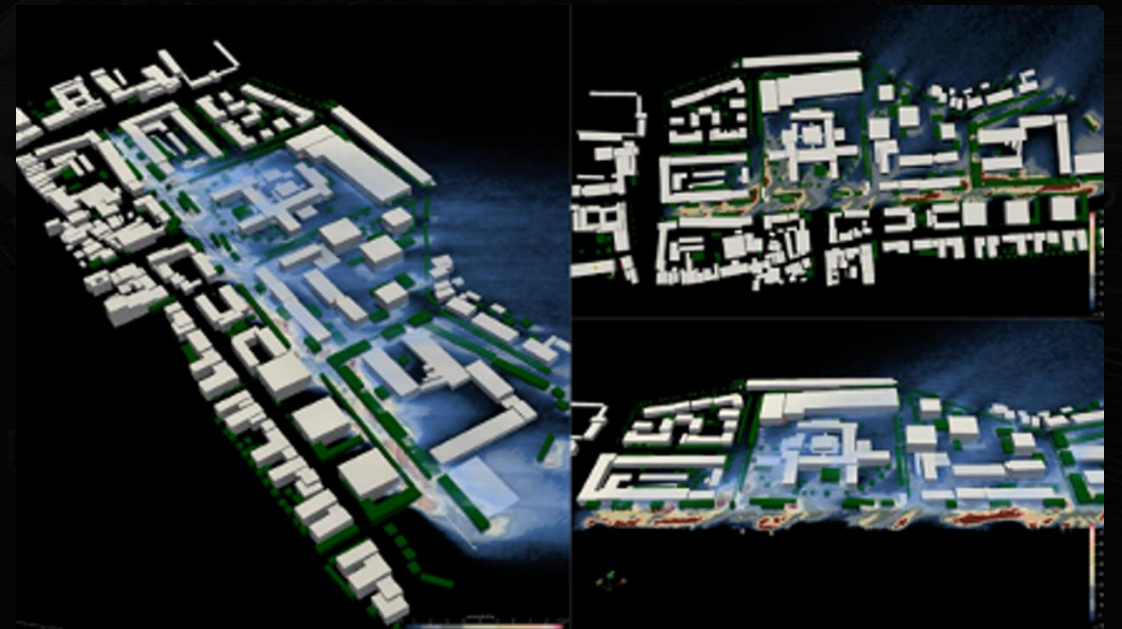
Example: Accelerated Code Modernization

- **Objective**

Develop an efficient model to compute pollutant concentration in an urban environment.

- **HSLT's Contribution**

- Modernized legacy Fortran code to modern C++17.
- Enabled parallel processing using task-based parallelism to optimize fluid simulation.
- Improved simulation accuracy using a marching cubes-like method for particle dispersion.



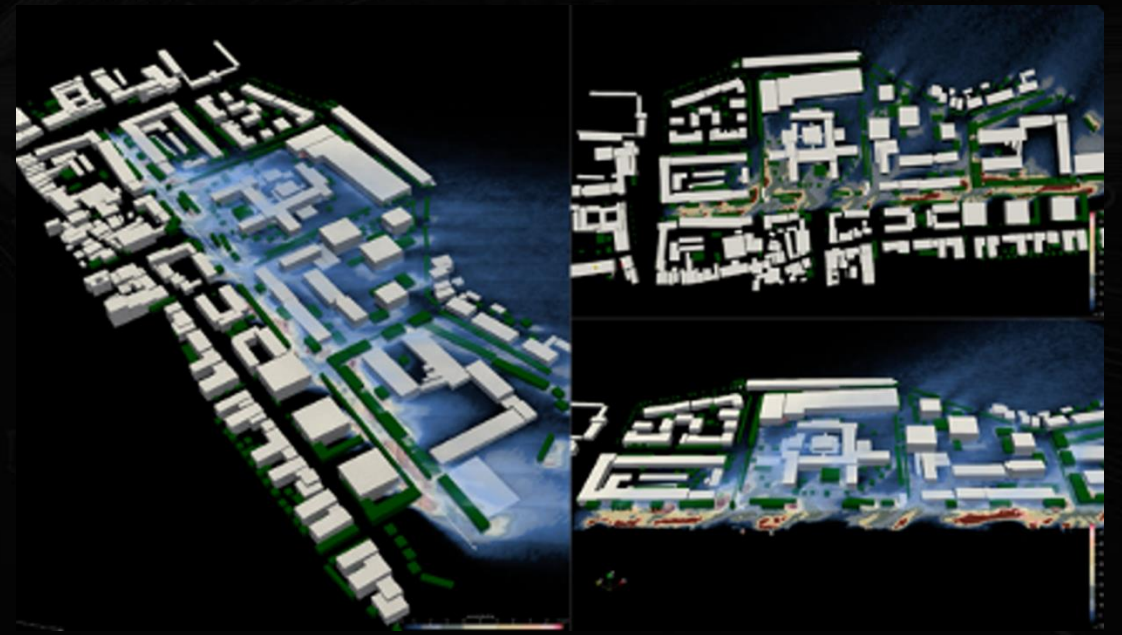
SPEED

Example: Accelerated Code Modernization

- **HSLT's Role:**

- Enhanced particle advection through ray tracing to simulate collisions with urban structures.
- Adopted a task-based programming environment, enabling real-time computational adjustments.
- Provided in-situ visualization tools for on-the-fly result checking, reducing I/O costs.

Outcome: Reduced execution time from 2 days to just 600 seconds, enabling real-time experimentation.



SPEED

Integrate HLST with Your Team

Collaborate through multiple avenues:

- **Ticket Support:** Shoot us a help request on the IT4I support system
- **EPICURE Project:** Advanced HPC support for application deployment, porting and optimization.
- **EDIH Ostrava:** HPC testing, and training.
- **Collaborative Research Projects:** Join forces with HSLT on breakthrough initiatives.

We'll work with you to provide long-term support for your innovation.

One Last Thing...

HLST is here to empower your research, providing expertise, guidance, and hands-on support.

Partner with us for a streamlined, productive, and collaborative HPC experience.