



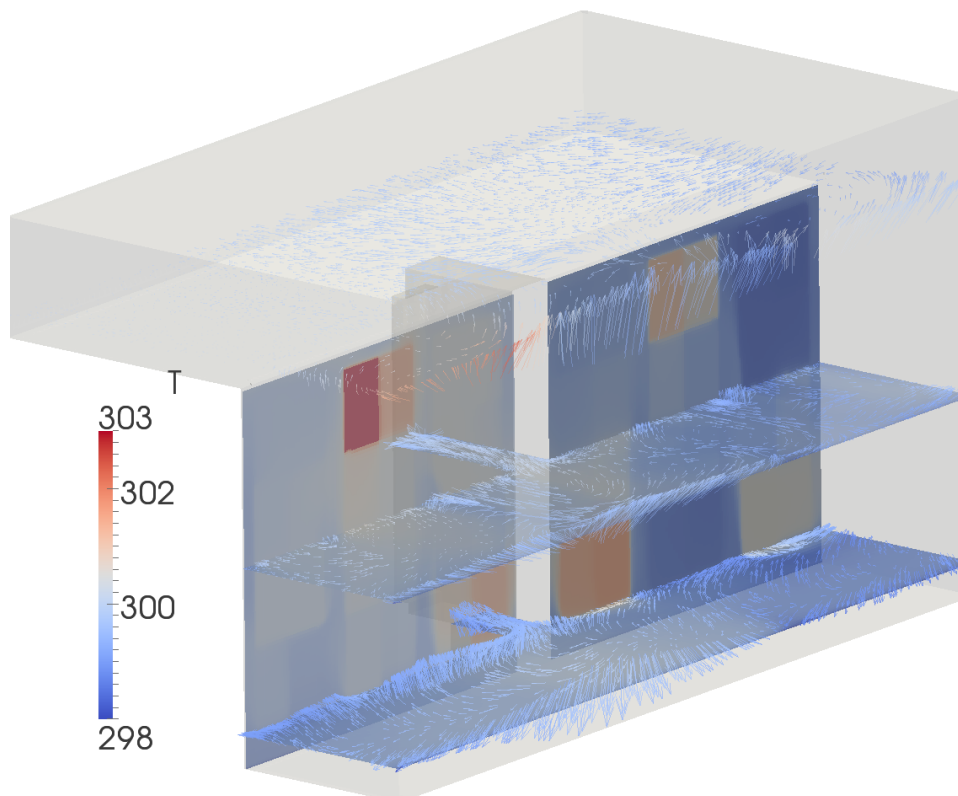
Reference Projects 2013

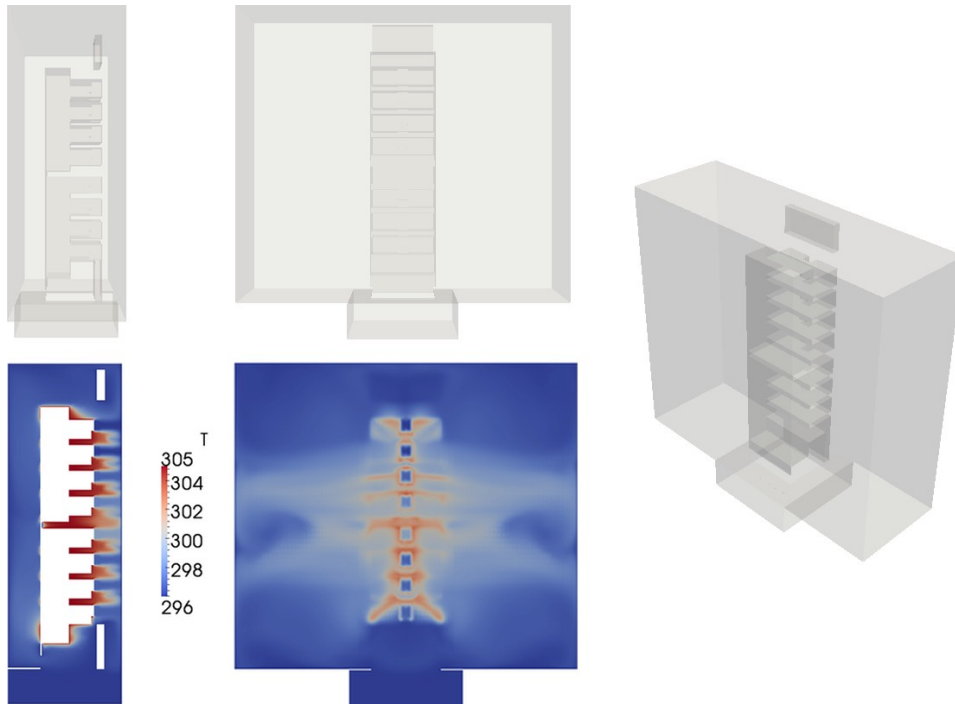
OeNB - Austrian National Bank

In cooperation with the department 'IT-Operations' of OeNB (Austrian National Bank) critical parts of the infrastructure were measured and simulated to ensure reliable cooling and operation of the installed equipment.

Starting from the existing setup solutions were developed by CFD (Computational Fluid Dynamics) simulations that could be implemented by inexpensive and simple reconstructions which led to noticeable better cooling of the components. Available air conditioning units were re-used. The effectiveness and physically correct prediction of the simulations was positively validated with measurements after reconstruction works.

The following picture shows contour plots of temperature and velocity vectors in an aisle of a server room with a centrally located cooling unit. Boundary conditions for the simulation were obtained by measuring air-velocities, temperature and relative humidity in the server room during normal operation. By comparing thermal balances of the simulation results the most efficient cooling option is found.





The pictures show the simulation results of the temperature distribution in a closed server rack containing critical components. The detailed acquisition of the geometry and boundary conditions are the basics of the subsequent CFD simulation.

In numerical experiments the optimal configuration, fan-positions and -power are found without experimentally interfering with existing infrastructure.

Reconstructions of critical components during operation is often very limited. A reconstruction was suggested that could be done during production and led to significantly better cooling of the components.



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