Managing and Analyzing Simulation Data

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Abstract
The increasing processing power of HPC systems has enabled the development of realistic simulations of phenomena in different areas, such as oil and gas, engineering, medicine, and meteorology. This process involves huge amounts of data. During model tuning, a large parameter space is explored looking for initial conditions set-up. Conversely, as more accurate simulations are computed, a sheer volume of 3D output data is generated from hundreds to thousands of steps.

In this talk, I will present the work we have been developing to manage numerical simulation data. Firstly, I will talk about Upsilon-DB, a probabilistic database management system that reflects the uncertainty of simulation data. Next, I will present SAVIME, an in-memory system for the analysis and visualization of simulation data. SAVIME aims at providing real-time follow-up of simulations fostering simulation steering.

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