

CAE Software Reinvented for the Cloud

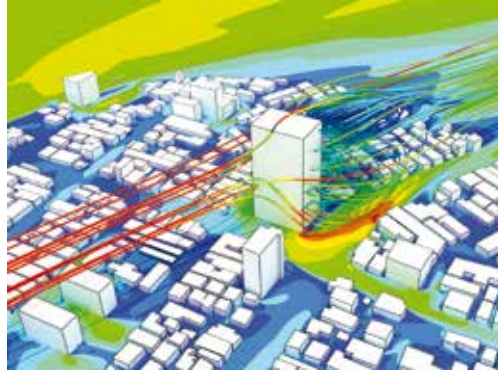
Faster time-to-results at lower cost



With cloud usage growing rapidly among both large enterprises and SMEs, it will be just a matter of a few years before we see the majority of engineering companies shifting from using traditional, on-premises CAE software to cloud-based solutions. "This is a trend that we have noticed at SimScale from the constantly growing number of new customers that range from large companies such as Aqseptence Group, Thornton Tomasetti or Cooper-Standard Automotive, to SMEs such as Spark, SYSTAG System Technik or VTOL Technologies, all of whom have adopted SimScale's solution for their simulation needs," says David Heiny, CEO and co-founder of SimScale.

Companies of all sizes view cloud technologies as an opportunity to conduct their operations in a more efficient and cost-effective way, which is especially important within today's design environments where the demand for faster development and better results at lower cost is increasing.

SimScale has embraced the value of the cloud from the moment the company was founded. "Since its official launch in 2013, SimScale



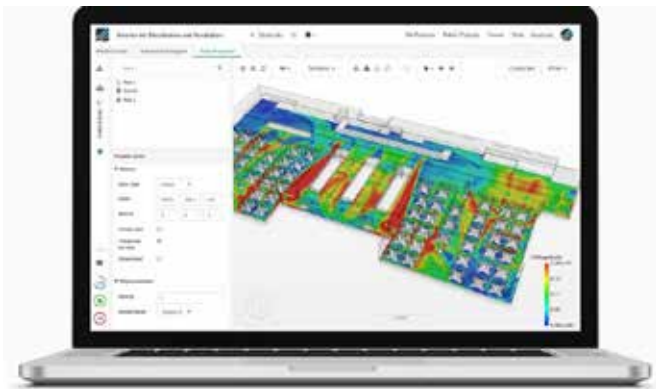
customers to save an average of €30,000 in expensive hardware costs and software maintenance fees. The customers only need an Internet connection to run demanding simulations on a laptop or any device of their choice. At the same time, SimScale also significantly reduces the time-to-result by providing the option to test multiple design versions in parallel. Even for large or complex designs, the access to up to 96 cores and real-time simulation allows customers to get their results faster than was ever possible

before with any traditional simulation tools," says Heiny. Another important benefit of the "zero hardware and software footprint" approach is seamless collaboration. With SimScale, globally distributed design and engineering teams can easily share and collaborate on their projects in real time. This is especially important given that 40% of companies with 50 to 249 staff members have employees who regularly work outside the office and need access to data and applications via the cloud. Moreover, whenever one of these employees encounters any issue with the simulation setup, he or she can quickly get guidance from one of SimScale's engineers via the chat option available directly from the platform.

With all SimScale's above-mentioned benefits being enabled through the cloud, it is no longer a question of "if" but "when" the major shift from on-premises CAE solutions to cloud-based solutions will happen. The international research group Gartner says that by 2020, a no-cloud policy will be as rare as a no-Internet policy is today. It is believed that even the companies that currently have a no-cloud policy use some form of internal cloud services. In the coming decade, the associated costs will become untenable, and the use of hybrid approaches will become increasingly common. Industry experts further predict that most software services will start moving to being cloud-only and that the use of Software as a Service (SaaS), Platform as a Service (PaaS), and Infrastructure as a Service (IaaS) will increase exponentially.

"It is safe to say that the future of CAE technology is the cloud, and SimScale has taken the lead in delivering this sooner than could have initially been expected," states Heiny.

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has been challenging the "status quo" of the traditional computer-aided engineering (CAE) software market by offering a fully cloud-based engineering simulation solution for Computational Fluid Dynamics (CFD) and Finite Element Analysis (FEA), with zero hardware and software footprint, available at a fraction of the price of its competitors," explains Heiny.

Today, SimScale is an integral part of the design validation process for thousands of successful companies worldwide and over 120,000 individual users. It is mainly used by product designers and engineers across the AEC (Architecture, Engineering & Construction), HVAC (Heating, Ventilation & Air-Conditioning), Electronics and Automotive industries. "By leveraging the power of the cloud, SimScale helps

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PASS/INSULATION and PASS/RELIEF to join PASS Suite

PASS Suite capabilities extended with proven, efficient modules for the sizing and analysis of insulation material and pressure relief systems



Two new modules will soon be added to the PASS Suite and will be available to interested customers in the coming months for beta testing.

PASS/INSULATION is a powerful solution for piping and equipment thermal insulation analysis, sizing and design. It is especially effective for the insulation design of large and complex industrial objects – process plants, pump and compressor stations, as well as storage facilities in the power, oil & gas, refining, petrochemical and chemical industries.

The module can import all insulated objects (usually there will be hundreds or thousands of them) together with their geometrical and technological parameters from 3D models created by leading 3D plant design CAD systems like AVEVA PDMS or Everything3D. The software not only sizes insulation thickness according to different requirements under complex conditions such as underground piping and objects heated with steam or electrical tracing, but also automatically selects all the necessary main and auxiliary materials for the insulation structure. This selection is based on the insulation vendors' data and produces all the necessary reports for cost estimates, materials procurement and construction/installation.

PASS/INSULATION can also create documents to simplify the ordering of

electrical heat tracing systems from manufacturers. In summary, PASS/INSULATION makes insulation designers significantly more efficient, relieving them of time consuming routine work with a dependable, automatic process from sizing to material selection!

The PASS/INSULATION software has already been used for several decades by hundreds of Russian (and other former USSR countries) EPC companies and has thus become an informal standard in this market segment. Now PSRE Co. is making these powerful solutions available to all thermal insulation designers looking for more effective ways to address their workload.

The second upcoming addition to the PASS Suite, PASS/RELIEF, is a pressure relief system sizing and analysis tool. It combines PASS/HYDROSYSTEM's main features of real gas, liquid and gas/liquid flow analysis (for inlet and discharge piping) with pressure relief valve sizing, according to the international and national codes (API 520, ISO 4126, GOST 12.2.085-2017 and JN 4732). For multiphase gas/liquid flow or flow of supercritical fluids and other complex cases, the HDI method (recommended by API 520 and AIChE DIERS) is used.

These two new elements in the PASS Suite will complement the existing PASS modules and significantly extend PASS' smart Simulation & Sizing Tools for every piping and equipment engineer and designer.

PSRE Co. Announces a New Version of PASS/HYDROSYSTEM

New release supports three-phase flows in Oil&Gas pipelines and performs multi-parameter optimization

The new version 4.1 of PSRE Co's PASS/HYDROSYSTEM, scheduled for release just before the 2018 International CAE Conference, contains two big improvements, which are expected to considerably extend the applicability of this versatile solution.

Firstly, users can now analyze three-phase gas/oil/water flows typical of Oil and Gas field piping systems, including the automatic calculation of flow rates for each phase in any part of a complex piping network. To enable this, the software takes into account the mixing of three-phase flows with different phase flow rates. Preserving its renowned ease-of-use, the PASS/HYDROSYSTEM GUI has been extended to provide different convenient options for setting each phase flow rate at source (oil well) nodes.

In this new version, gas/oil/water flow is analyzed as two-phase gas/liquid flow whereby the liquid oil/water emulsion is simulated using the HEM model for density and Brinkman – Roscoe generalization of the Einstein formula for viscosity. The program monitors inversion points and defines which type of emulsion – water in oil or oil in water – takes place in each specific part of the piping network.

Furthermore, the new Tulsa University Fluid Flow Projects (TUFFP) Unified Model Library for three-phase flow will be integrated as soon as this library is ready for use – currently

anticipated during the fourth quarter of 2018 or the first quarter of 2019. The second important improvement allows users to analyze and optimize piping networks containing multiple arbitrary control valves, orifices or other elements with controlled parameters. The parameter selection feature, initially introduced in version 3.88, is now capable of supporting any number of parameters. These unlimited parameters combined with a modern, derivative-free optimization method (by Powell), enables PASS/HYDROSYSTEM users to find optimal combinations of valves and orifices parameters for complex piping networks.

The new version of PASS/HYDROSYSTEM will be demonstrated at the PSRE Co booth during the 2018 International CAE Conference. Users interested in a first look can also attend PSRE Co's related presentations, which form part of the Oil & Gas section of the conference.

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