

Simcenter STAR-CCM+ cloud ready

Run more simulations concurrently with higher fidelity and adapt to changes in simulation demand

Benefits

- Scale simulations on unlimited cores without steep licensing costs
- Run hundreds of simulations concurrently, enabling intelligent design exploration
- Use higher-fidelity models that incorporate complex geometries and multiphysics

Summary

Engineers are innovating at high speed, so there is constant pressure to run more simulations to design better and faster. The products they are designing are highly complex, so simulation models are bigger and have longer run times. A lack of access to high performance computing (HPC) is one of the biggest obstacles to addressing

these challenges. As a result, cloud computing is quickly becoming an attractive alternative to on-premise clusters, allowing engineering organizations to:

- Instantly increase compute capacity to meet simulation demand
- Shift information technology (IT) expenses from capital (Capex) to operational (Opex)
- Apply newer networking technologies and the latest central processing units (CPU) that enable more efficient scaling

Simcenter STAR-CCM+ offers the solution

Simcenter™ STAR-CCM+™ software is a computational fluid dynamics (CFD)-focused multiphysics engineering simulation solution that allows users

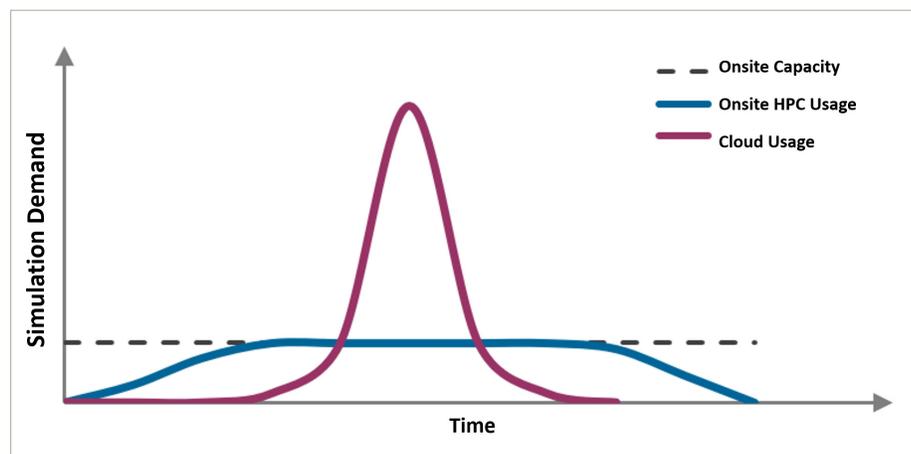


Figure 1: Unlimited cloud capacity enables engineers to mitigate bottlenecks during peak simulation demands.

Simcenter STAR-CCM+ cloud ready

to easily extend from on premise to the cloud without interrupting existing workflows. Leveraging its all-in-one platform, automated meshing, pipelined workflow, integrated multiphysics and flexible licensing, users can run Simcenter STAR-CCM+ in the cloud with ease to:

- Scale up: Run higher fidelity models on more cores by leveraging high parallel efficiency and scalability
- Scale out: Run multiple simulations concurrently and leverage built-in design exploration
- Take advantage of flexible and cost-effective licensing options such as Power on Demand
- Reduce IT burden by minimizing the need to manage complex IT systems

Capabilities

Scale up

Simcenter STAR-CCM+ is optimized for high parallel efficiency and scalability. This enables running on higher CPU core counts to reduce compute solve times and gain immediate insight into industrial engineering problems:

- Increase simulation realism by efficiently handling:
 - Complex geometries with large meshes
 - Multiphysics simulation that better represents the real-life behavior of complex devices
- Accelerate throughput of large simulations by running on thousands of cores

Scale out

With unlimited capacity on the cloud, you can run hundreds of simulations concurrently to discover better designs, faster. Simcenter STAR-CCM+ enables this because it is built from the ground up for design exploration and features:

- Integrated computer-aided design (CAD)-to-solution in a single platform

- Robust and automated meshing
- Pipelined and replayable workflow
- Built-in design exploration
- Intelligent search

Economical

Simcenter STAR-CCM+ offers flexible licensing specifically designed for use in the cloud. It is aimed at maximizing throughput of your high-fidelity simulations as and when needed to get results in hours, not weeks.

With Power on Demand licensing you get access to unlimited cores by the hour and your software costs don't limit cloud hardware utilization:

- Running on 10,000 cores costs the same as running on 100 or 10 cores
- Use as needed at times of peak demand
- Pay only for what you use
- Accelerate throughput of large simulations by running on more cores
- Run multiple jobs at once

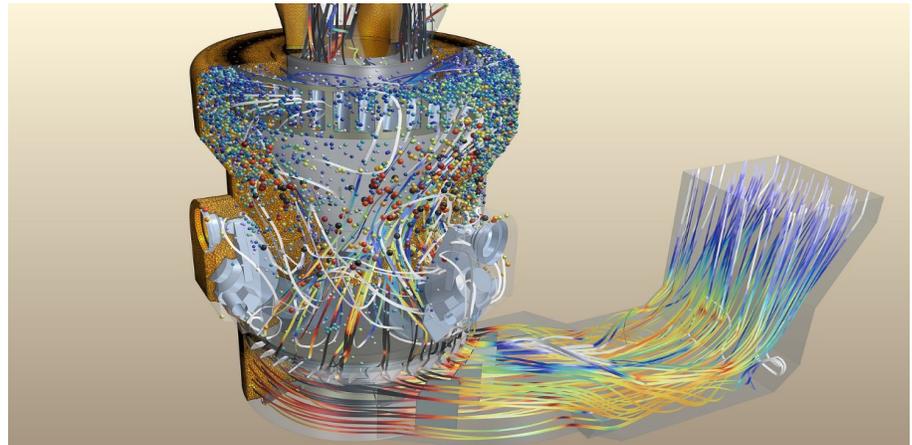


Figure 2: Running a high fidelity particulate flow simulation using Simcenter STAR-CCM+.

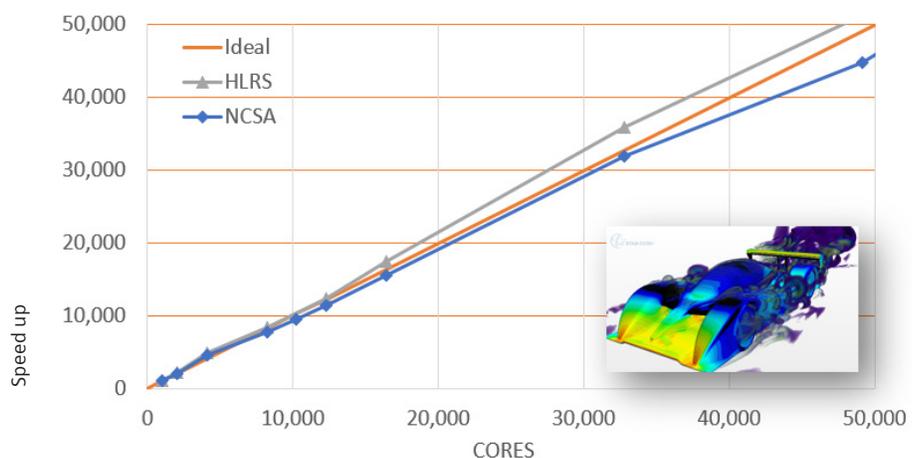


Figure 3: Simcenter STAR-CCM+ scales well at high core counts.

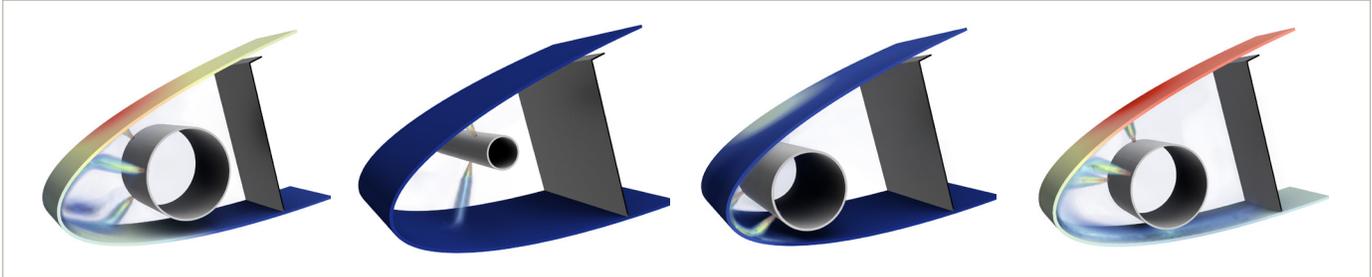


Figure 4: Improving the heat transfer performance of an aircraft ice protection system (courtesy: Honda Aircraft).

Reduce IT burden

Migrating Simcenter STAR-CCM+ from on-premise HPC to the cloud minimizes the need to manage complex IT systems with some added benefits:

- Immediate access to the latest version of Simcenter STAR-CCM+
- Optimized to run on the latest HPC hardware as cloud service providers frequently upgrade their hardware and infrastructure

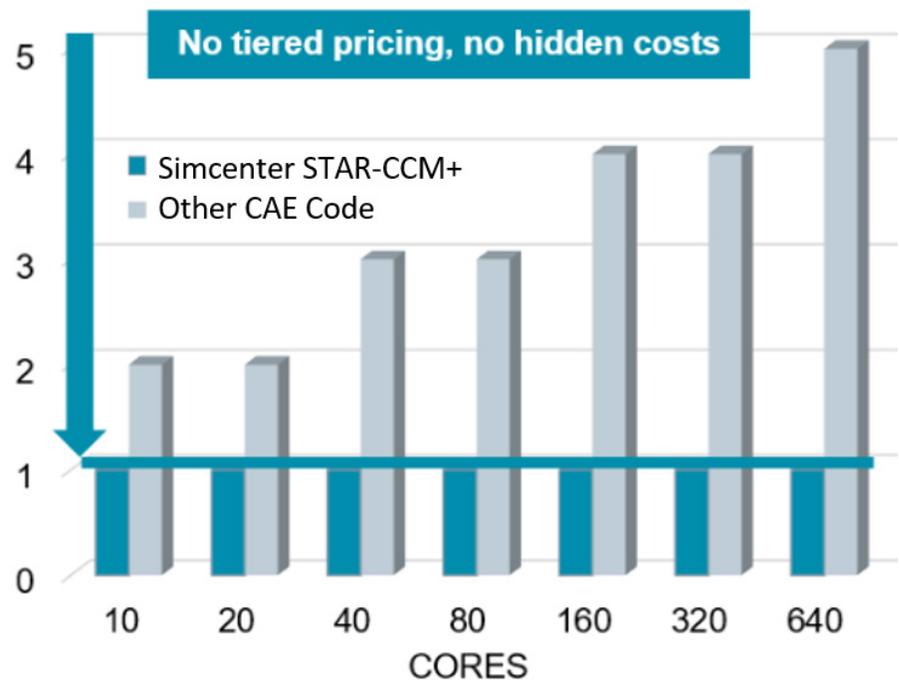


Figure 5: With fixed hourly licensing costs, there is no need to limit the number of cores.

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