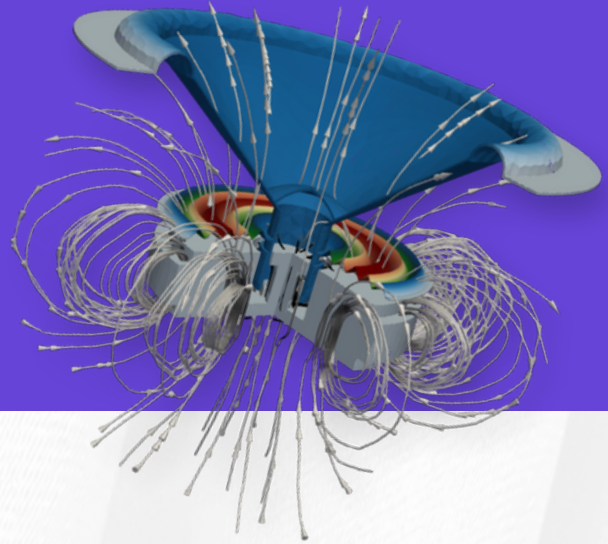


Acoustics simulations powered by the cloud

See what's possible with the best algorithms today



OVERVIEW

This webinar provided an in-depth exploration of how cloud computing, particularly through Quanscient Allsolve, is revolutionizing large-scale acoustics simulations. Participants gained insights into the software's ability to achieve significant speed-ups in runtime, vastly outperforming traditional desktop-based solutions.

KEY DEMONSTRATIONS AND RESULTS

Live in the webinar, we ran three simulations demonstrating Perfectly Matched Layers (PMLs) and Absorbing Boundary Conditions (ABCs):

Acoustics with PMLs

7.8M
DoFs

100
Cores

1.6TB
Total RAM

151s
(~2.5 min)
Runtime

Acoustics with ABCs

6.9M
DoFs

100
Cores

1.6TB
Total RAM

83s
(~1.4 min)
Runtime

Acoustics with ABCs (large)

105M
DoFs

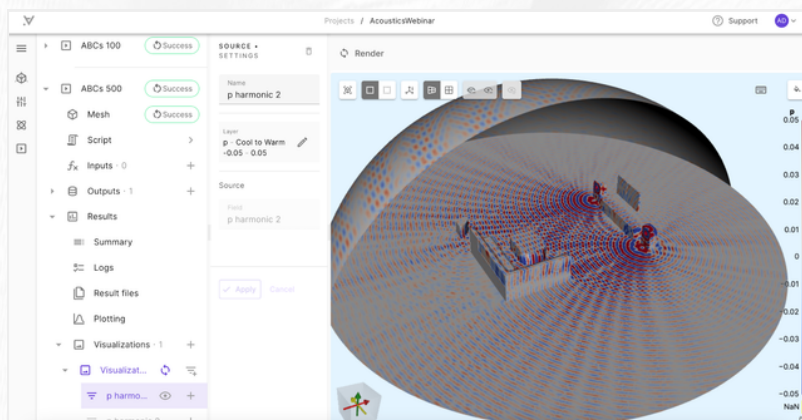
500
Cores

8TB
Total RAM

458s
(~7.6 min)
Runtime

KEY RESULTS FOR ACOUSTICS WITH ABCS (500 CORES)

Pressure field showing the acoustic waves emanating from two loudspeakers interfering among themselves and scattered by the objects in the room.



Technical speaker

Dr. Abhishek Deshmukh

Team Lead - Application Engineering
at Quanscient

Abhishek has more than nine years of experience in computational fluid dynamics (CFD) research and software development, especially for applications in high-speed compressible flows, turbulence, multiphase flows, and combustion.

HIGHLIGHTS FROM THE Q&A SESSION

Q: How can the user make sure that they picks the right hardware for the choice?

A: All the hardware is available for the user to choose from. As a rule of thumb, you should have 150-200k DoF per core and sufficient memory for the problem.

Q: What does the support look like with Quanscient Allsolve?

A: There is unlimited email support directly through the platform as basic support as well as a possibility for paid priority support. The number of priority support hours is tailored for each customer to best suit their needs.

Q: Do you currently support physical models like Pierce's equation or LEE, allowing to account for mean flow effects?

A: We don't have this particular model implemented, but through our scripting interface, our users can implement their own models in the FEM weak form. We are also constantly adding new models to the GUI.

Q: Was the simulation performed in the frequency domain, or in the time domain? If in the frequency domain, was a direct or iterative linear system solver used?

A: The simulation was performed in the frequency domain, but we also offer the option for the time-domain simulations. The more robust direct solver was used which is made possible by the large amount of RAM available through the cloud.

ADDITIONAL BENEFITS DISCUSSED

1

Collaboration possibilities

As a browser-based platform, Quanscient Allsolve allows unlimited user access within an organization, facilitating easy project sharing while always ensuring version compatibility.

2

Flexible pricing model

CUsage-based pricing offers cost-effective scalability – from startups to large enterprises, ensuring optimal resource utilization and financial efficiency.

3

Hardware and maintenance cost reduction

The cloud-based nature of Allsolve eliminates the need for heavy hardware investments, with the assurance of always running the latest software versions on advanced hardware.

4

Robust data security

Leveraging cloud providers' extensive security measures, Allsolve ensures high-level data protection, benefiting from AWS's significant investments in cloud security.

TAKE THE NEXT STEP WITH QUANSIENT ALLSOLVE

If you're considering whether Quanscient Allsolve could be a beneficial addition to your workflow, we invite you to schedule a complimentary 30-minute consultation with us. This no-obligation call is an excellent opportunity to discuss your specific needs and see how Allsolve can be tailored to meet them.

[Book your session now](#)

Not ready for a call just yet but still curious? Fill out [this form](#) to describe your use case. Our technical team will review your information and respond within one business day.