

## OUTSTANDING PARALLEL SCALABILITY AND THE CLOUD

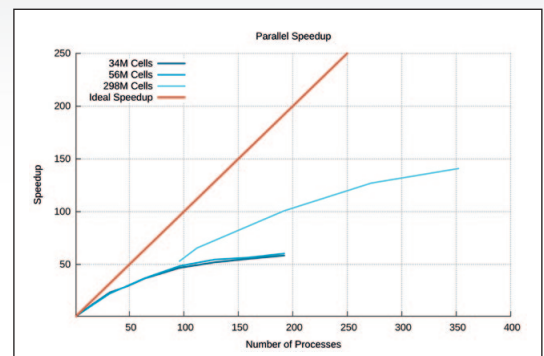
BOXERMesh allows users to leverage the power of parallel computing to dramatically reduce mesh generation process times. Thanks to its client/server MPI architecture, the software runs on virtually any platform from a single workstation to large HPC systems, or seamlessly on the Cloud.

### Exceptional Parallel Scalability

The whole meshing process takes place in parallel, right through to viscous layer and multi-region meshing. BOXERMesh's distributed memory architecture removes serial memory bottlenecks, so that meshing tasks, whether big or small, are distributed efficiently in parallel, combining the resources of the entire cluster and balancing the load automatically. Users simply specify the number of parallel processes and let BOXERMesh do the rest.

### BOXERMesh on HPC Systems

BOXERMesh was recently benchmarked on Cambridge University's Darwin 183.4 TFlops/s HPC cluster, which is representative of modern HPC systems. A range of meshes were produced with the largest (298M cells) being generated on 352 cores in just 39 minutes - which represents a speedup of 140.8 over the equivalent single-process meshing time. This demonstrates BOXERMesh's exceptional scalability and the software's ability to dramatically cut wall-clock meshing times by running in parallel.



Scalability results from Cambridge University's Darwin HPC

### BOXERMesh on the Cloud

Cloud and on-demand HPC offer computing power at a moment's notice, to cover urgent requirements or alleviate capacity crunches. BOXERMesh is ideally suited to the Cloud, and our simple, flat pricing structure means that software fees are independent of how many processes are used.

### CFS Partners with Rescale

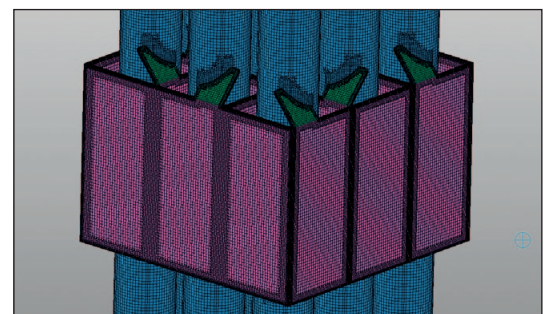
CFS is partnering with Rescale, a leading cloud-based HPC provider, to offer BOXERMesh on the Cloud. A key advantage is the ease with which computing task are pushed onto the Rescale Cloud and executed: users can setup and run BOXERMesh in a matter of minutes via Rescale's web-based interface, gaining easy, near-instant access to hundreds of computing cores.



Workstation vs Rescale Meshing Time

### Faster turnaround: using BOXERMesh's parallel capability on the Cloud

The application is a 111M cell mesh (including near-wall layers) of a complex nuclear fuel rod and spacer assembly. The runs involved uploading the geometry and corresponding batch file to the Rescale platform, and submitting the job using Rescale's interface. The meshing task takes over 6hrs on a single 8-core workstation, but was completed in just 86 minutes using 64 cores on the Rescale Cloud, illustrating the very significant increase in analysis and design throughput that is achievable by running BOXERMesh on the Cloud.



Nuclear rod and spacer assembly

Try BOXERMesh today and discover the power of parallel mesh generation.  
For more details contact: [webenquiries@cambridgeflowsolutions.com](mailto:webenquiries@cambridgeflowsolutions.com)