



NSCC DELIVERS HPC IN SINGAPORE

PETASCALE COMPUTING RESOURCES SUPPORT EDUCATION AND RESEARCH NATIONWIDE

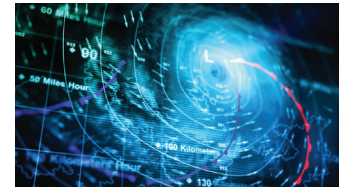
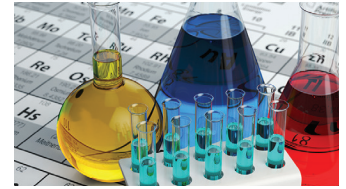
About the Customer

[Singapore's National Supercomputing Centre](#) (NSCC), established in 2015, manages Singapore's national petascale facilities. NSCC Singapore provides high-performance computing (HPC) resources to support both public- and private-sector organizations including research institutes, educational institutes, businesses, and government agencies. NSCC and their university and agency stakeholders advance Singapore's strategic interests and facilitate industry transformation using HPC in areas including visualization, modeling, simulation, data analytics, and artificial intelligence (AI). NSCC is committed to helping educational institutions train future generations of an HPC-enabled workforce.



Altair solutions make it possible to use our supercomputers effectively and efficiently, which in turn helps accelerate the research and innovation of our users. Altair's workload management tools can cater to our requirements and future demands.

Mr. Stephen Wong, Technical Director, NSCC Singapore



Their Challenge

NSCC's HPC resources are a **critical part of Singapore's national research infrastructure**, enabling innovation in healthcare and medicine, materials development, urban planning, weather and climate, biodiversity, and more. NSCC was looking for a long-term collaborator who could deliver a comprehensive workload management solution for its ASPIRE 1 petascale supercomputer. NSCC sought a **robust, enterprise-grade workload management solution to optimally schedule, monitor, and manage its supercomputers** and a centralized resource allocation and budgeting solution to manage stakeholder resource quotas. "While the systems are diverse, we needed centralized resource budgeting and accounting software, a web portal for users and admins, and remote 3D visualization technology," says Mr. Stephen Wong, Technical Director at NSCC. NSCC also wanted a national license plan so it could offer the software to all nonprofit research organizations in Singapore.

NSCC's HPC resources support research and education in fields from healthcare and medicine to weather and climate

Our Solution

We delivered a comprehensive solution with enterprise-grade support and the national license plan NSCC needed, including **efficient workload management** by Altair® PBS Professional®. PBS Professional is a fast, powerful workload manager designed to improve productivity, optimize utilization and efficiency, and simplify administration for clusters, clouds, and supercomputers — from the biggest HPC workloads to millions of small, high-throughput jobs. With PBS Professional, NSCC can **allocate resources and manage budgets across its entire system of collaborators and stakeholders**. In addition, NSCC university and agency stakeholders benefit from Altair's technical consulting expertise and consistent service-level agreements (SLAs).

Results

Thanks to fast, efficient computing, NSCC can provide **best-in-class resources for research and education nationwide**, making Singapore a center of HPC-borne innovation. "Altair solutions make it possible to use our supercomputers effectively and efficiently, which in turn helps **accelerate the research and innovation of our users**," says Stephen. "Altair's workload management tools can cater to our requirements and future demands." NSCC's next-generation system is a heterogeneous and distributed supercomputer architecture. It has mixed workload requirements for traditional HPC, AI, bioinformatics, and hybrid HPC with cloud bursting. Looking to the future, Altair and NSCC are jointly exploring thermal-aware scheduling to optimize datacenter power usage effectiveness without breaking topology-aware scheduling, as well as offering supercomputing resources over a 5G network using remote edge servers.