

HYBRID CLOUD SCALING AND COST MANAGEMENT WITH ALTAIR® NAVOPS®

Altair® NavOps® maximizes business impact and enables global operations with optimized, cost-efficient high-performance computing (HPC) in the cloud. NavOps works with a broad range of cloud providers and workload managers, empowering organizations to prioritize critical workloads and control operational compute budget. With an easy-to-use interface and infrastructure-as-code (IaC) support for DevOps, it integrates into any environment. Dynamically scaled on-demand cloud resources impact business needs with detailed visibility and control over cloud spending.

Cloud Computing for Maximum Value

Aligning compute spending with business value is key to maximizing cloud and hybrid cloud computing. Users need clear visibility into real-time and historical cloud usage and costs. NavOps enables cost-controlled, optimized cloud and hybrid cloud HPC for a broad range of cloud providers and workload managers.

Meet Business Needs with Hybrid Cloud

NavOps enables on-demand cloud resources to scale dynamically and delivers the visibility organizations need to control cloud spending. NavOps uses resources efficiently and removes them when they're idle. Its automation engine lets users filter workloads based on budget, then selectively scale them to the cloud instead of running on-premises. It encapsulates business and application requirements into individual automations and provides controls and limits to manage cloud spending — targeting cloud resources toward high-value business needs. Operational visibility of burn rate (cost per hour) and accrued cost per period (e.g., a day or a week) keeps spending front and center for cloud administrators and systems admins. Estimated cloud costs are visible throughout the NavOps interface, eliminating surprise expenses.

Centralize Global Operations

NavOps provides a single view of cloud operations and overall HPC cloud spend. With its automation engine, cloud connectors, workload manager connectors, and multi-cluster scaling, NavOps enables centralized cloud operations using an organization's preferred platform, including multi-cloud (AWS, Azure, Google Cloud, and OCI), and it scales for workload managers including Altair® Accelerator™, Altair® PBS Professional®, and Altair® Grid Engine®. NavOps scales all clusters simultaneously, regardless of which workload manager is running on each cluster and whether the clusters are located close to each other or spread across the globe. It can scale clusters to preferred clouds in each region from a central control point, providing global operational visibility and control to ensure only valuable workloads are scaled.



NSF NCAR is always looking to improve our HPC offering. Like many sites, this includes evaluating the use of public clouds. We've been testing Altair's NavOps to improve our researchers' productivity.

Will Shanks, HPC Systems Engineer III, NSF NCAR



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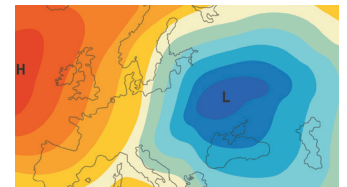
Enable DevOps with Multi-Cloud Scaling Operations

Large enterprises need to deliver services quickly and consistently. Many organizations adopt a DevOps approach — using tools and practices for accelerated delivery — so applications and services are dispatched quickly, reliably, and with consistent specifications. Because not all organizations are DevOps-ready, NavOps offers an easy-to-use user interface (UI) to enable guided deployment. NavOps is engineered to integrate into a DevOps IaC environment via automated installation and full CLI/API configuration and operations. The latest-generation NavOps UI enables quick, efficient, consistent cloud configuration with visible operation and easy-to-use debugging tools.

NavOps for Hybrid Cloud at NSF NCAR

The U.S. National Science Foundation National Center for Atmospheric Research (NSF NCAR) is a world-class research center leading, promoting, and facilitating innovation in the atmospheric and Earth systems sciences. NSF NCAR provides the science community with state-of-the-art resources, including supercomputers, sophisticated computer models, and extensive data sets.

Altair collaborated with NSF NCAR to test, validate, and develop NavOps. “NSF NCAR is always looking to improve our HPC offering,” said Will Shanks, HPC systems engineer III at NSF NCAR. “Like many sites, this includes evaluating the use of public clouds. We’ve been testing Altair’s NavOps to improve our researchers’ productivity.” The team at NSF NCAR needed to support mission-critical weather forecast data for the U.S. Antarctic Program’s Antarctic Mesoscale Prediction System (AMPS), automate and scale processes, and provide coverage for maintenance windows. NavOps can be managed via GUI or command-line interface (CLI). “We’ve fully scripted our setup with the NavOps CLI,” Shanks said. The GraphQL API in PBS Professional, which is deployed on NSF NCAR’s “Derecho” supercomputer, allows expressive queries to select jobs for automatic bursting to the cloud. Expanded hybrid computing options enable increasingly robust, reliable support for weather and climate science and research.



NavOps enables on-demand cloud resources to scale dynamically, and it delivers the visibility organizations need to control cloud spending.

Aligning compute spending with business value is key to getting the most from cloud and hybrid cloud computing.