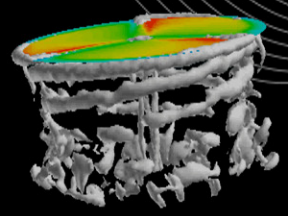
Portal's Mission and Goals

HPC resources have been demonstrated to be of great value in supporting science, engineering, and business enterprises. However, historically HPC use has been confined to specialized groups and has not expanded into other sectors where the derived value of HPC could be significant. This has been due, in part, to stringent access requirements to HPC resources, lack of application software, and limited access to specialized talent and cost constraints. Activities such as the Computational Research and Engineering Acquisition Tools and Environments (CREATE) initiative have focused on overcoming these constraints and "mainstreaming" HPC capabilities to support clients such as DOD acquisition programs. Increasing access and ease of use of HPC applications has the potential to dramatically expand the customer base both for CREATE applications as well as third party applications such as MATLAB.

The Portal initiative technical goals are:

- Provide a secure unified access point with single sign on
- Support an integrated framework with access to decentralized components allowing HPC "jobs" to be run on available HPC resources in response to and in support of, applications being served through the portal
- Provide web or web-like centralized interface for users that require no software installation on user workstations, and will work across multiple security enclaves



Opportunities to Use HPCMP Resources

Any researcher or developer who is actively supporting the DOD in the areas of R&D and/or T&E may have access to HPCMP resources. This includes government employees, government contractors, and researchers from the academic community. For help with this process, contact require@hpc.mil.

Contact Us

For additional information about MHPCC DSRC or the HPCMP, visit our website at: http://www.MHPCC.hpc.mil/.

For more information on the MHPCC DSRC Portal, visit the Portal Educational Website at: http://www.mhpcc.hpc.mil/portal/overview/.

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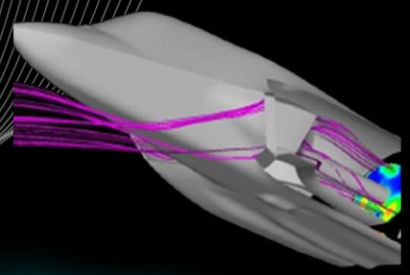
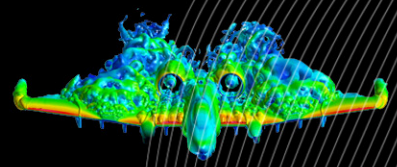
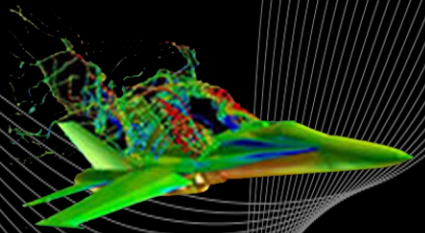


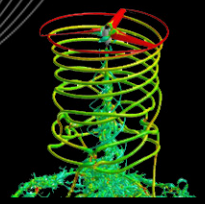
DOD HPC DEPARTMENT OF DEFENSE HIGH PERFORMANCE COMPUTING PORTAL

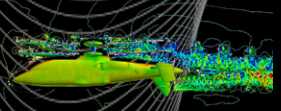
MAUI HIGH PERFORMANCE COMPUTING CENTER
DSRC
DOD SUPERCOMPUTING RESOURCE CENTER

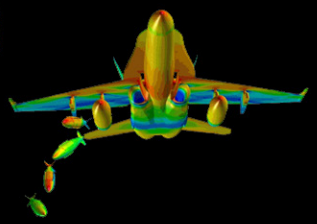
DOD HPC DEPARTMENT OF DEFENSE HIGH PERFORMANCE COMPUTING PORTAL

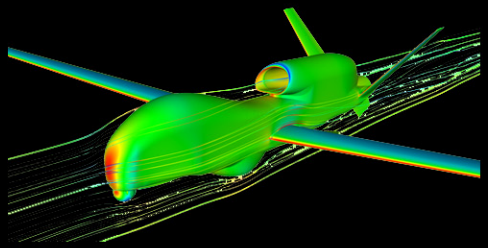








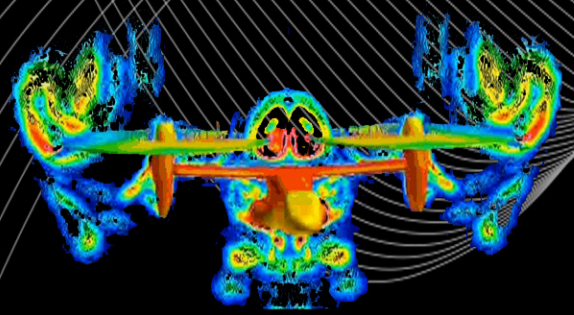




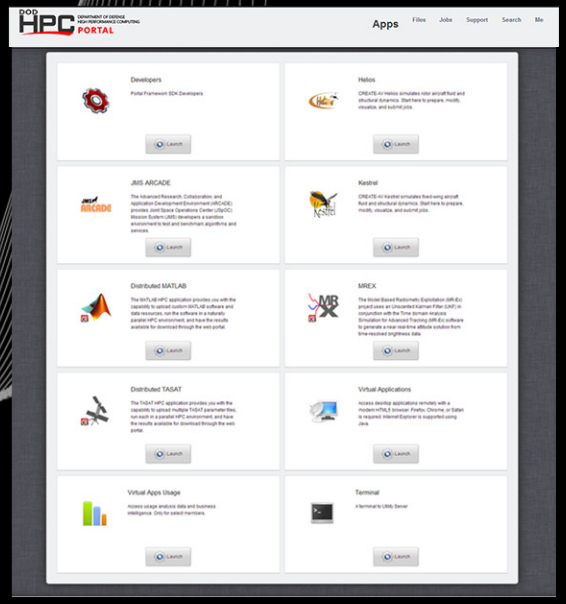
Portal Initiative at MHPCC

The High Performance Computing Modernization Office (HPCMO) is increasingly interested in ways to promote access and use of high performance computing (HPC). Enhancing effective access and use of HPC resources includes: (1) improving agile access to HPC computational and data storage resources by current users, (2) increasing transparent and user-friendly access to these resources by client-based "communities of practice" that have not been historical HPC users, and (3) establishing new ways that HPC can increase project cycle effectiveness and efficiencies in these user communities.

At the direction of the DOD High Performance Computing Modernization Program (HPCMP), the MHPCC DSRC has taken a leadership role in expanding HPC support to DOD science and engineering organizations through the use of a web-enabled Portal. MHPCC is working with the USACE Engineer Research and Development Center DSRC, the Computational Research and Engineering Acquisition Tools and Environment (CREATE) Team, and HPCMP leadership to coordinate ongoing activities. Production version Portals are currently available and supporting all users at the MHPCC and and Navy DSRCs. An HPCMP approved effort to deploy the Portal at all remaining DSRCs is underway and slated to be completed during FY2014.



Portal Website Launch Page



Portal Website Applications Launch Page

Examples of Portal Software Applications

JMS ARCADE: The Advanced Research, Collaboration, and Application Development Environment (ARCADE) web portal enables design and testing of services for the Joint Space Operations Center (JSpOC) Mission System (JMS). ARCADE accelerates technology development by providing everything a developer needs to transition from an idea to a JMS-ready service including software development tools, developer resources, software development kits, relevant data sets, scenarios, and benchmarks.

Kestrel: Kestrel is a high fidelity, full vehicle, multi-physics analysis tool for fixed-wing aircraft. Kestrel allows crossover between simulation of aerodynamics, dynamic stability and constructures, and propulsion.

MATLAB: MATLAB® is a high-level language and interactive environment for numerical computation, visualization, and programming.

HELIOS: HELIOS is a multi-disciplinary computational suite being developed by the DOD HPCMP CREATE-Air Vehicles (CREATE-AV) and the US Army.

Mr EX: Model Based Radiometry Exploitation (MR Ex) uses an unscented Kalman filtering (UKF) in conjunction with Time-domain Analysis Simulation for Advanced Tracking (TASAT) code.

TASAT: The HPC Portal provides a user-programmable MATLAB interface to the validated Time-Domain Analysis Simulation for Advanced Tracking (TASAT) to deliver extreme fidelity in modeling all aspects of the process of observing space objects from sensors. TASAT automatically distributes work to multiple processors, delivering a powerful platform to develop and test sophisticated space situational awareness (SSA) algorithms.