

Leveraging Distributed Networked Cloud Testbeds for Domain Science Research and Experimentation

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Computational science today depends on complex, data-intensive applications operating on datasets from a variety of scientific instruments. A major challenge is the integration of data into the scientist's workflow. Recent advances in dynamic, networked cloud resources provide the building blocks to construct reconfigurable, end-to-end infrastructure that can increase scientific productivity. However, applications have not adequately taken advantage of these advanced capabilities. In the context of the DyNamo [4] project funded under the NSF Campus CyberInfrastructure program, we have developed a novel network-centric platform, Mobius [7], which enables high-performance, adaptive data flows and coordinated access to distributed multi-cloud resources (cloud research testbeds like ExoGENI [1], Chameleon [2], XSEDE JetStream [3], etc.), and data repositories for atmospheric scientists.

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