Cloud for Climate: Data & Resource Management on Cloud [1]

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Abstract:
Climate change can have adverse impacts on strength of storms. Even modest changes in Ocean surface temperature can have significant impact on hurricane strength, making the coastal regions increasingly vulnerable to storm surge. In an effort to understand these impacts, modelers use predictions generated by hydrodynamic coastal ocean models such as the Sea, Lake and Overland Surges from Hurricanes (SLOSH) model. Users who could benefit from the application include, but are not limited to the National Hurricane Center who is a partner on the project, Federal Emergency Management Administration (FEMA), and state and local emergency managers. The SLOSH model while being pivotal in emergency management, also offers an interesting challenge in computational science. Each SLOSH prediction run is an ensemble of 15000 instances on an average, making it an HTPC task well suited for cloud-computing. In this poster, we describe the execution model for running such large ensembles on commercial cloud, specifically on Windows Azure. We also describe the job scheduling and load balancing on cloud for improving efficiency, along with some early performance results and anticipated future work.

Collaboration Area: Cloud Computing [3]
Geospatial [4]
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