HYPERION RESEARCH

HYP_Link

NOAA and Microsoft Announce Cloud Computing Collaboration to Advance Climate-Ready Nation Mission

Jaclyn Ludema and Mark Nossokoff
December 2022

RECENT DEVELOPMENT

The US National Oceanic and Atmospheric Administration (NOAA) and Microsoft have entered into a Cooperative Research and Development Agreement (CRADA), formalizing NOAA's commitment to using Microsoft Azure cloud computing resources in the pursuit of NOAA's mission to build a Climate-Ready Nation by 2030. Several initiatives are envisioned whereby NOAA scientists and engineers will work with Microsoft experts to leverage Azure's machine learning and HPC capabilities:

- Fast-tracking innovative contributions to NOAA Earth Prediction Innovation Center (EPIC) earth systems modeling and research
- Applying machine learning capabilities to improve models supporting air quality, smoke, and particulate pollution forecasts, as well as relevant NOAA climate models
- Accelerating NOAA Fisheries' survey and observations data collection and management
- Creating new ocean observations cataloging efforts
- Designing resilient and accessible weather modeling and forecasting that can incorporate external data sources with NOAA enterprise data

ANALYST COMMENT

Commercial cloud service providers' investments in resources to support broader ranges of HPC workloads appear to be yielding results. Weather and climate researchers are following bioscience and manufacturing to the cloud. Succeeding the recent UK-Met Office agreement with Microsoft, NOAA's commitment to cloud computing tools is targeted to address some long-standing challenges NOAA faces, including adding fidelity or higher resolution to existing weather and climate models, aggregating weather and ocean observation data from remote/disparate locations, investing in onsite HPC hardware and software for testing forecasts and models, and addressing dynamic storage needs that come with seasonal forecasts. However, choosing to use cloud computing tools comes with a new set of hurdles for NOAA, including the effort required to port existing code to a cloud architecture and migrate data to cloud-based storage. Ultimately, NOAA aims for cloud computing to bring the flexibility, reliability, and security necessary for NOAA to reach its mission of a Climate-Ready Nation.