



Unidata cyberinfrastructure in the cloud: A progress report

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Data services, software, and committed support are critical components of geosciences cyber-infrastructure that can help scientists address problems of unprecedented complexity, scale, and scope. Unidata is currently working on innovative ideas, new paradigms, and novel techniques to complement and extend its offerings. Our goal is to empower users so that they can tackle major, heretofore difficult problems.

Unidata recognizes that its products and services must evolve to support new approaches to research and education. After years of hype and ambiguity, cloud computing is maturing in usability in many areas of science and education, bringing the benefits of virtualized and elastic remote services to infrastructure, software, computation, and data. Cloud environments reduce the amount of time and money spent to procure, install, and maintain new hardware and software, and reduce costs through resource pooling and shared infrastructure. Cloud services aimed at providing any resource, at any time, from any place, using any device are increasingly being embraced by all types of organizations.

Given this trend and the enormous potential of cloud-based services, Unidata is moving to augment its products, services, data delivery mechanisms and applications to align with the cloud-computing paradigm. To realize the above vision, Unidata is working toward:

- * Providing access to many types of data from a cloud (e.g., TDS, RAMADDA and EDEX);
- * Deploying data-proximate tools to easily process, analyze and visualize those data in a cloud environment cloud for consumption by any one, by any device, from anywhere, at any time;
- * Developing and providing a range of pre-configured and well-integrated tools and services that can be deployed by any university in their own private or public cloud settings. Specifically, Unidata has developed Docker for "containerized applications", making them easy to deploy. Docker helps to create "disposable" installs and eliminates many configuration challenges. Containerized applications include tools for data transport, access, analysis, and visualization: THREDDS Data Server, Integrated Data Viewer, GEMPAK, Local Data Manager, RAMADDA Data Server, and Python tools;
- * Fostering partnerships with NOAA and public cloud vendors (e.g., Amazon) to harness their capabilities and resources for the benefit of the academic community.