

Collaborative Efforts and Contributions of the GES DISC Team to Enable OPeNDAP in the Earthdata Cloud

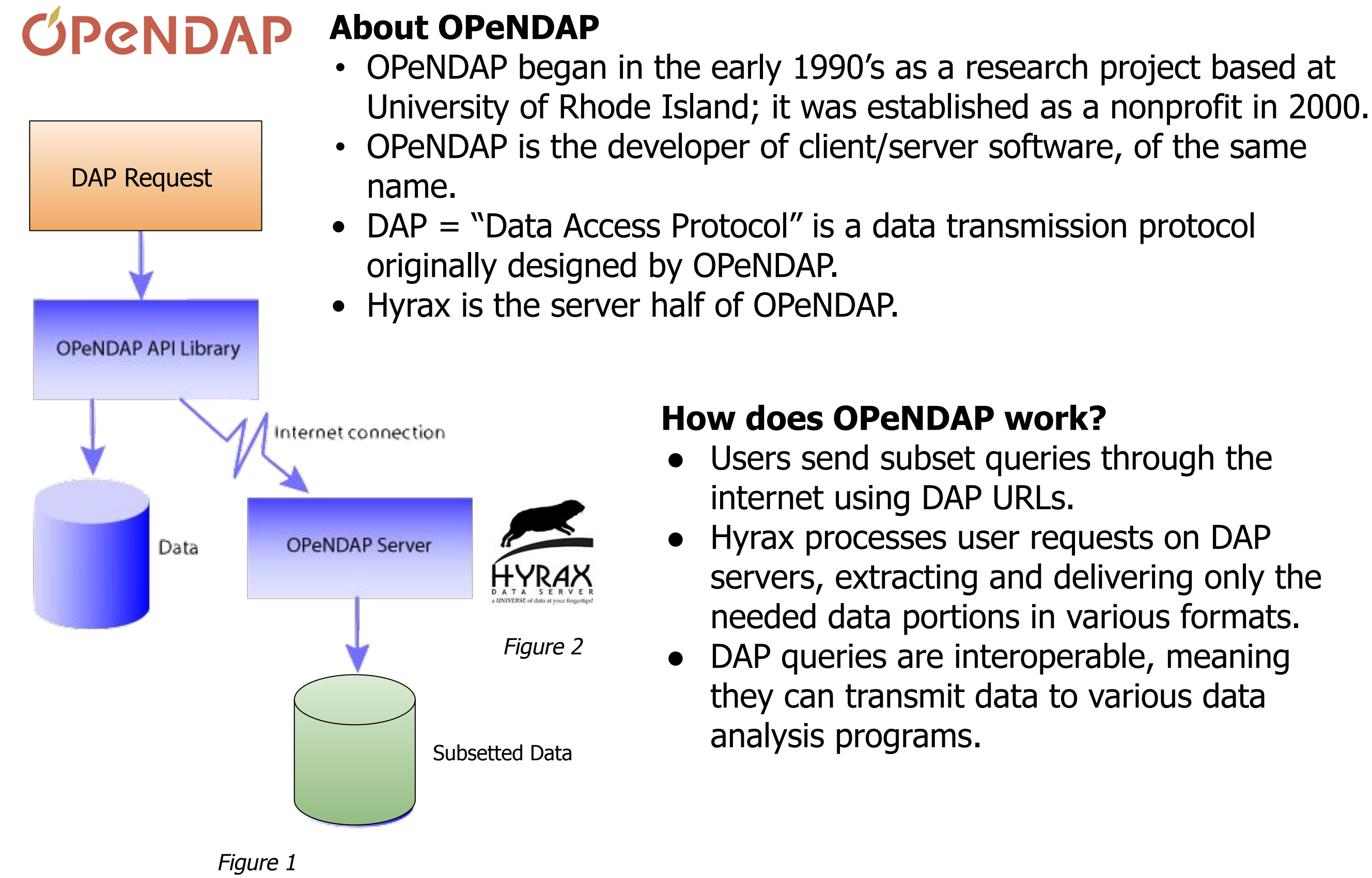
Learn about how the Goddard Earth Sciences Data Information and Services Center (GES DISC) is enabling and educating users about OPeNDAP in the Cloud to enable efficient cloud data access towards NASA’s goal of furthering open science.

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Introduction

NASA DAACs (Distributed Active Archive Centers), including the Goddard Earth Sciences Data Information and Services Center (GES DISC), are currently transitioning from on-premises servers to a shared Earthdata Cloud in order to build more interoperability, cross-collaboration, and streamlined services between their data centers. Migrating its on-premises OPeNDAP service to the cloud is a critical component of making this interconnectedness between NASA DAACs possible. To improve their cloud services, GES DISC is leveraging open-source platforms like Github to collect user feedback, create use cases, and develop resources to enable real-time learning for users about OPeNDAP in the cloud. This presentation gives an overview of the OPeNDAP in the cloud, resources developed to access this service, and considerations for improved user guidance and experience to further support NASA's commitment to the Open-Source Science Initiative (OSSI).

What is OPeNDAP?



What is the Earthdata Cloud?

- **Earthdata Cloud:** NASA is migrating its data to the AWS Cloud, away from traditional on-premises servers.
- **Advanced Data Accessibility:** Offers efficient and scalable access to vast datasets, supporting the Earth science community through cloud-based tools and services.
- **Alignment with OSSI:** The Earthdata Cloud complements NASA's Open Source Science Initiative (OSSI), supporting open science principles and enabling wider data sharing and collaborative research efforts.

References

• Figure 1: NASA Earthdata. (n.d.). *The Architecture of a Data Analysis Package Using OPeNDAP*. [Infographic]. Retrieved November 22, 2023. https://www.earthdata.nasa.gov/s3fs-public/imported/opendap_user_guide_2.jpg?VersionId=0PaIQquAA0t03PKPnkvuK8EkoFIQR

• Figure 2: OPeNDAP Inc. (Hyrax Data Server Logo). (n.d.). [Logo]. Retrieved November 22, 2023.

• Figure 3: NASA Earthdata (2023). [Earthdata Cloud Logo]. [Logo]. Retrieved November 22, 2023. https://www.earthdata.nasa.gov/s3fs-public/2023-04/EarthdataCloud-Logo-blue_300x300_art_thk20%281%29.jpg?VersionId=0Q7uJm5Wtqg_WA9pvE0VjD4KsGyk7wc

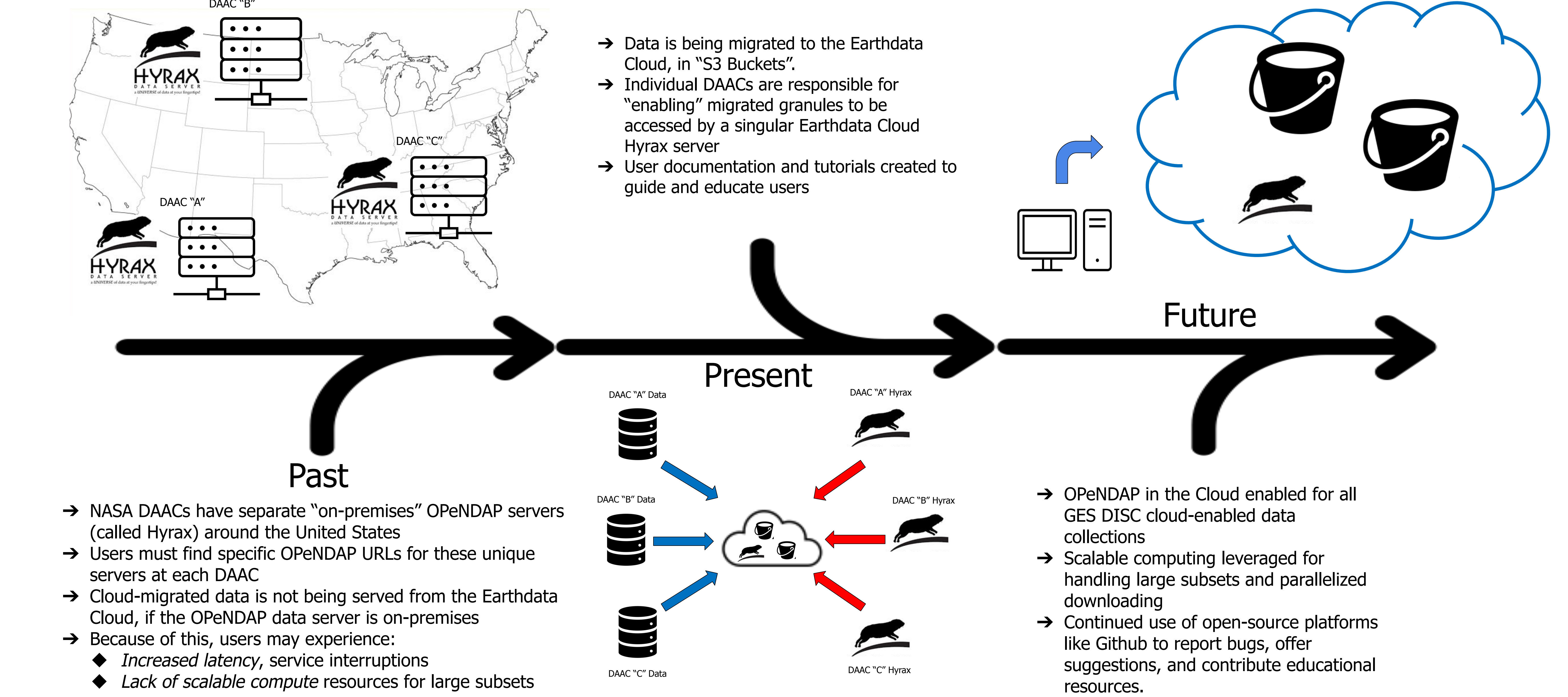
• Figure 4: NASA GES DISC. (2023). [A screenshot of the NASA GES DISC “OPeNDAP In The Cloud” web page]. [Screenshot]. Retrieved November 22, 2023. <https://disc.gsfc.nasa.gov/information/documents?title=OPeNDAP%20in%20The%20Cloud>

• Figure 5: Openscapes. [A screenshot of the Openscapes NASA Earthdata Cloud Cookbook OPeNDAP Tutorial]. (2023). [Screenshot]. Retrieved November 22, 2023. https://nasa-openscapes.github.io/earthdata-cloud-cookbook/tutorials/Earthdata_Cloud_Data_Access_OPeNDAP_Example.html

• Figure 6a, 6b: OPeNDAP, Inc. [Screenshots from the OPeNDAP AsciiDoc Quick Start and User Guide web pages]. (2023). [Screenshot]. Retrieved November 22, 2023. <https://www.opendap.org/documentation/>

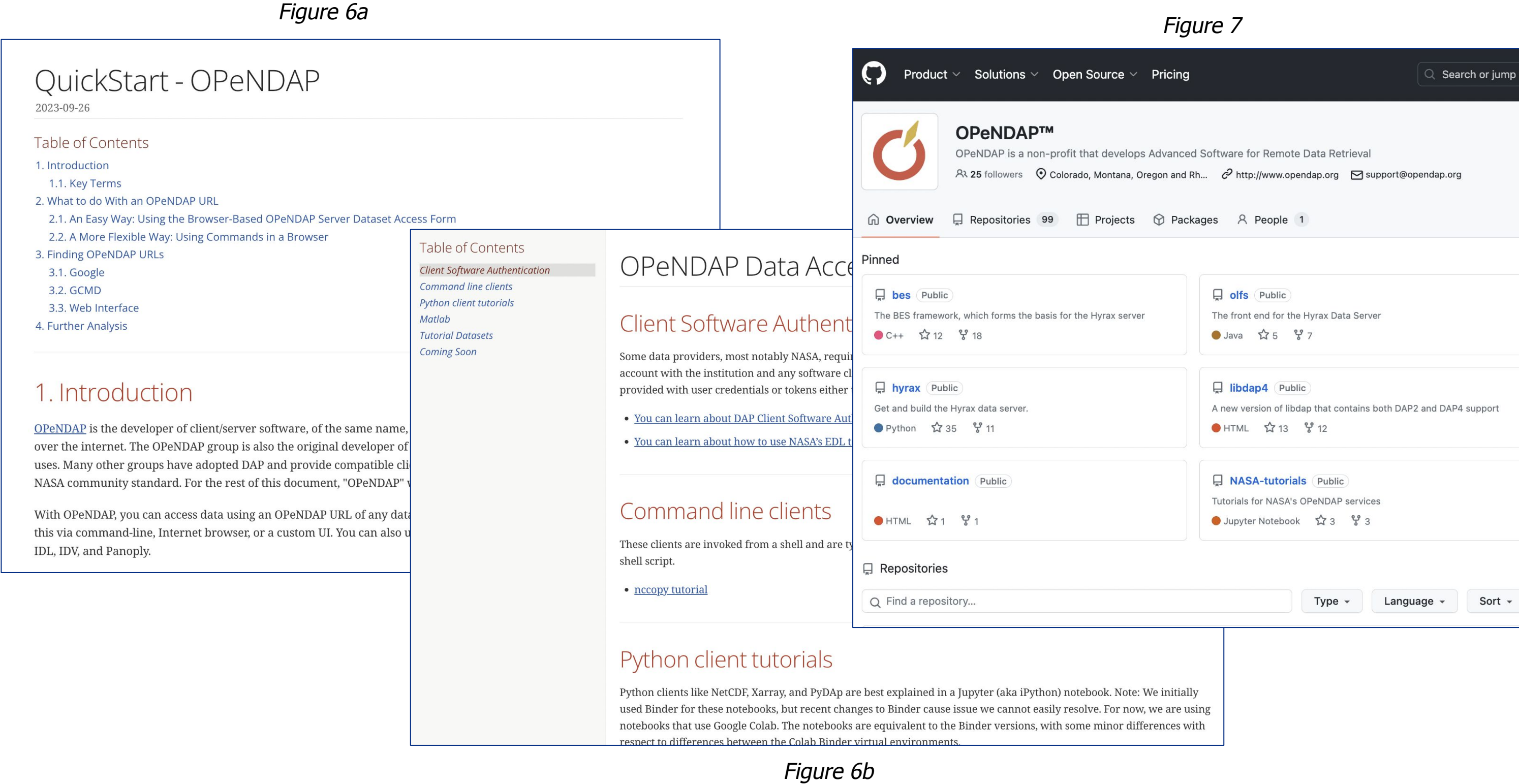
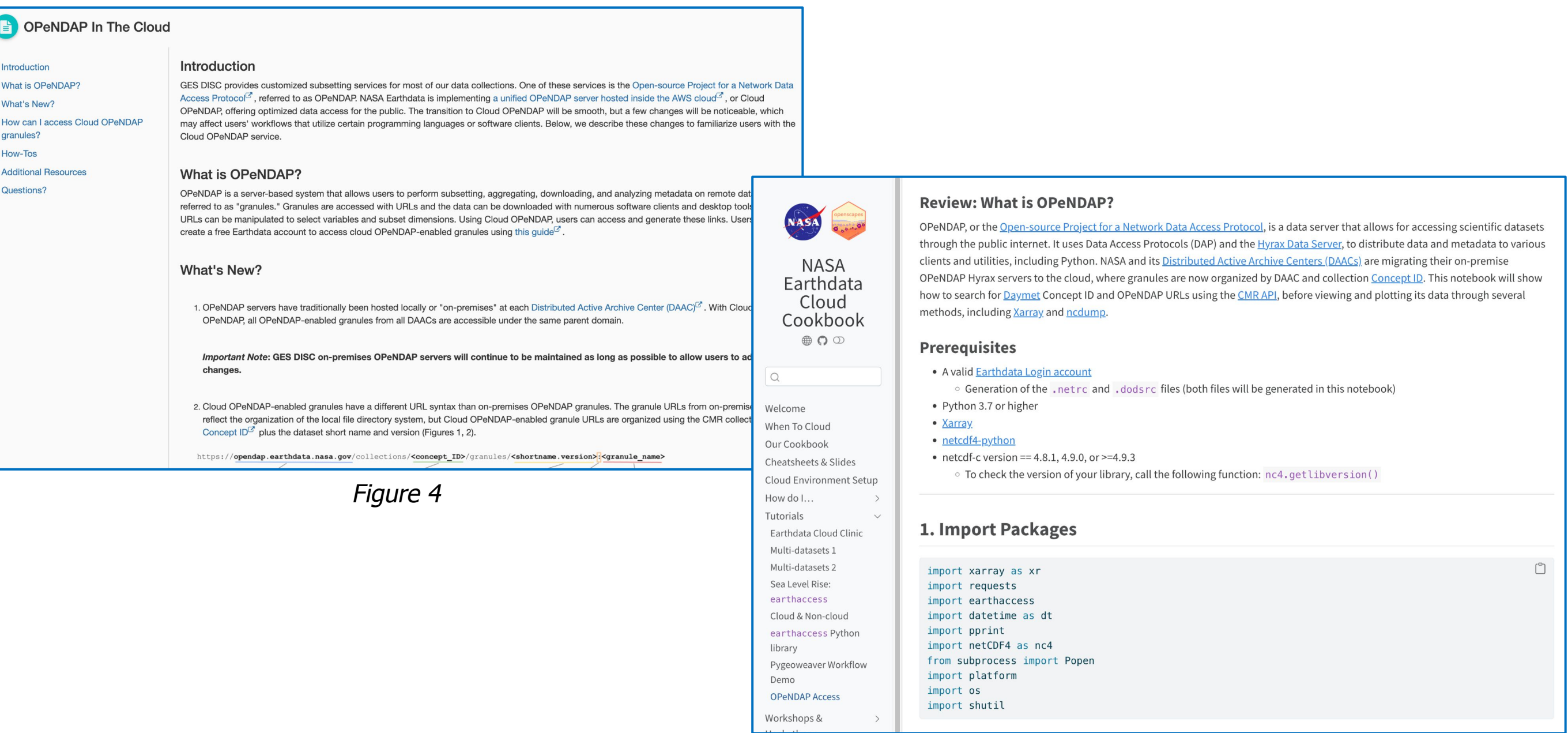
• Figure 7: [A screenshot of the OPeNDAP Github web page]. (2023). [Screenshot]. Retrieved November 22, 2023. <https://github.com/opendap>

Enabling OPeNDAP in the Earthdata Cloud



Coordination, Communication, and User Support

- Developer Communication and Educational Resources**
- **Community Coordination:** Sharing knowledge and ideas through coordination spaces like Openscapes and ESIP.
 - **DAAC Communication:** Open communication between OPeNDAP developers and GES DISC during development, troubleshooting, and optimizing GES DISC Cloud OPeNDAP “rollouts”.
 - **Creating User Resources:** Developing coding tutorials and documentation to help users learn and adapt workflows.
 - **User Education via Workshops:** Offering both in-person and online workshops to enhance user knowledge and skills.



- User Support**
- **Interoperable Data Systems:** Prioritizing the development of advanced, interoperable data systems to provide flexible and comprehensive support, moving beyond the 'either-or' approach in system choices.
 - **Breaking Down Silos:** Leveraging Jupyter Notebooks to bridge gaps between different programming languages, enhancing cross-language collaboration.
 - **Public Engagement via GitHub:** Utilizing GitHub for bug reporting and gathering suggestions, fostering community-driven improvements and transparency.