Update on NASA's Solar Data Analysis Center

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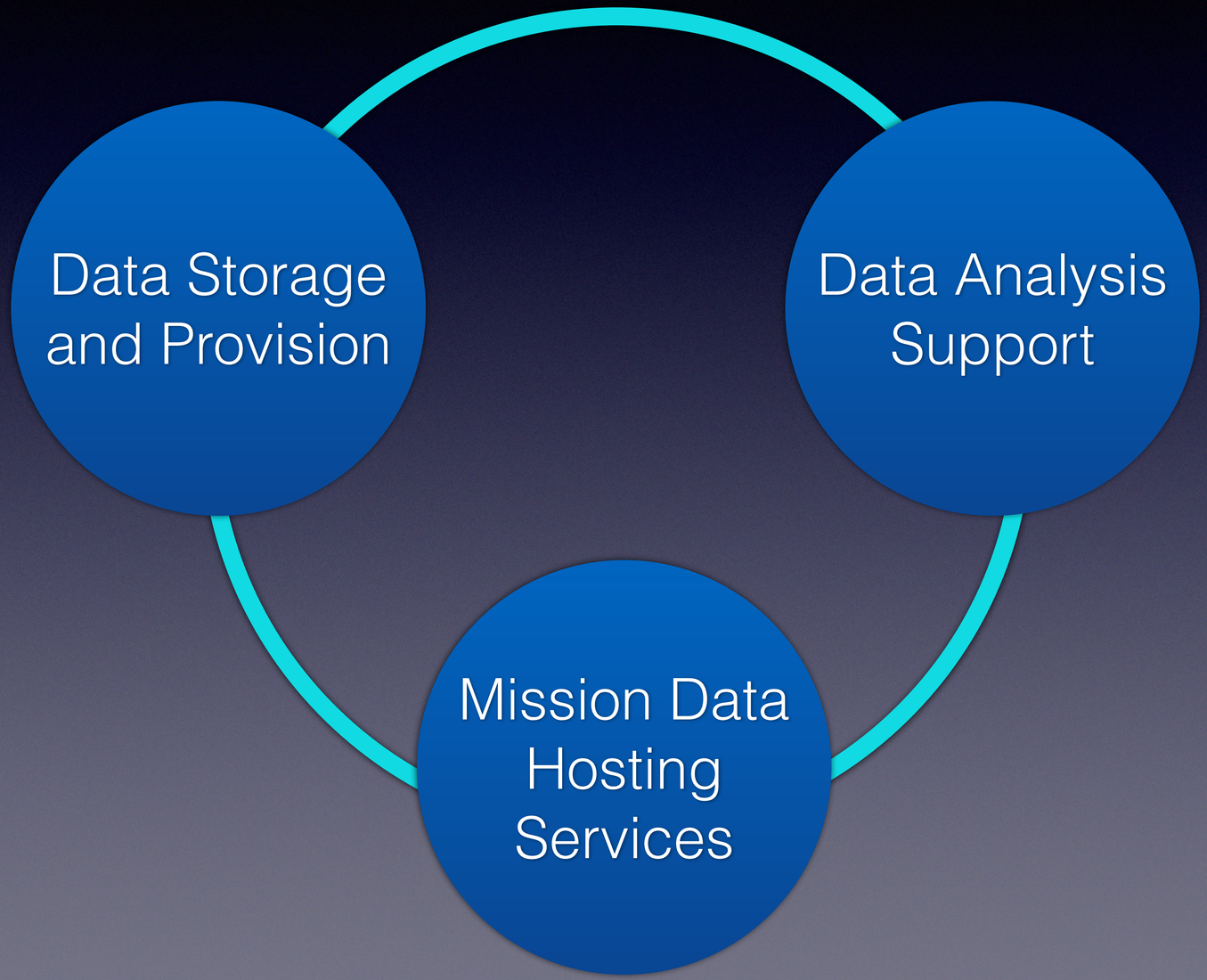
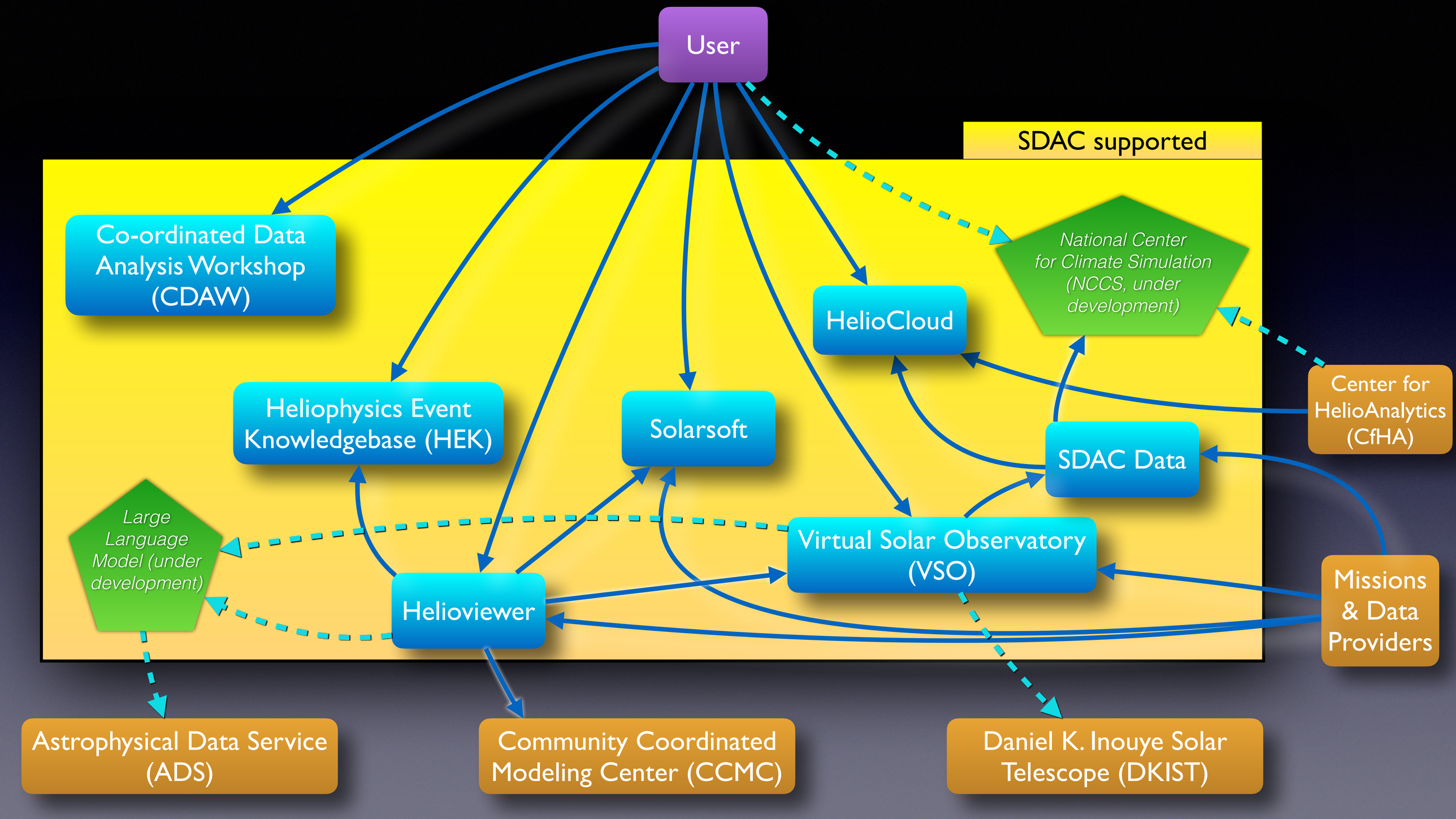
SDAC


Data Storage and Provision
Data Analysis Support
Mission Data Hosting Services


User
SDAC supported
Co-ordinated Data Analysis Workshop (CDAW)
National Center for Climate Simulation (NCCS, under development)
HelioCloud
Center for HelioAnalytics (CfHA)
Heliophysics Event Knowledgebase (HEK)
Solarsoft
SDAC Data
Large Language Model (under development)
Virtual Solar Observatory (VSO)
Helioviewer
Missions & Data Providers
Astrophysical Data Service (ADS)
Community Coordinated Modeling Center (CCMC)
Daniel K. Inouye Solar Telescope (DKIST)

Virtual Solar Observatory

- New data available
  - MinXSS-1/2, NAOJ (Hα), HSOS/SUTRI, Sunrise, NWRA/MEES, Solar Orbiter EUI/SPICE/SoloHI, WISPR (encounters 12-15)
- Moved development to *git*
- Use of TAP (see E. Mansky's talk)
- Publicly available daily health reports, performance statistics

- Future
  - Re-write of core VSO
  - Updated Data Model
  - More use of Python
  - Model - View - Controller application model
  - More open development
  - Modernized web page

Solarsoft

- Continued support
  - Used by missions in data processing pipelines and in scientific research
- Future
  - Portions of Solarsoft will be available via code-hosting platforms to enable better reproducibility.

Helioviewer

- Selected CCMC data products now available
- GONG and IRIS data available via helioviewer.org
- Python client for Helioviewer API
- Python HAPI client for Helioviewer image data
- Future
  - New client under development
    - 3d movie streaming in browser
    - Same data as other Helioviewer clients
  - STEREO Beacon, more spectroscopic data, TRACE, RHESSI images

National Center for Climate Simulation (NCCS)

- Collaboration with NASA Earth Science Division
- Heliophysics data (605 TB so far) + NCCS compute hardware + NCCS notebook environment
- Open **NOW** to anyone with a NASA affiliation
- SDAC purchased hardware + SDAC managed services

Discover Supercomputer

Prism GPU cluster

ADAPT Science Cloud

Large Language Model

- Early stage of development
- Uses GPT4 to analyze science papers
- Initial application: *“Is this paper a SOHO paper or not?”*
  - ~94% accuracy
- Other applications
  - Read a paper, find which data was analyzed, automatically generate links to access/visualize data

END