Cloud Cyberinfrastructure Services for Agile Facilities

Ian Foster
University of Chicago and Argonne National Laboratory
Globus – globus.org
foster@uchicago.edu

Science builds software silos, not always effectively

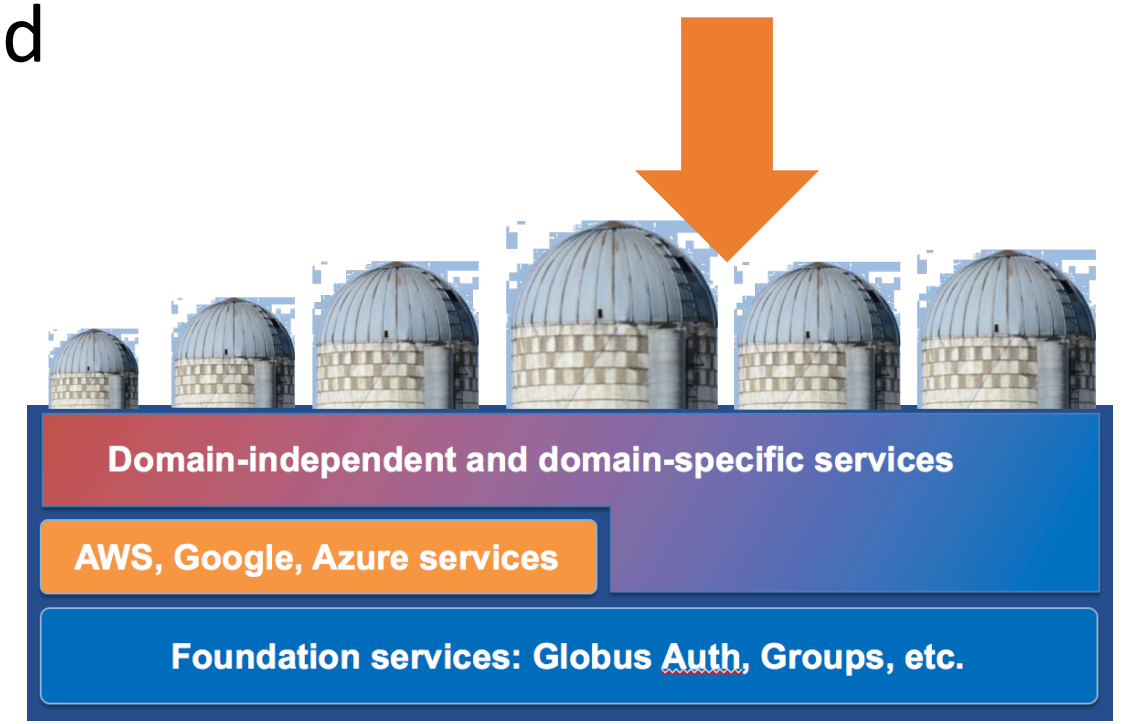
Open Science Grid

- Expensive
- Lack of skilled staff
- Quality challenges
- Non-interoperable
- Technical debt
- Support burden
- Slows research

Cloud services can slash costs, simplify access, increase interoperability

For example, via RESTful APIs:

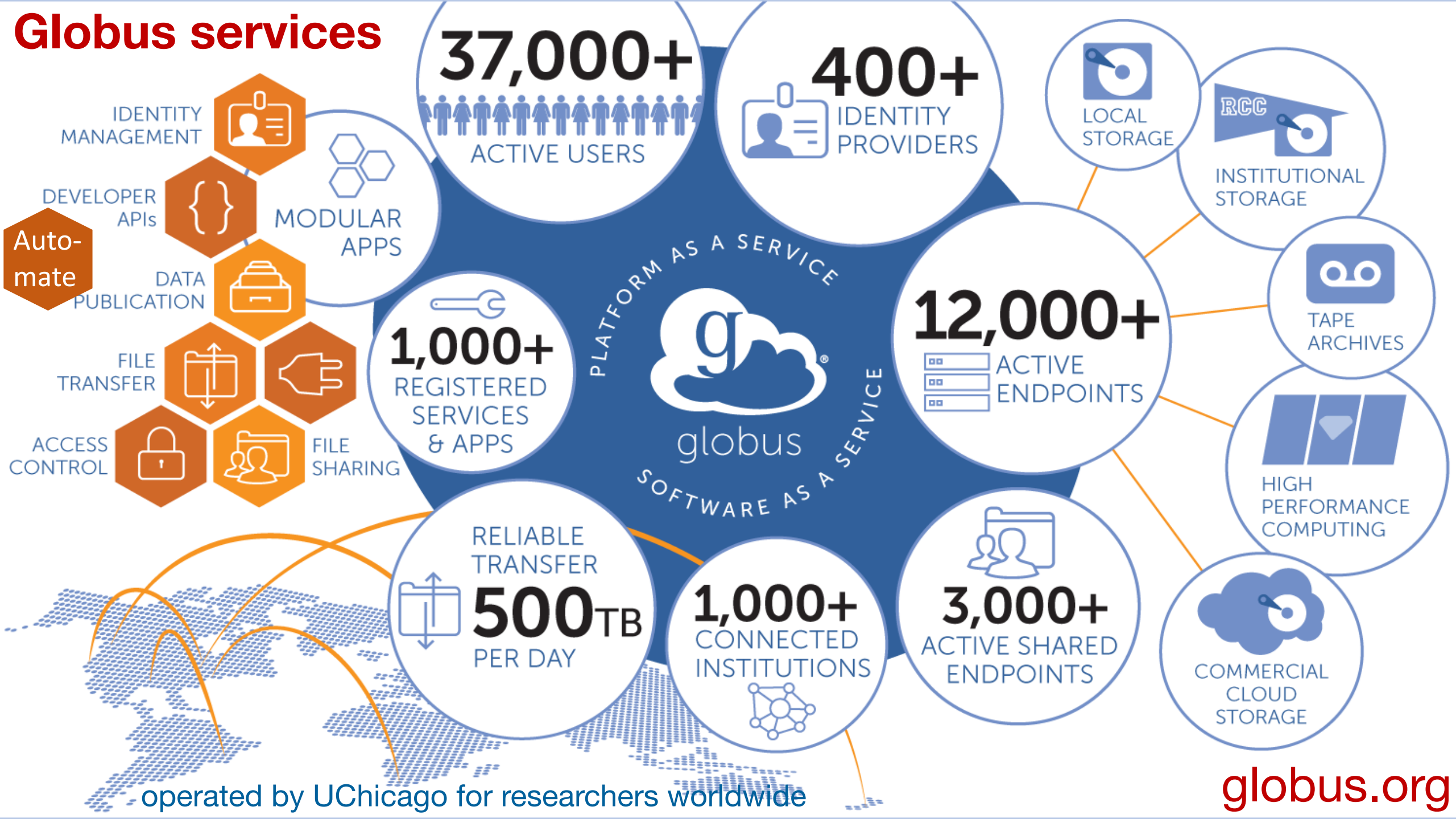
- Federated identity, group, authorization management
- Data management easily integrated with application workflows
- Data automation pipelines



Vital: reliability, extensibility, sustainability

Thanks: **Riley Conroy, NCAR**

Globus services

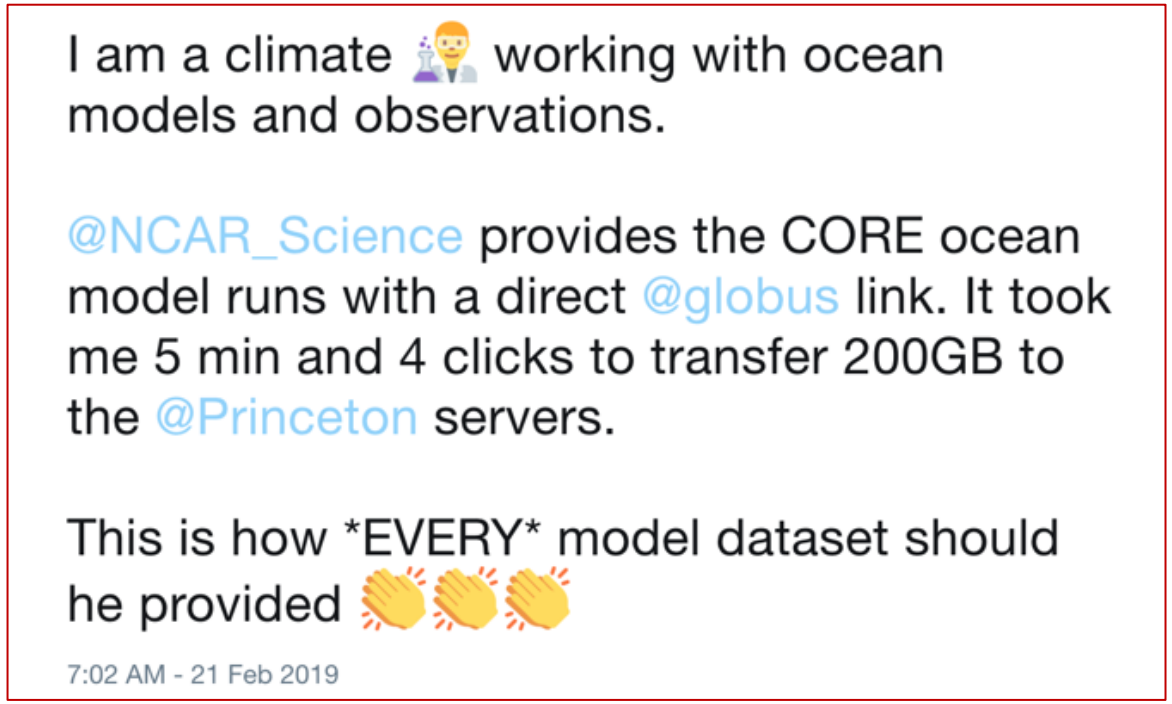


operated by UChicago for researchers worldwide

globus.org

For example, NCAR Research Data Archive

- Outsource to Globus service responsibility for managing access and enabling downloads
- RDA portal is greatly simplified (makes Globus API calls), more functional, faster, more reliable



RDA-Globus by the numbers

4.5
years in operation

4,800
unique users

39
countries

8,890
data shares

34,400,000
files transferred

1.25
petabytes moved

(through March 2019)