CICompass

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Migrating two Major Facilities from on-premise data centers to a common cloud platform mid-merger

By Chad Trabant

The March Toward the Clouds: MF Perspectives

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CI Compass Cyberinfrastructure for NSF Major Facilities Workshop

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Migrating two Major Facilities from on-premise data centers to a common cloud platform mid-merger

Chad Trabant, Incorporated Research Institutions for Seismology

GAGE Geodetic Facility for the Advancement of Geoscience

UNAVCO

SAGE Seismological Facility for the Advancement of Geoscience

IRIS

NSF awards EAR-1851159 (GAGE-EAR), EAR-1851163 (GAGE-OPP)

NSF awards EAR-1851048 (SAGE-EAR), EAR-1851037 (SAGE-OPP)

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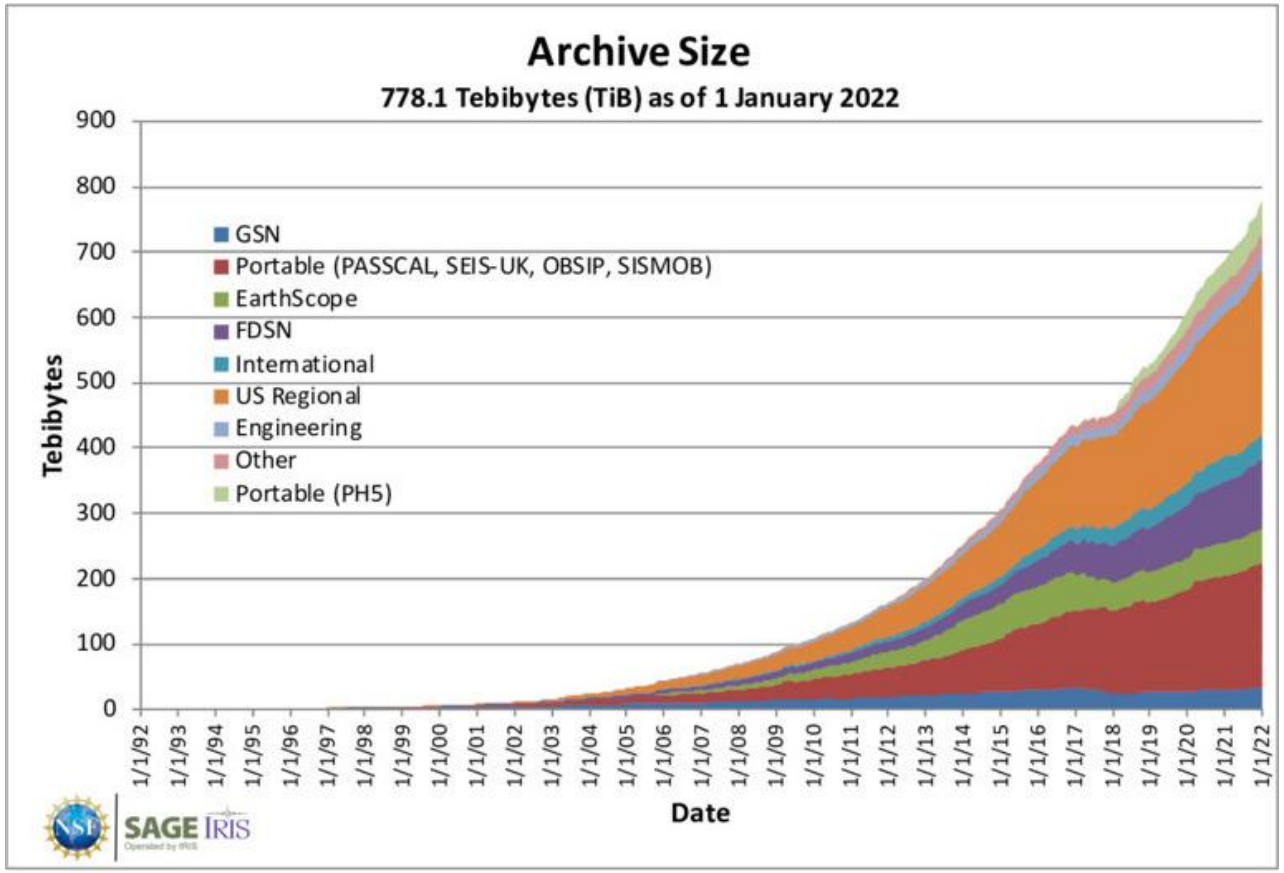
Who: the current facilities

- Primary data facilities supporting **seismological** and **geodetic** research in the US as well as many international researchers
- Dependent on on-premise systems
- Operating for nearly 3 decades
- Petabytes of data, 10s of thousands of stations, 100s of thousands of data streams



Growth of the primary archive of the SAGE facility operated by the IRIS Data Management Center. **All repositories across both facilities are expected to total 2-3 petabytes.**

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Why 1/2: motivations for facility operation

- **Cost effective operation**
- **Highly scalable operation**
- **Generalized systems - ready for other data types**
- **Opportunity to reduce legacy technical debt**
- **NSF requested a cloud-based prototype**

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Why 2/2: anticipated impacts on researchers

- **Data processing in the same or data proximate cloud environment**
- **Integrated geophysical data discovery**
- **Significantly enhanced ability to transfer large volumes of data**
- **More capacity for current access mechanisms, easy transition to enhanced services**

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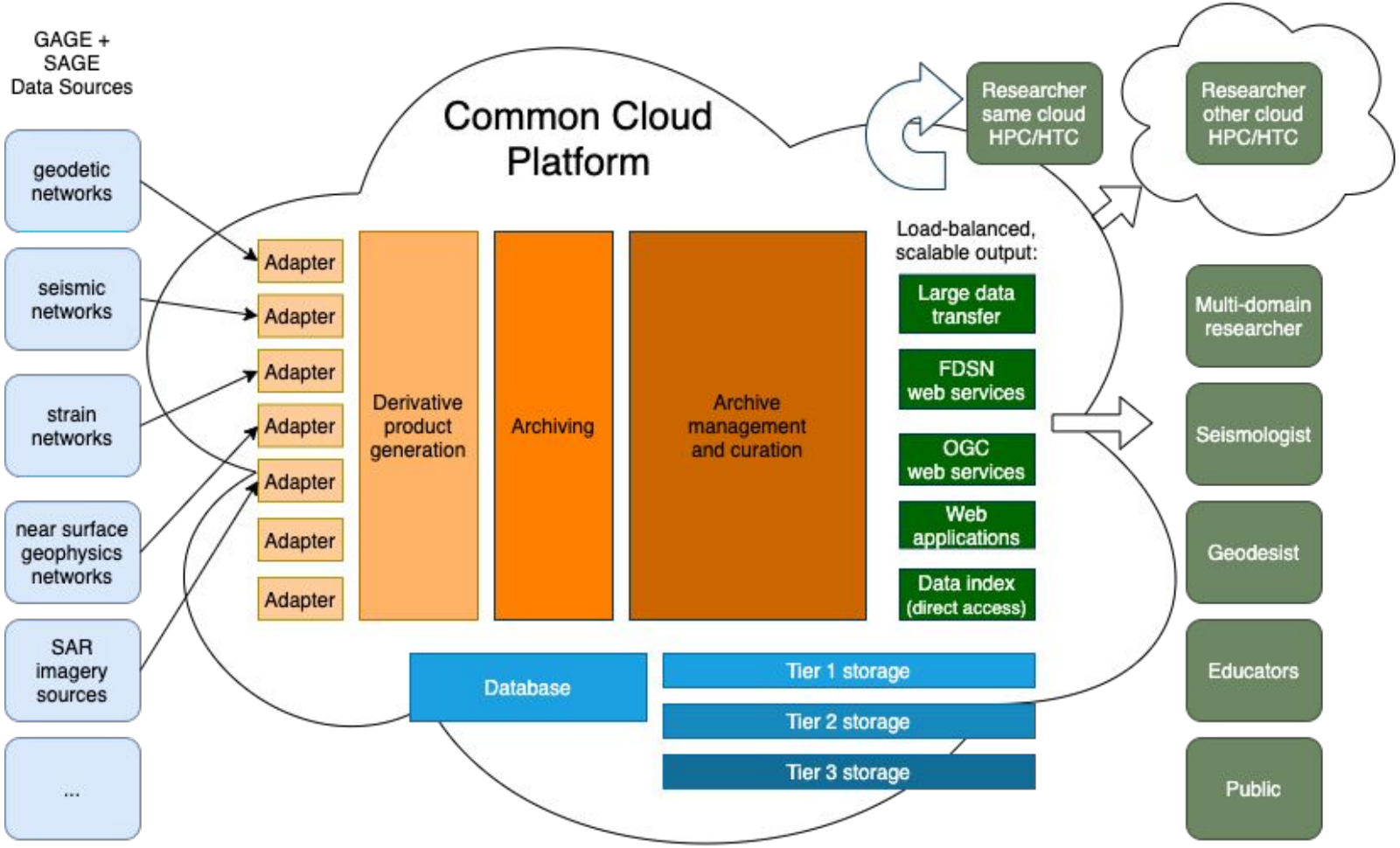
What: a common geophysical data platform



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Primary current challenges

- **Adapting data management systems for the cloud**
- **Adapting to generalized components, de-siloing**
- **Understanding and mitigating new hotspots, e.g.:**
  - **Data egress costs and options, projected egress: 1-2 petabytes annually**
  - **Continuous and rapid cost management (FinOps)**
- **Workforce development, re-alignment for the cloud**
- **Research community training and support for new capabilities**

Concurrent with a corporate merger and while operating the on-premise systems!

We are grateful for the inclusion of CICompass expertise in our working groups!