



CloudBank

Managed Services to Simplify Cloud
Access for Computer Science
Research and Education



NSF Award: 1925001

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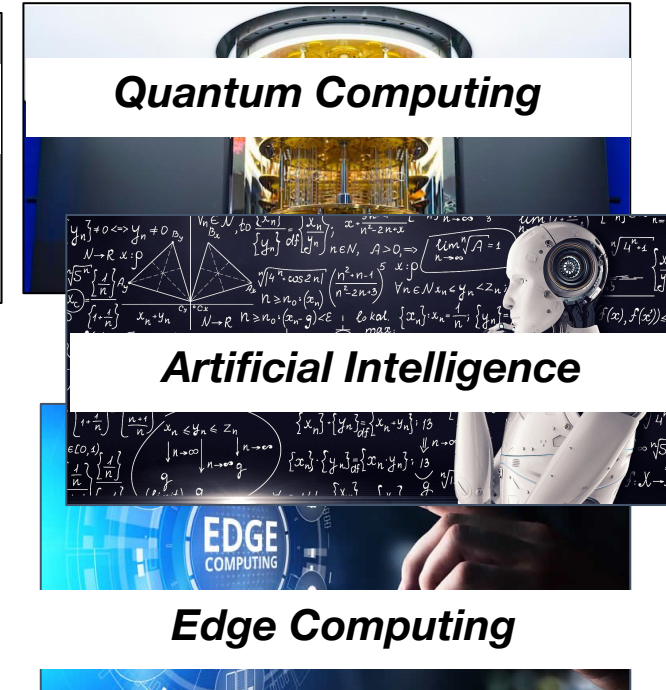
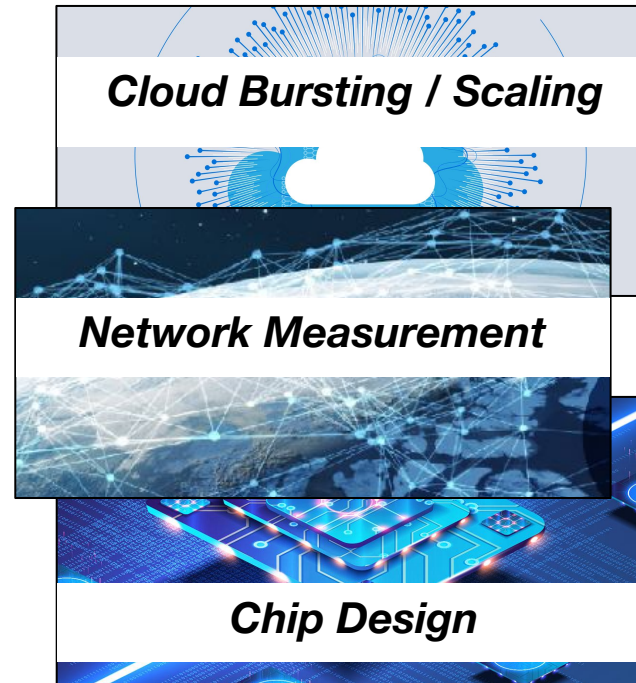


Introduction


- 5-year pilot project funded by the National Science Foundation (US)
- Collaboration between UC San Diego/SDSC, Univ of Washington, UC Berkeley, and Strategic Blue
- Response to a NSF solicitation released in 2018 calling for a “CloudAccess” entity
- Started in August 2019 (currently in year 4)




Public Cloud Case Studies



<http://www.cloudbank.org>




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Managed Services to Simplify Cloud Access
for Computer Science Research and Education

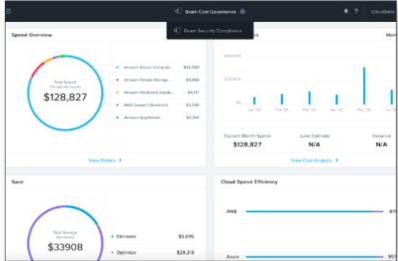
FEATURES

For an overview of CloudBank and key features of the portal, please see [our recent webinar](#) and [write-up in Science](#).
For an introduction to using public clouds, please see our [Cloud 101 videos](#).




User Portal

Researchers can manage their cloud resources and monitor their usage through the CloudBank user portal.



Financial Operations

CloudBank simplifies accounting processes and helps optimize resource usage for researchers.



Education & Training

CloudBank offers classroom tools, training workshops and videos, curated training materials, and individual support to help researchers get started.



Google Cloud



CloudBank uses
*a multi-cloud,
pay-per-use
model*

Training: Introduction to Cloud



Thinking Cloudily



Costing



Cloud Services



Collaboration



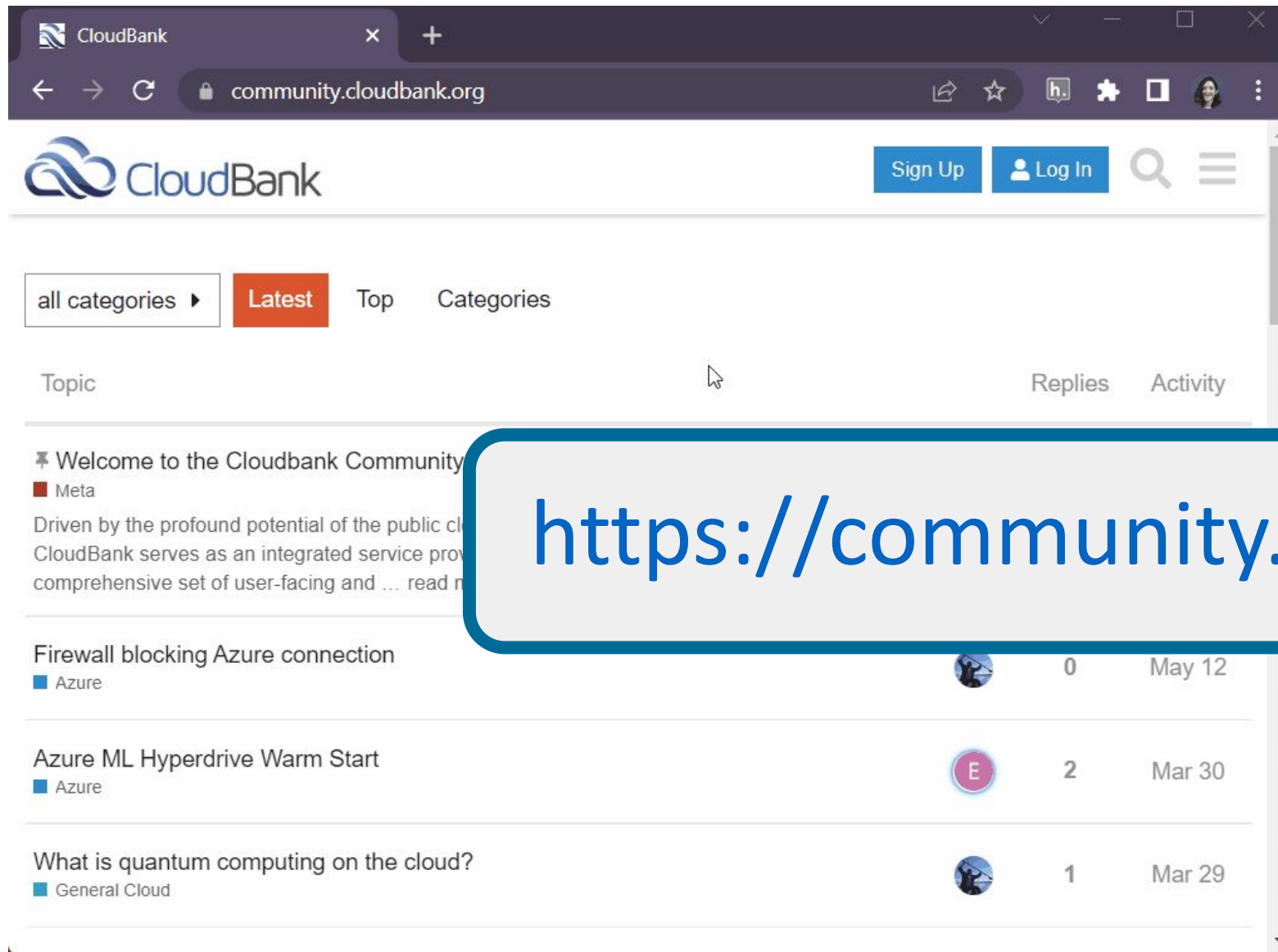
Security



Scale



<https://cloudbank-project.github.io/cb-resources/cloud101/>



<https://community.cloudbank.org>



Teaching in the cloud - Data Science @ Berkeley

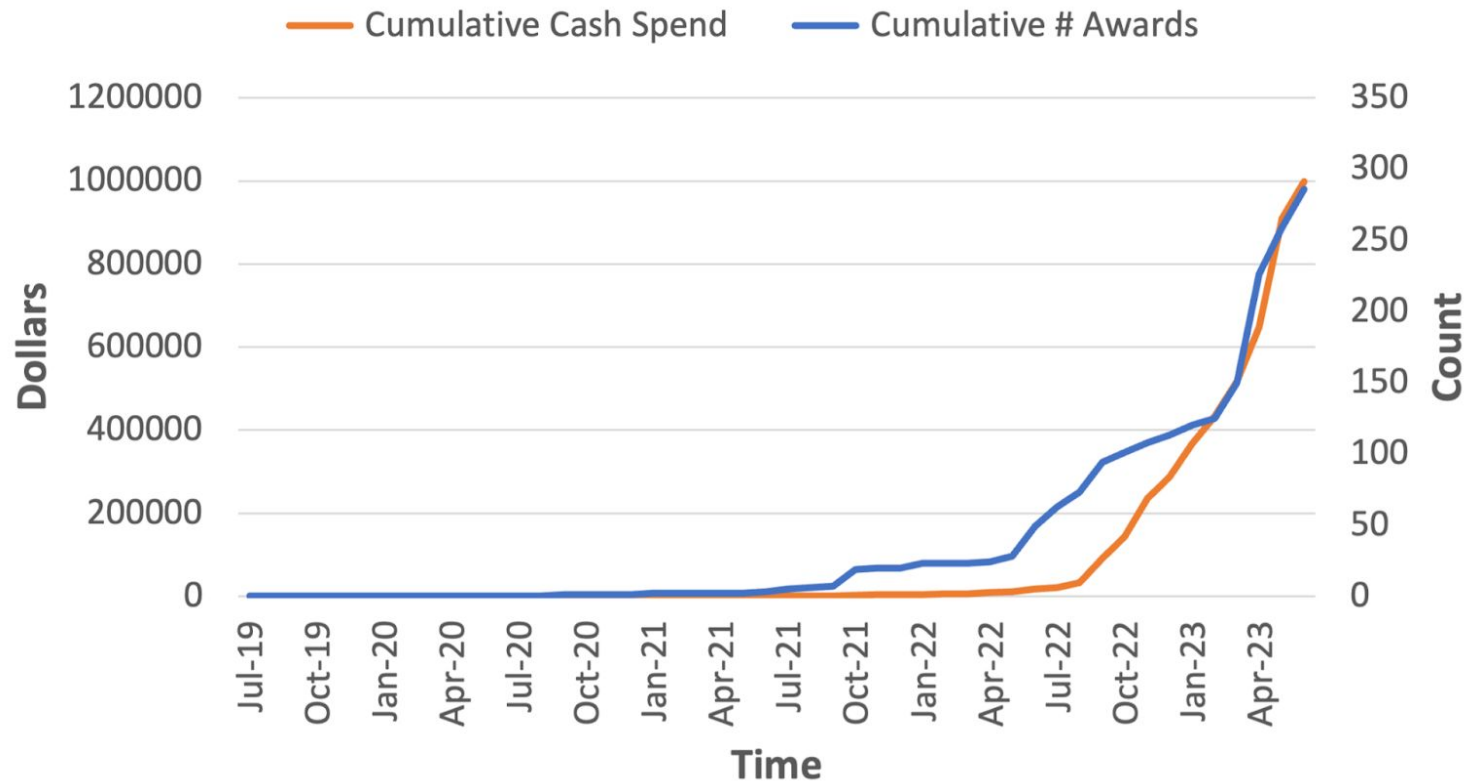
- Curriculum based around interactive Jupyter notebooks
- Students can do homework and lab assignments from any internet-enabled device
- UC Berkeley 10,000 students per month on server
- Data 8 - 1500 students in class
- Integrated auto-grading tools



The screenshot shows the Data 8 book interface. On the left is a table of contents with sections: 1. Data Science, 2. Causality and Experiments, 3. Programming in Python (expanded), 3.1. Expressions, 3.2. Names, and 3.3. Call Expressions. The main content area on the right is titled '3.3. Call Expressions' and explains that call expressions invoke functions. It shows a code editor with the expression `abs(-12)` and its output `12`. Below that, it shows `round(5 - 1.3)` with output `4`, and `max(2, 2 + 3, 4)` with output `5`.

CloudBank Usage Statistics

NSF Awards Supported by CloudBank
(thru 06/15/23)



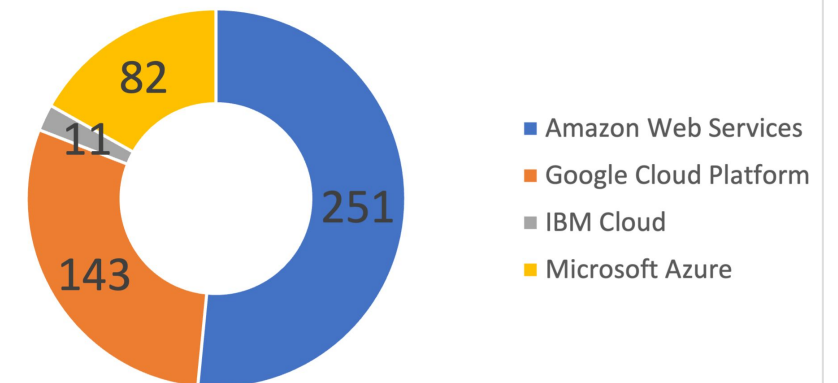
IBM Cloud



Google Cloud



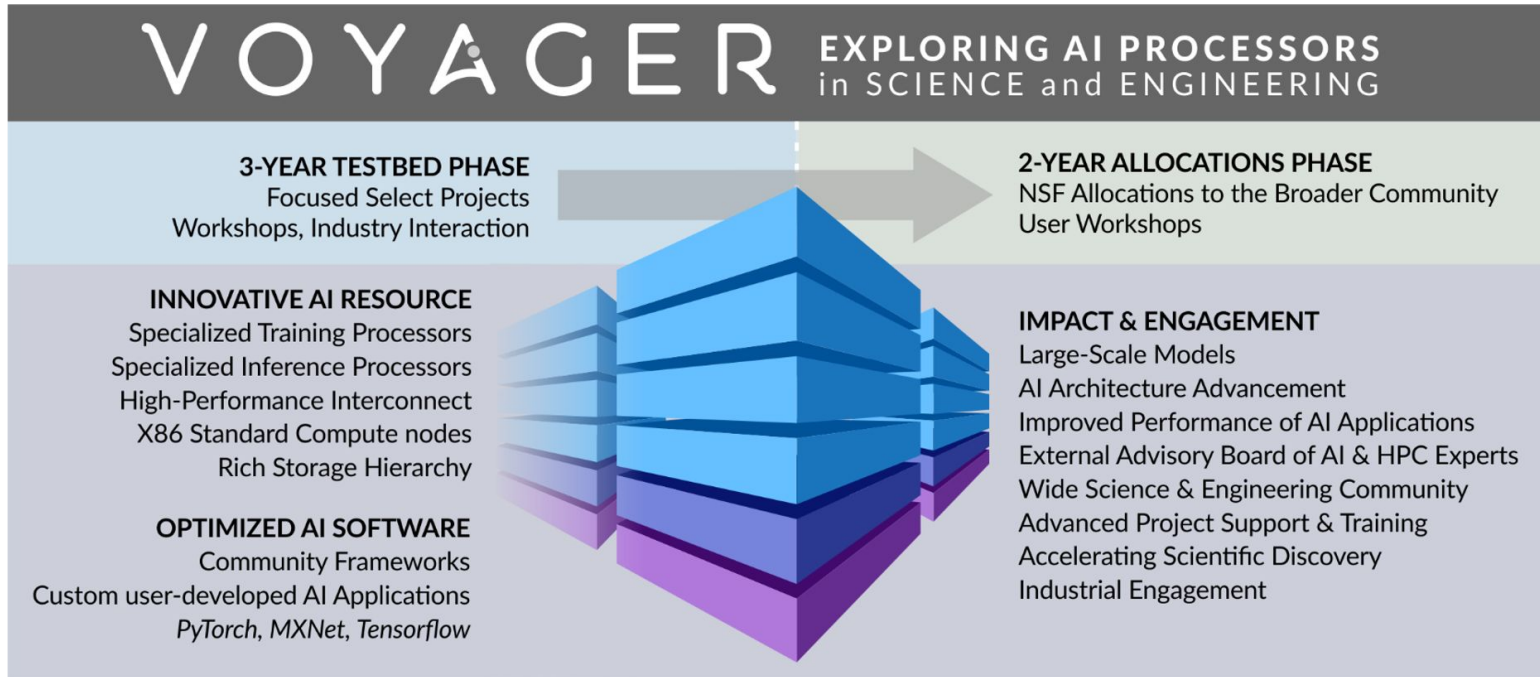
Cloud Accounts By Provider
(total 487)



Collaboration Ideas

1. **Interest in adopting CloudBank Portal and /or CloudBank model?** Replace some of the PRAGMA Cloud Testbed infrastructure utilizing credits?
2. **Interest in learning how to run classes in the cloud?** Berkeley Data Stack / 2i2c.org
3. **Interest in using or contributing to cloud training materials?**
4. **Interest in analyzing cloud usage data?**
5. **Interest in collaborating on cloud administration tools?**
6. **Sharing of cloud vendor opportunities?**

One More Collaboration Idea



Training Nodes: Supermicro X12 Gaudi



Inference Nodes: Habana first-generation



- Currently in experimental phase
- TensorFlow and PyTorch frameworks supported natively on Habana processors
- Users can train deep learning models on Gaudi with minimal code changes
- Jobs run using Kubernetes
- Interactive access possible with shell access to running pods and also via Jupyter notebooks

Want to try run your AI app on Voyager?

Thank you! Questions?



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