

A Framework for Planning: Research and Academic Engagement Technology Services

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Office of CIO
Research IT

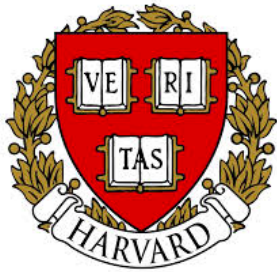
VP Teaching,
Learning, Academic
Planning, Facilities
ETS

VC
Research

University
Library

Berkeley Resource
Center for Online
Education
(BRCOE)

Berkeley Peer Institutions



.. UCLA ..



Peer Benchmarking Report: Shared Research Computing

November 22, 2013

Subject Experts

Steve Masover, Patrick Schmitz, Chris Hoffman - IST-RIT; Harrison Dekker - Library Data Lab

Description

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Includes provision for research *and* teaching of: "traditional" HPC (highly parallelized computing), Data Science methodologies & computational resources, high-powered workstations (including VMs) to support computation at a level between a typical desktop/laptop and an HPC cluster or VM array. Secure compute, storage, data transfer, and data archiving are also in scope.

Criteria

Benchmarking Criteria

- **Coordinated program** that includes a suite of coordinated services to support computational research and teaching, including a roadmap for service evolution.
- **Support for diverse computational research techniques**, e.g., 'traditional' HPC, virtual machine arrays, and high-powered workstations (which may be virtualized); as well as data transfer and lifecycle management.
- **Training:** Availability and breadth of training.
- **Documentation:** Availability and breadth of documentation.
- **Consulting services:** Including assessment and advice on aligning research problems/needs to available computational resources; grant writing, hardware and software purchasing, and software design, tuning, and refactoring consultation.

Findings

Summary of Findings

Tier	Description	Institutions
1	<ul style="list-style-type: none">• Strong across all benchmarking criteria	UC San Diego, Princeton, Northwestern
2	<ul style="list-style-type: none">• Strong in most benchmarking criteria, stronger in some areas than others.	Harvard, Michigan, MIT, NYU, UCLA, Virginia
3	<ul style="list-style-type: none">• Mixed assessment	Columbia, Stanford, Cornell, UW
4	<ul style="list-style-type: none">• Weak assessment in most or all areas.	Berkeley

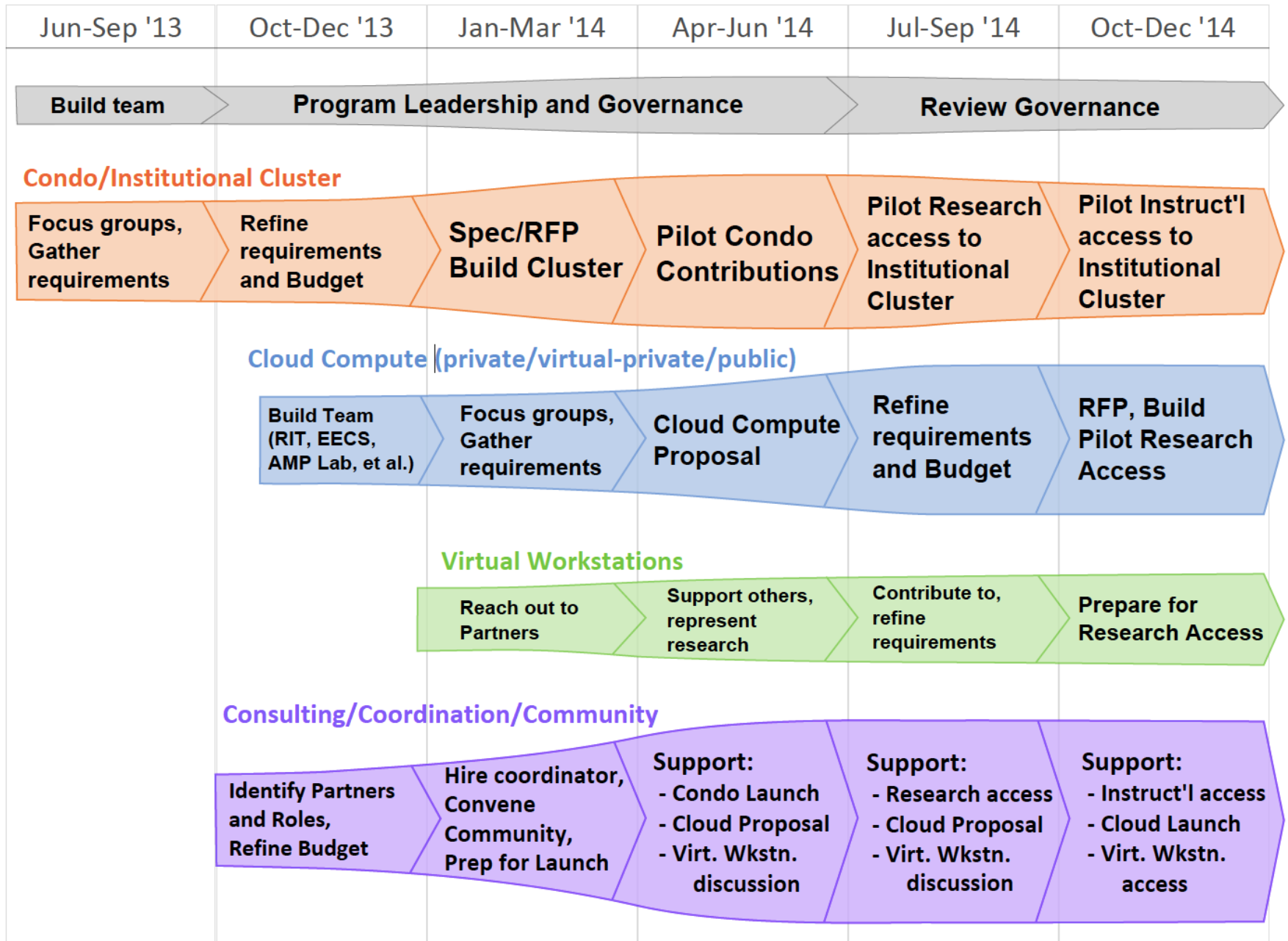
Draft Recommendations

Recommendations

Tier	Action
4 → 2	Build a comprehensive program for research computing that provides a range of services from traditional HPC to cloud VM resources to virtual workstations. Develop a community of consultants who have joint appointments in schools, colleges, centers with RIT. One time investment of approx. \$1.2 million and recurring investment of up to \$1.8 million.
2 → 1	Use Berkeley's strengths in innovation and partnerships with such groups as EECS/Amp Lab, D-Lab, BIDS, and science centers to grow new services in cloud-based HPC and virtual research workstations.

UC Berkeley Research Services		UC Berkeley Teaching & Learning Services	
Data Analysis: Quantitative & Qualitative	3	Course & Program Evaluation	4
Data Visualization & GIS	3	ePortfolio Support	4
Linked Open Data & Semantic Web	4	Instructional Content Creation	3
Museums, Archives, & Special Collections	2	Learning Management Systems & Support	3
Preservation Services	4	Learning Spaces	3
Research Application Dev. Support	3	Online Courses	3
Research Computing (HPC+)	4	Technology Enhanced Teaching & Learning	3
Research Data Management	4		
Survey Research Support	3		
UC Berkeley Enabling Services			
Collaboration & Communication	3	Software Licensing & Distribution	3
Google Apps for Education	4	Video & Web Conferencing	3
Portals, Dashboards & Aggregators	2	Web Publishing	3
Scholarly Networking	4		

Berkeley Research Computing Timeline 2013/14



Note: width of band indicates level of activity over time.