



NSF Campus Cyberinfrastructure PI and Cybersecurity Innovation for Cyberinfrastructure PI Workshop

September 23 – 25, 2019 | Minneapolis, MN

NSF Program (either CC or CICI): CICI

Program Area: RDP

Award Number: 1840218

PI: Subhashini Sivagnanam

co-PIs: Viswanath Nandigam

Project Title: Open Science Chain (OSC) - A Novel Distributed Ledger-Based Framework for Protecting Integrity and Provenance of Research Data



PI:

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Quad Chart for: *Open Science Chain (OSC) - A Distributed Ledger-Based Framework for Protecting Integrity and Provenance of Research Data*

Challenge Project Seeks to Address:

Issues of credibility and reproducibility of scientific results impact data sharing and hinder further growth of the research.

- No efficient solution for researchers to
 - **Independently verify and validate** research datasets
 - Associate **ownership/identity with data**
 - Track **lineage information** of data

Broader Impact:

OSC will

- **spur data reuse** which can be audited and tracked regardless of the science domain.
- increase citations because of the easier access to reliable data.
- ensure greater provenance of data, thereby encouraging sharing and distribution of scientific research data.

Solution:

- **Open Science Chain (OSC)** is a **CI** platform, built using open source blockchain framework, for researchers to independently verify and validate datasets
- **Metadata, identity** and **verification** information of the dataset will be **managed** in OSC independent of existing storage repository solutions.
- OSC will be designed using **real work datasets** from diverse domains

Metadata tag:

- <https://opensciencechain.org/>
- Twitter: @openscichain
- Email: info@opensciencechain.org



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NSF Program: CC*

Program Area: Campus Computing Award Number: 192558

PI: Ron Hawkins

co-PIs: Robert Sinkovits, Subhashini Sivagnanam, Mary Thomas

Project Title: CC* Compute: Triton Stratus



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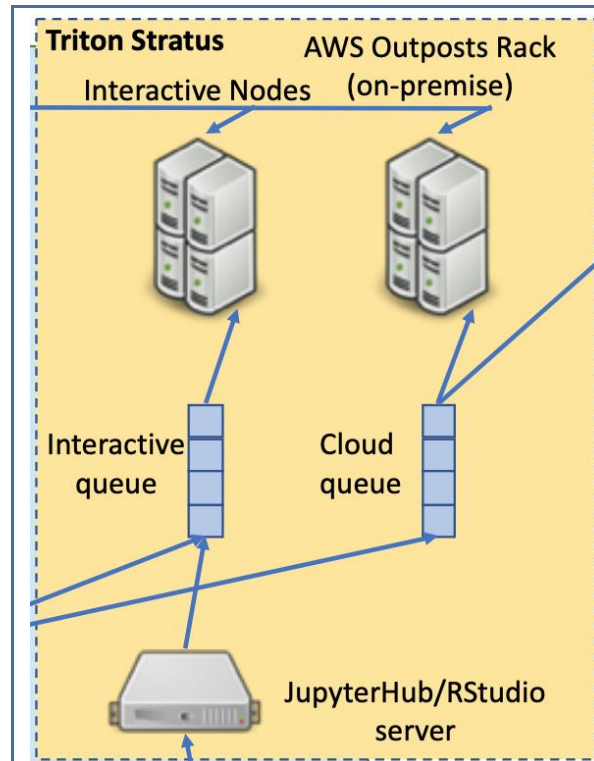
Quad Chart for: *CC* Compute: Triton Stratus*

Challenge Project Seeks to Address:

- Increasing use of interactive tools such as Jupyter Notebooks and RStudio
- Attracting researchers used to GUI/portal-driven interfaces
- Facilitating, simplifying use of cloud computing for campus researchers
- Integrating with and scaling to commercial cloud resources for elastic HPC

Deliverables:

- 28 new cluster nodes for interactive use
- Software for migration of scientific apps to commercial clouds
- User GUI (JupyterHub, Open OnDemand)
- Cloud integration for scaling tested notebooks/scripts
- On-premise cloud appliance (Amazon Outposts) for low-latency cloud testing and access
- OSG integration to campus cluster



Broader Impact:

- Reach new generation of researchers
- Support reproducible research
- Improve training & outreach for scientific computing
- “Living” documentation as means of communicating research broadly

Metadata tag:

- < https://www.sdsc.edu/services/hpc/hpc_systems.html#tscc >
- < Just getting started! >
- < Your input welcome! >
- < Student engagement >