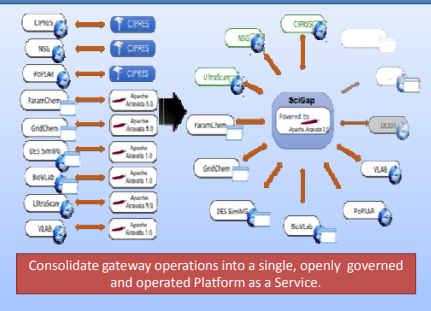


Science Gateways Platform as a Service

Project Vision



UltraScan

The UltraScan science gateway supports high performance computing analysis of biophysics experiments using XSEDE, Juelich, and campus clusters.

SciGaP will help you build gateways for your lab or facility.

The 2DSA analysis can be performed in parallel on a distributed supercomputer using up to 14,000 processors at a time.

Launches analysis and monitor through a browser

Developing analysis tools are integrated with the Web portal.

GridChem/SEAGrid

Molecular Editor

Multiple input ingester

Gaussian Input Generator

- Supports 9 popular computational chemistry, material science applications.
- 569 Users, 15,000 Jobs, 11M XSEDE SUs used last year
- More than 100 Publications, 12 Dissertations
- Publications: <https://www.gridchem.org/papers/index.shtml>

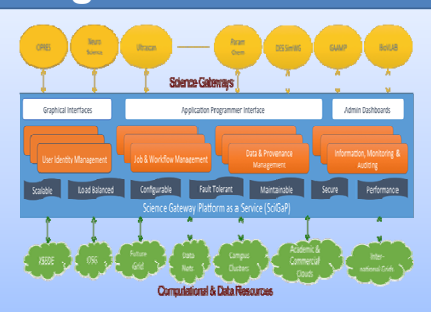
Open Governance

- Open source projects need developer diversity.
- Need incentives for CI projects to diversify their developer bases.
- How do you govern an open project with diverse stakeholders?
- Our approach: Apache Software Foundation

Compete

Collaborate

Target Architecture



NSG

NSG NEUROSCIENCE GATEWAY

A Portal for Computational Neuroscience

Amik Majumdar (PI), Marlon Pierce (Co-PI), Sudha Srinivasan (Dr. Perennou), Kenneth Sudduth (Dr. Perennou), Aneta Radkiewicz (Dr. Perennou), Yaelin Adachiou (UCSD), Ted Combs (PIL), Yan-School of Medicine, NSF Awards: ARI #1348983, ARI #1348830

The NSG is a simple and secure online science portal that provides access to computational neuroscience codes on XSEDE HPC resources. <http://www.nsgportal.org>

Easy user interface - providing easy model upload, running of codes

Complete set of neuronal simulation tools - NEURON, GENESIS, Brian, NEST, PNN - widely used by computational neuroscience

Ability to easily get to the results, download results

Democratize computational neuroscience

Apache Airavata

- Airavata is open source software for managing scientific application and workflow executions on remote resources.
 - XSEDE
 - Clouds
 - Local Clusters
 - International resources
- We use Airavata to power science gateways.
- Apache Software Foundation: Beyond Open Source

Software is really open source if you can give back to the project.

More Information

- Web site: <http://scigap.org>
- SciGaP GitHub: <https://github.com/SciGaP/>
- Apache Airavata: <http://airavata.apache.org>
- CIPRES: <http://www.phylo.org/index.php/portal/>
- NSG: <http://www.nsgportal.org>
- UltraScan: <http://www.ultrascan.uthscsa.edu/>
- GridChem: <https://www.gridchem.org>

Collaboration



CIPRES

CIPRES SCIENCE GATEWAY

The CIPRES Gateway has allowed 8600+ users to access 45.7 million core hours of XSEDE time for 260,000 jobs, resulting in 700+ publications.

Simplified access to phylogenetics codes on powerful XSEDE resources

XSEDE

SDSC

Project Milestones

- Year 1: Foundations
 - Airavata API and PaaS design
- Year 2: Initial Operations
 - Centralized SciGaP service for UltraScan, NSG, GridChem
- Year 3: Full Operations
 - UltraScan, NSG, CIPRES, GridChem using SciGaP services
- Year 4: Broadening Usage Base
 - SciGaP scalable to selected external partners
- Year 5: Accelerating Growth
 - SciGaP generally available



NSF GRANT

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