

Parsl at OLCF

Parsl & funcX Fest 2022

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Data Lifecycle and Scalable Workflows (DLSW) Group

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ORNL is managed by UT-Battelle LLC for the US Department of Energy

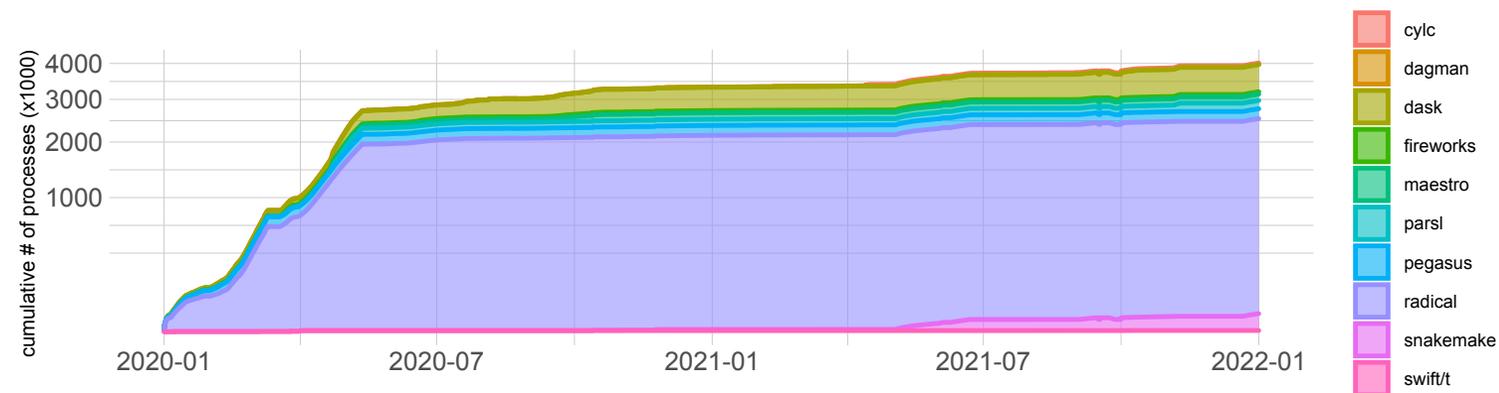
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Overview

We report three developments touching Parsl at ORNL / OLCF:

1. Parsl software deployment at Summit as a module
2. Using Parsl as a Workflow to bridge HPC and Quantum Systems
3. Development of a Parsl plugin to a distributed task orchestration system called Zambeze

Parsl is one of the top 5 Workflow Systems used on Summit



S. R. Wilkinson, K. Maheshwari, and R. F. da Silva, "Unveiling user behavior on Summit login nodes as a user," in Computational Science – ICCS 2022
K. Maheshwari, S. Wilkinson, and R. F. da Silva, "Pseudonymized user-perspective summit login node data for 2020 and 2021," 2022.
osti.gov/biblio/1866372

Parsl as a Software module on Summit

Installed using conda:

```
module load python/3.8-anaconda3  
conda install -p /sw/summit/workflows/parsl/1.1.0  
              -c conda-forge parsl
```

Use as a module:

```
module load workflows  
module load parsl
```

Parsl at OLCF: Docs and Dissemination

docs.olcf.gov/software/workflows/parsl.html

github.com/olcf/olcf-user-docs

vimeo.com/730109850

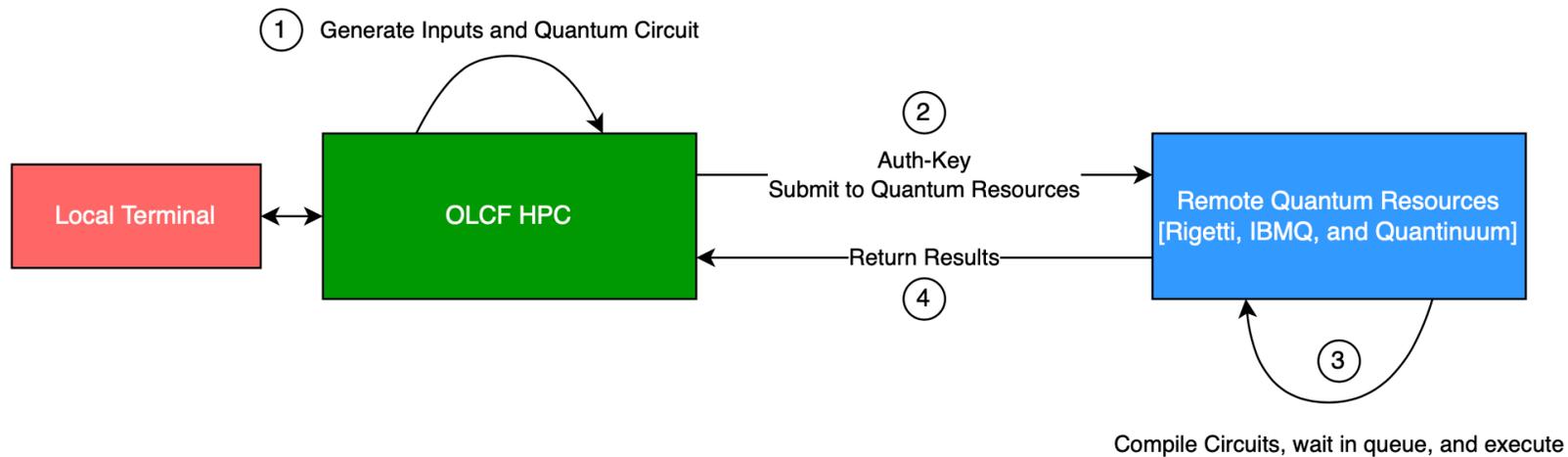
The screenshot shows the OLCF User Documentation website for Parsl. The header includes the OAK RIDGE National Laboratory logo and navigation links for Software, Workflows, and Parsl. A search bar is present. The main content area features the title "Parsl" and an "Overview" section. The overview text states: "Parsl is a flexible and scalable parallel programming library for Python which is being developed at the University of Chicago. It augments Python with simple constructs for encoding parallelism. For more information about Parsl, please refer to its [documentation](#)." A sidebar on the left lists navigation options: New User Quick Start, Accounts and Projects, Connecting, Systems, and Services and Applications.

The screenshot shows the GitHub repository for `olcf / olcf-user-docs`. The repository is public and has 17 issues and 18 pull requests. The current file path is `olcf-user-docs / software / workflows / parsl.rst`. The repository navigation bar includes links for Code, Issues, Pull requests, Actions, Projects, Security, and Insights.

The screenshot shows a video player displaying a presentation slide titled "A Quick Demo". The slide content includes the text "Running 'Hello World' with Parsl on Summit" and a diagram illustrating "data parallelism". The diagram shows a box labeled "Data" with an arrow pointing to a box labeled "data parallelism". Below this, it says "Workflow parallelism: Task2 || Task3". The video player interface includes a search bar and navigation controls. A small video inset shows a person named Ketan M (Oak Ridge).

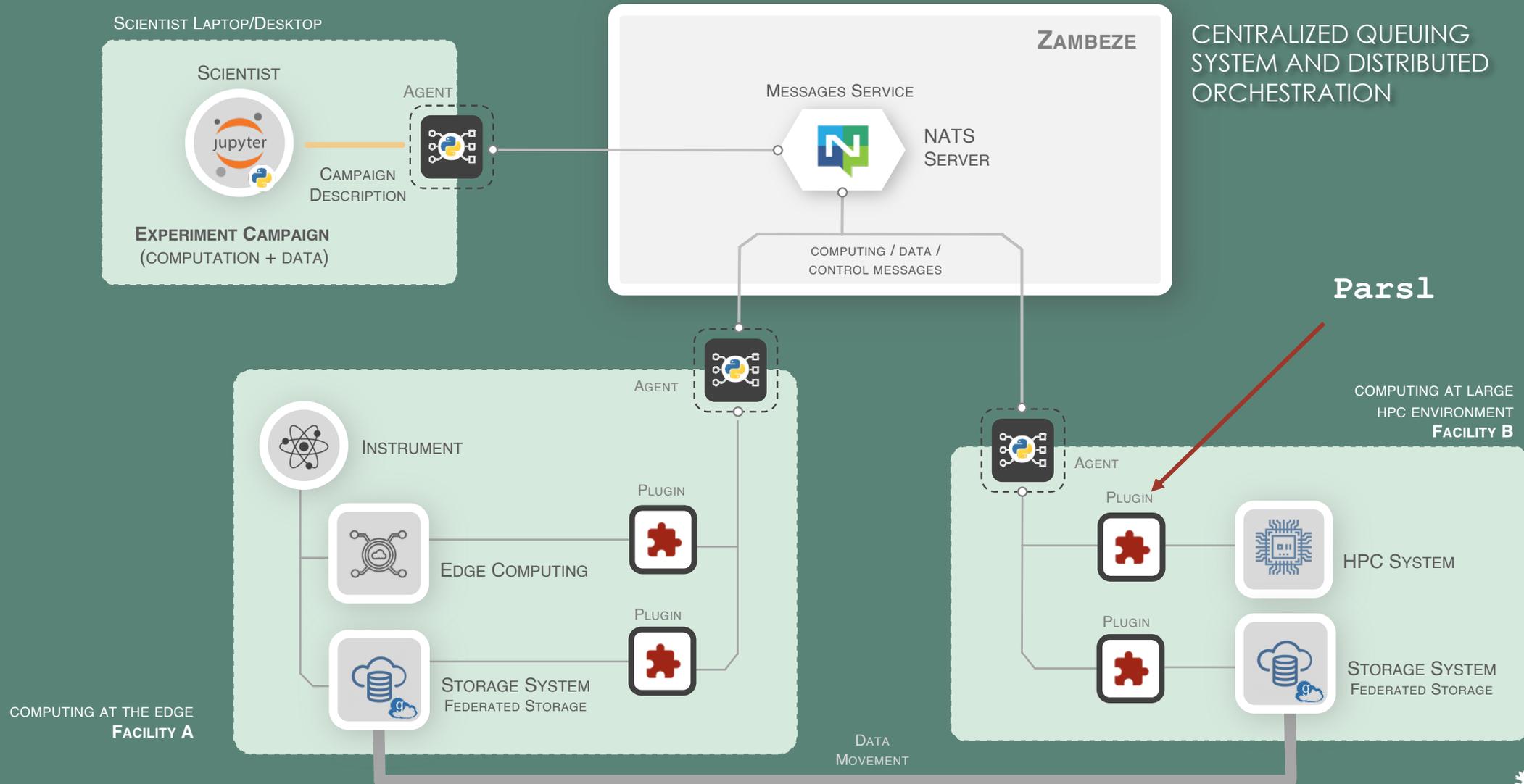
The screenshot shows the content of the `parsl.rst` file from the GitHub repository. The text is partially visible and matches the overview text from the documentation page: "Parsl is a flexible and scalable parallel programming library for Python which is being developed at the University of Chicago. It augments Python with simple constructs for encoding parallelism. For more information about Parsl, please refer to its [documentation](#)." The interface includes a search bar and navigation controls.

Parsl as a workflow tool to Bridge HPC and Quantum



pic courtesy: Sam Bieberich
<https://github.com/Sam-Bieberich/HPC-QC-Workflows>

Zambeze Distributed Orchestration System



Thank You! Questions?

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