Cloudmesh Job Management

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Background

Arctic environmental data analysis is in need of a robust job management service for organization

- Estimated 1.5 million jobs

We plan to design a solution that provides a lightweight and simple way to organize and understand these jobs

Cloudmesh Integration

Our design will be integrated with Cloudmesh

- Will be part of the PBS module
- Will allow users to manage jobs on the clouds they have configured in Cloudmesh

Design Overview

The design will be composed of 3 main parts:

1. MongoDB interface
2. Cloudmesh commands that call the MongoDB interface
3. REST API for external applications to access the Cloudmesh commands

MongoDB Interface

A Python class will be created to act as a MongoDB interface that will:

- Start the MongoDB service
- Connect to a database
- Insert jobs
- Query for jobs
- Delete jobs
- Count the number of jobs

Cloudmesh Command

The Cloudmesh command will:

- Be created in a similar manner as was done in the homework
- Provide a simple command line interface to the MongoDB Python class for a Cloudmesh user

REST API

The REST API will:

- Use Flask (Python microframework for REST APIs)
- Incorporate all commands in the Cloudmesh command
- Provide external applications a simple way to interact with the underlying MongoDB

Current Progress

MongoDB Interface

- Initial design developed
- Must add additional features and fix bugs

Cloudmesh Command

- Initial design developed
- Working to make the command user-friendly

REST API

- Initial design is in development