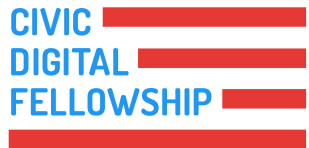# Monitoring System Performance of Cloud Computing Resources Utilized by Disclosure Avoidance System (DAS)

Research and Methodology

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United States Census Bureau™

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Disclosure Avoidance System

- Created to protect citizens from **re-identification** attacks

- Allows for 2020 Decennial Census to **release data at the sub-state level**

- Data reported has been **intentionally fuzzed** to protect anonymity while retaining statistical integrity

Disclosure Avoidance System

- DAS is a **compute intensive** process

- **Amazon Web Services** (EC2) was utilized as infrastructure

Problem Addressed

- **Lack of Data** relating to a DAS run's position in execution

- Need for **historical and real-time** statistic logging of system performance

  - **Management**

    How efficiently are we utilizing the resources **we are paying for**?

  - **Engineering**

    Where are my experiments in execution? What is creating a **bottleneck**?

Solution

- Dashboard that **displays** information related to DAS
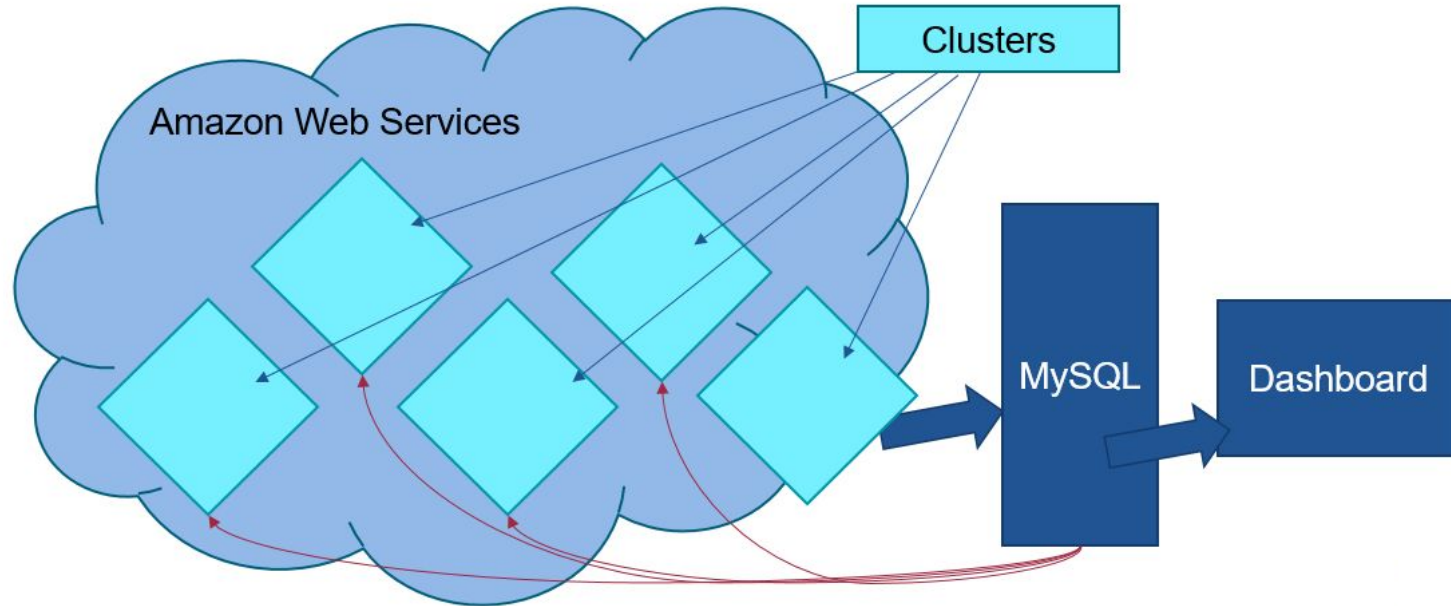
Next Steps

- Engineers can **improve utilization** of AWS resources utilizing dashboard

- Management can use data produced in dashboard to **better inform** future decisions related to cloud infrastructure

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Sample Statistic

Gurobi Usage Statistics

Displays Gurobi License utilization statistics used by DAS. Instantaneous statistics are recorded hourly. Summary statistics are compiled daily, after statistics have become a week old. The chart can be resized with the scroll wheel, and range can be modified by dragging left and right while holding down the left mouse button. If a chart does not display a value, it is likely there is no data within the range specified.

Select statistics to display:

○ Summary
◉ Instantaneous
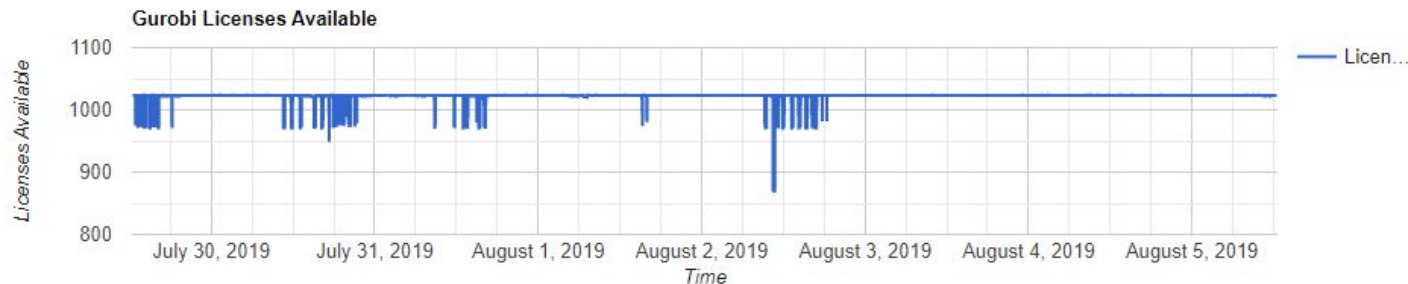
Display Gurobi license availability statistics from mm/dd/yyyy to mm/dd/yyyy [Go]

Supplemental Information

Information Aggregated:

    System Load Statistics
    Gurobi License Usage
    Active Run Information
    Memory Utilization Statistics
    CPU Utilization Statistics

Tech Stack:

    Python
    CGI (Common Gateway Interface)
    HTML/CSS
    Pure JavaScript