

SMFV

Process On Mainframe, Visualize Anywhere

Smart MainFrame Visualizer

A project for MTM 2020

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What is SMFV?

Context

SMF holds wealth of info for various mainframe subsystems, including SDSF. Analyzing this may help in identifying anomalies, taking proactive actions, detecting issues early, monitor system KPIs and so on.

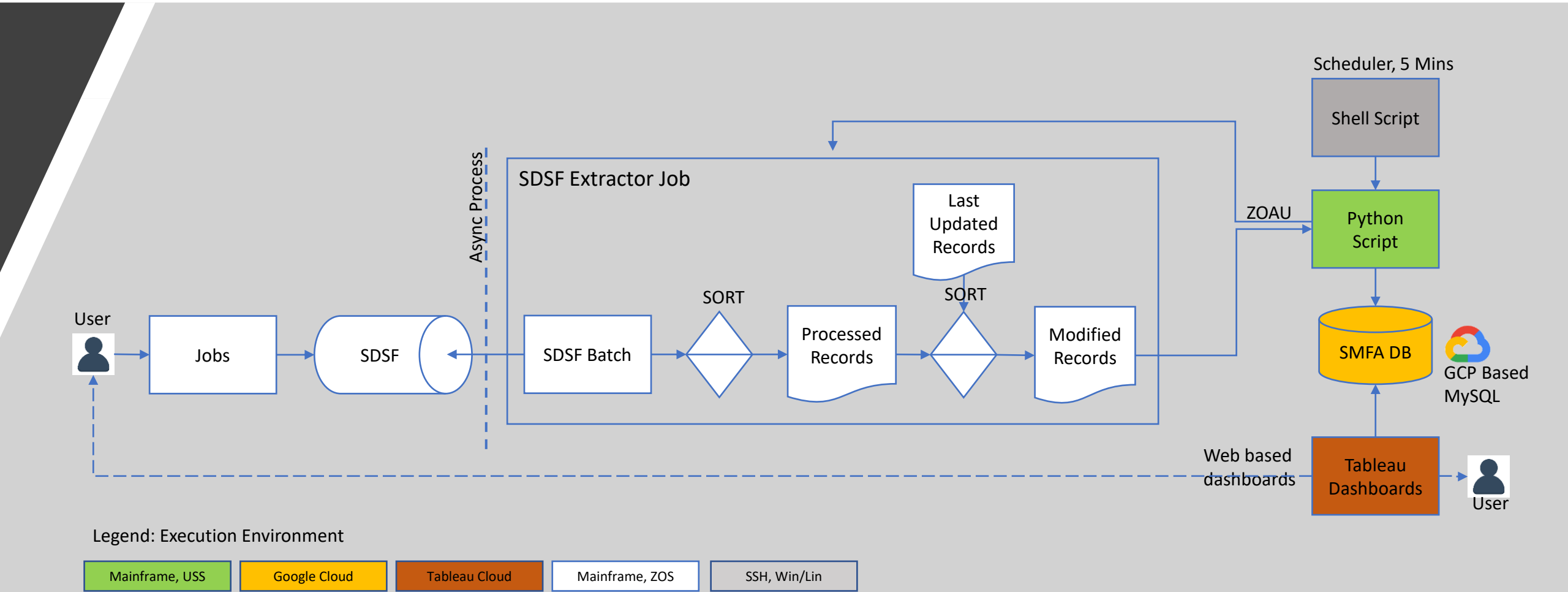
Challenges

Users cannot access this information in raw or processed form readily. Also, it cannot be leveraged easily by the other systems for downstream processing like ML based analytics, automation, forecasting, etc.

Solution

SMFV attempts to analyze & visualize a part of SDSF job information. It analyzes the data captured on DA job queue of SDSF at a pre-defined interval and shows tableau dashboard with top resource consuming jobs/users, frequently executed jobs, class & priority wise job distribution, execution trend & more. While this is a representative analysis, it could be extended to additional SDSF attributes and SMF data.

All of this is done leveraging best in class solutions. E.g. It leverages mainframe for data processing, Python for data formatting, MySQL for cloud-based data storage, and Tableau for cloud-based dashboards. It leverages shell scripts to do SDSF monitoring automation

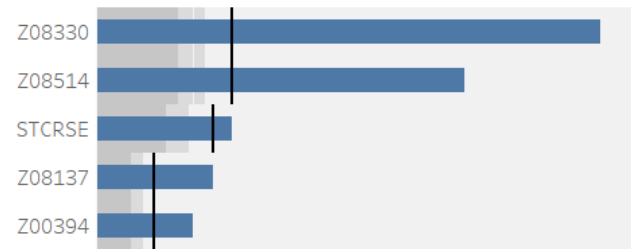


What is SMFV?

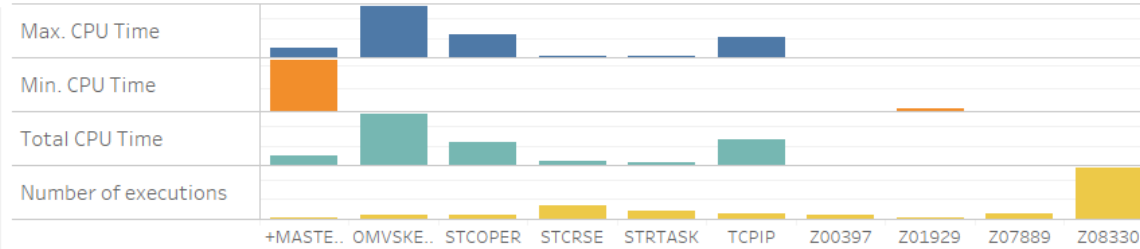
[Demo Link](#)[Know More](#)

Automated SDSF Monitor

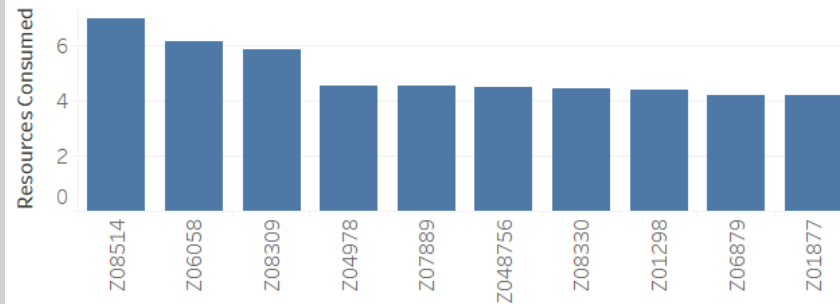
Top 5 Jobs Executions



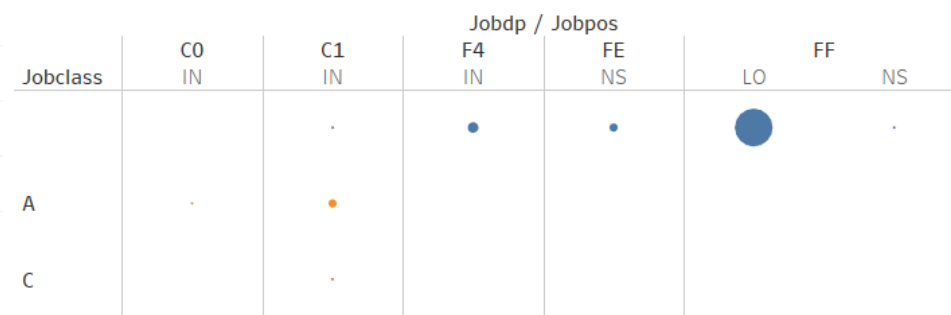
Top 10 CPU Consuming Jobs



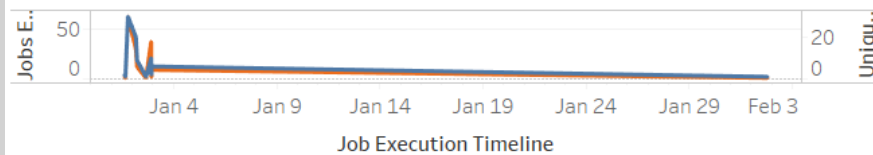
Top 10 Resrouce Consuming Jobs



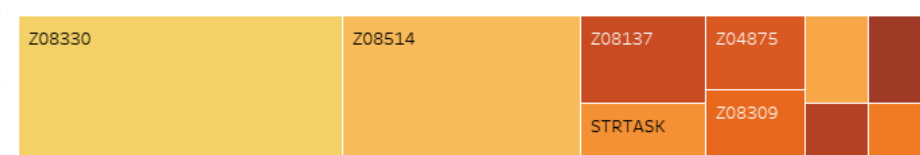
Job Class, Priority And Position Distribution



Timeline Wise Job Execution



Top 10 User By Resource Consumption



What do I need to install SMFV?

The following pre-requisites must be met in order to successfully use SMFV

- A Mainframe host with accessible SSH port and a user credentials
- Access to Mainframe Unix subsystem (USS)
- Access to cloud/native MySQL installation
- Access to Tableau online server
- Availability of necessary Python, ZOAU packages on Mainframes
- A system to schedule the script that would invoke SDSF monitoring job every 5 minutes (configurable)

How do I get going?

Follow these steps to get your first responsive dashboard up and running:

- Copy the necessary files from git clone <https://github.com/learningsam20/smfv>
- Copy SDSFJCL in a mainframe JCL PDS and change/add params if any to the job card
- Connect to any MySQL server and execute the mtm.sql. Provide necessary firewall exception to the IP of MF host and Tableau host
- Copy mtmlog.py in mainframe USS and change database connection info as above (line 35, defaults to GCP based instance created)
- Copy trig.sh in any linux machine, modify user, password, host info for Mainframe (default MTM MF) and job prefix to analyze (default Z*). and execute the following.

```
chmod 777 trig.sh
```

```
while true; do './trig.sh'; sleep 300; done
```

- Copy MTMProject.twb and modify connection info if needed (default above connection). Publish it to server.

Currently hosted instance available at <https://prod-apnortheast-a.online.tableau.com/#/site/testsam/workbooks/118064>

Benefits and roadmap

Benefits

Due to leverage of best of the modern technologies, SMFV can deliver the rich, interactive dashboards in near real time manner. These are responsive and can be accessed across devices. This provides a quick view into the SDSF related KPIs that could be configured to be shown on the dashboard.

Roadmap

To further the SMFV solution, following are some possibilities:

- Integrate with entire SMF records, including SDSF. This will broaden the scope of SMFV. This could not be accomplished due to lack of resources and time
- Apply machine learning to perform advanced analytics to auto detect patterns, correlations, resource forecasting, etc.
- Integrate downstream automation, either through Ansible or other playbooks, post generating triggers using AI/ML



Thank You