Distributed Scientific Computing Monitoring and Tracing
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Background
- GlideinWMS and HEPCloud provide resource provisioning, offering the ability to schedule resources for various resource providers.
- The Decision Engine Standard Library contains all the modules, functions, logic statements, and classes that are used to build Decision Channels.
- To have a better view of HEPCloud’s internals, we started instrumenting it using Prometheus, a monitoring system storing metrics as time series.

Experimenting
- From the image above, I have been experimenting on adding custom metrics and seeing if Prometheus recognizes the added metric.
- This metric is then transferred to Grafana, where the queries are processed and form the respective graphs related to the information.
- From the image below, we can detect the state of the channel, knowing when something goes wrong. From there, we can debug and view changes occurring over time.

Results
- Learn about system reliability and troubleshooting, deploy services using virtual machines, instrument code, and research setups to get more insights and optimize reliability.
- Have more informative data about job requests and their load. Have more information on Provisioned resources within the Decision Engine. Information of computer resources used by the Decision Engine and its specification.

Goal
- This project aims to improve HEPCloud’s reliability by expanding its components instrumentation, adding monitoring dashboards using Grafana and exploring the use of alert systems.
- Run the queries within Grafana and remove unnecessary information and make it human readable.
- Create custom metrics to add more detail of each task and specifics.

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