My team and I discussed the implementation of the Carbon aware kubernetes implementation and wanted to get feedback if it is close to what you intended when you wrote the idea and if it fits the requirements for the project.

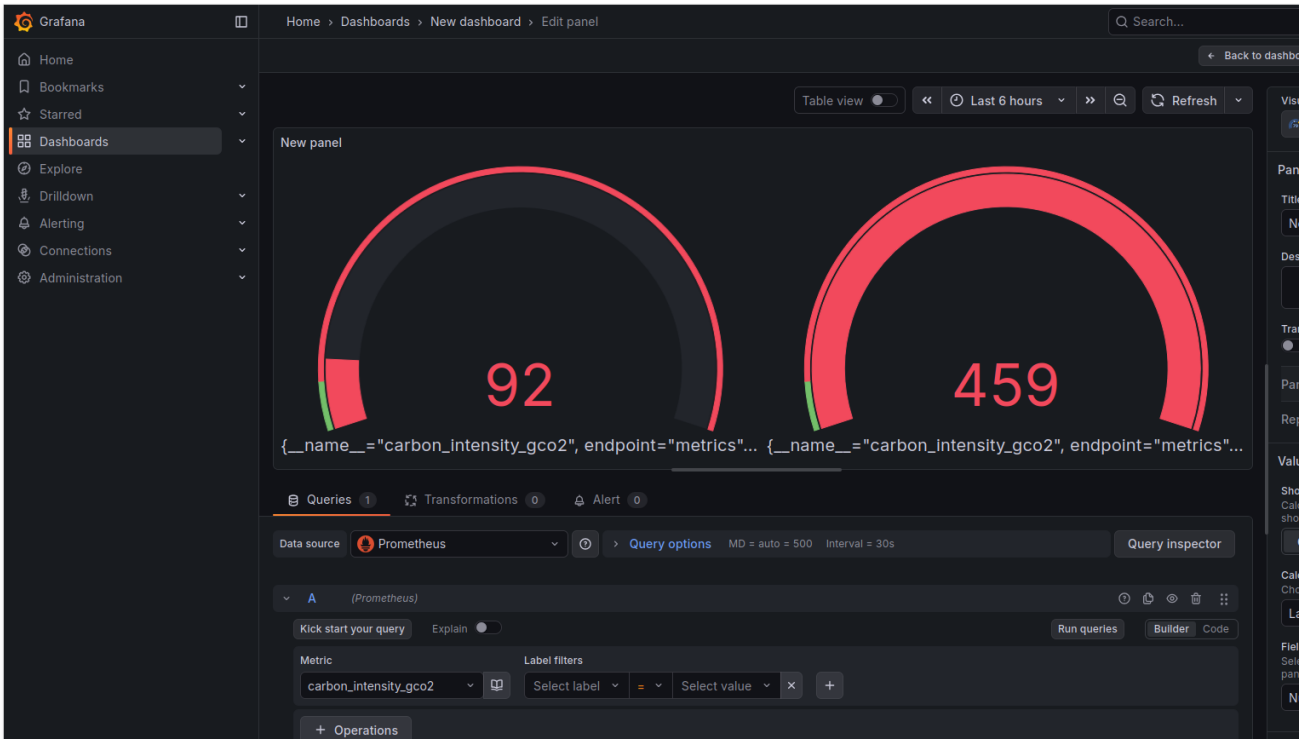
We will use docker with minikubes to host kubernetes locally, we will utilize vcluster to simulate 3 different regions as it would be in real life, like for example eu-west, us-east, asian-east. We will assign each region different carbon metrics for the scheduler to utilize. Each region will be able to have up to 4 pods running with various containers for the tasks.

These we will likely have two implementations, one with an api to simulate real world application and one with a script that assigns each region a score more frequently so that we can show it during the presentation.

We will have 3 different task types to prove the effectiveness and adaptability of our custom scheduler.
1) Critial real time tasks that are ran either on lowest carbon pod with enough resources or on any pod regardless of carbon so long as it has enough resources.
2) Medium level tasks that are always scheduled to the lowest carbon-level pod.
3) Low level long term tasks that are put to sleep by the scheduler until a pod with low-carbon tag is found for it.

The custom scheduler we will implement will be a kubernetes plugin as is advised on the official kubernetes documentation for custom schedulers written in either GO or Python -we will decide based on difficulty of implementation between the two languages- and will look at the carbon tags of the different regions and the task it has received to decide on what to do and where to schedule it.

We will also provide a visualization for the carbon metrices using Prometheus and Grafana as shown below in picture 1. Furthermore, we will visualize how much carbon our scheduler is saving, this we can do by having the project run with our custom scheduler and without it, pole the results with Prometheus and visualize them side by side with Grafana. We will also try and visualize the distribution of the different types of tasks to compare to expected results that my team has predetermined.



Picture 1: Visualization of carbon score