Context:

A realistic terapixel visualization of the city of Newcastle upon Tyne is a visualization task to create a supercomputer architecture for scalable visualization using the public cloud to produce a terapixel 3D city visualization supporting daily updates, to undertake a rigorous evaluation of cloud supercomputing for compute intensive visualization applications. And it is important to count how to deliver the supercomputer scale resources.

Objective:

Temporarily focus on:

1. Find the event types dominate task runtimes.
2. Find the interplay between GPU temperature and performance.
3. Find interplay between increased power draw and render time.
4. Identify particular GPU cards (based on their serial numbers) whose performance differs to other cards? (i.e. perpetually slow cards).

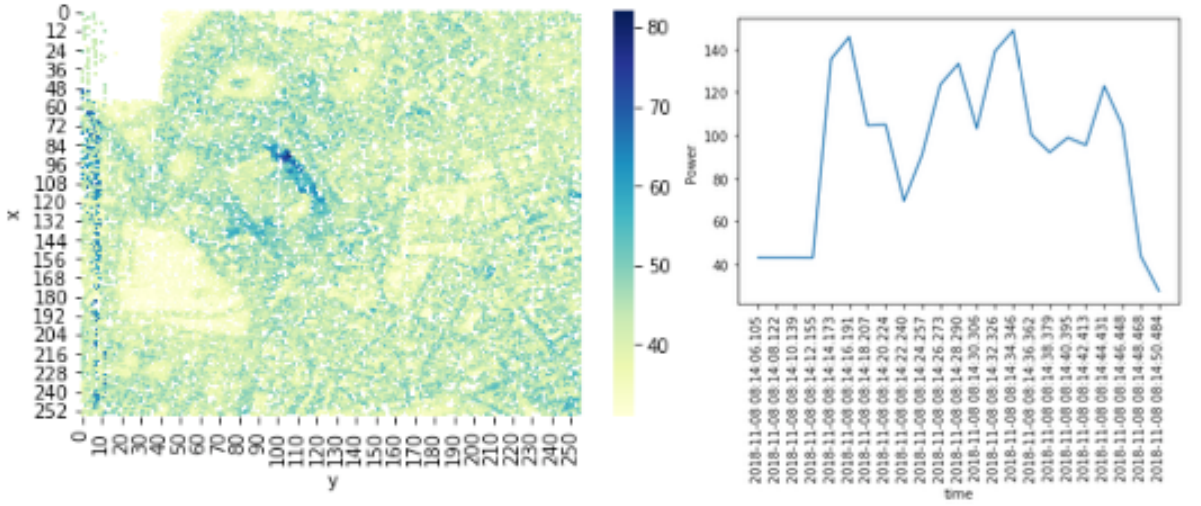
Method:

- Follow the part of CRISP-DM method.
- Use python to load, to process, to analysis the data and then visualize them.
- Use Django to create a Dashboard to demonstrate it.

Results:

It is very clear to use two images to quantify them:

First is

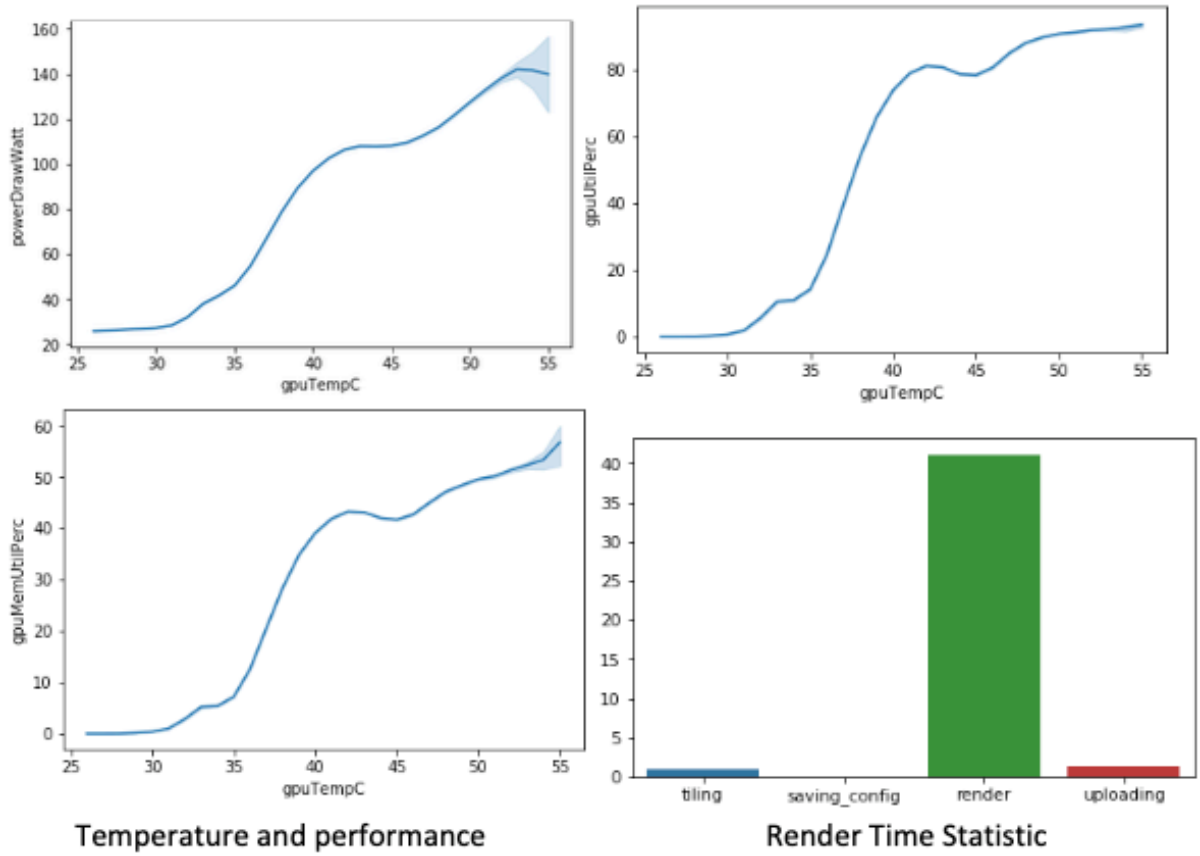


Dark->slow card

Each task Render time vs Power

We can identify the slow cards or fast card by the colour changing, and check the interplay between render time and powerDraw.

Second is



Temperature and performance

Render Time Statistic

Also, the performance can be measured by some memory, cores, and power, etc.

Novelty:

1. Dashboards is a very clear method and better than ‘Thousands Words’, it can help engineers to monitor and adjust timely.
2. Join the data file to analysis comprehensively.