

spatial_resource_waste

April 13, 2021

```
[10]: import json
import sys
import glob
import pandas as pd
import seaborn as sns
import matplotlib as mpl
import matplotlib.pyplot as plt
```

```
[70]: DIR = "/home/claudio/hdd/git/bachelorThesis/spatial_resource_waste/"
```

```
[84]: def plot_df(df, cluster, type_of_data):
    s = df.sum()
    print("Cluster " + cluster + ":")
    df["cpu"] = df["cpu"] / s["cpu"]
    df["ram"] = df["ram"] / s["ram"]
    print(df)

    df2 = df.copy()
    df["kind"] = "cpu"
    df["percent"] = df["cpu"]
    del df["cpu"]
    del df["ram"]

    df2["kind"] = "ram"
    df2["percent"] = df2["ram"]
    del df2["cpu"]
    del df2["ram"]

    df = pd.concat([df, df2])

    bottom = [0, 0]
    lines = []
    for t in [-1,4,5,6,7,8]:
        lines.append(plt.bar(x=df[df.term==t]["kind"], bottom=bottom,
                             height=df[df.term==t]["percent"]))
        bottom += df[df.term==t]["percent"].values
    plt.legend(lines, ["No termination", "EVICT", "FAIL", "FINISH", "KILL",
↳ "LOST"],
```

```

        bbox_to_anchor=(1,1))
    plt.title(type_of_data + " spatial resource waste (cluster " + cluster +
↳)")")
    plt.show()

```

```

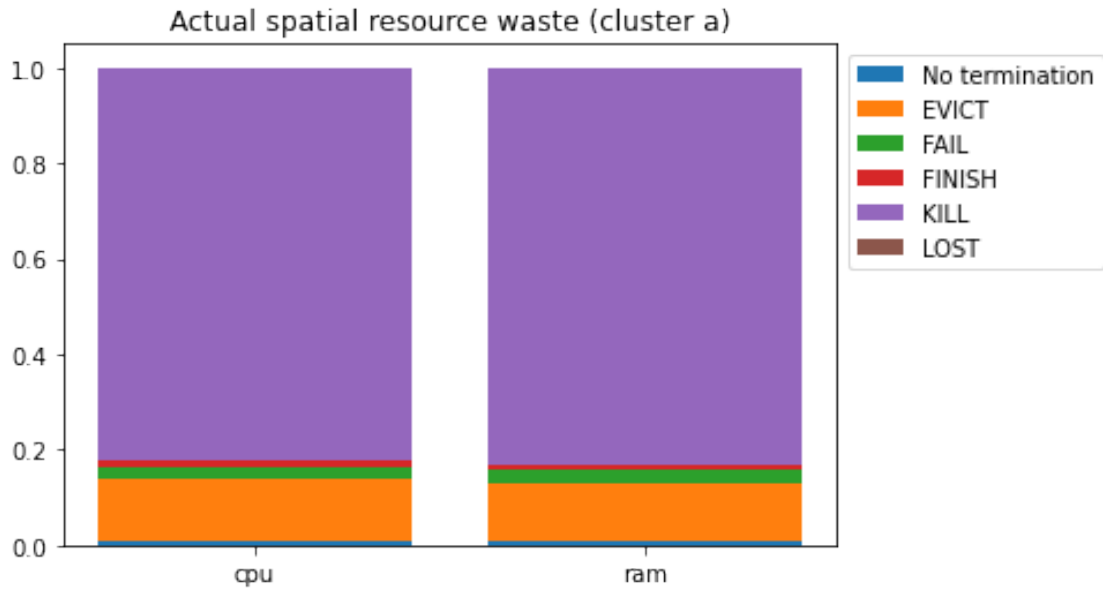
[85]: for cluster in "abcd":
        df = pd.read_csv(glob.glob(DIR + cluster + "_actual/part-*")[0],
↳header=None,
                                names=["term", "cpu", "ram"])
        plot_df(df, cluster, "Actual")

for cluster in "abcdefgh":
    data = None
    with open(DIR + cluster + "_res_micros_requested.json", "r") as f:
        data = json.loads(f.read())
    dfd = {'term': [], 'cpu': [], 'ram': []}
    for term in [-1,4,5,6,7,8]:
        dfd['term'].append(term)
        dfd['cpu'].append(float(data["cpu-" + ("None" if term == -1 else
↳str(term))]))
        dfd['ram'].append(float(data["ram-" + ("None" if term == -1 else
↳str(term))]))
    df = pandas.DataFrame(dfd, columns=['term', 'cpu', 'ram'])
    plot_df(df, cluster, "Requested")

```

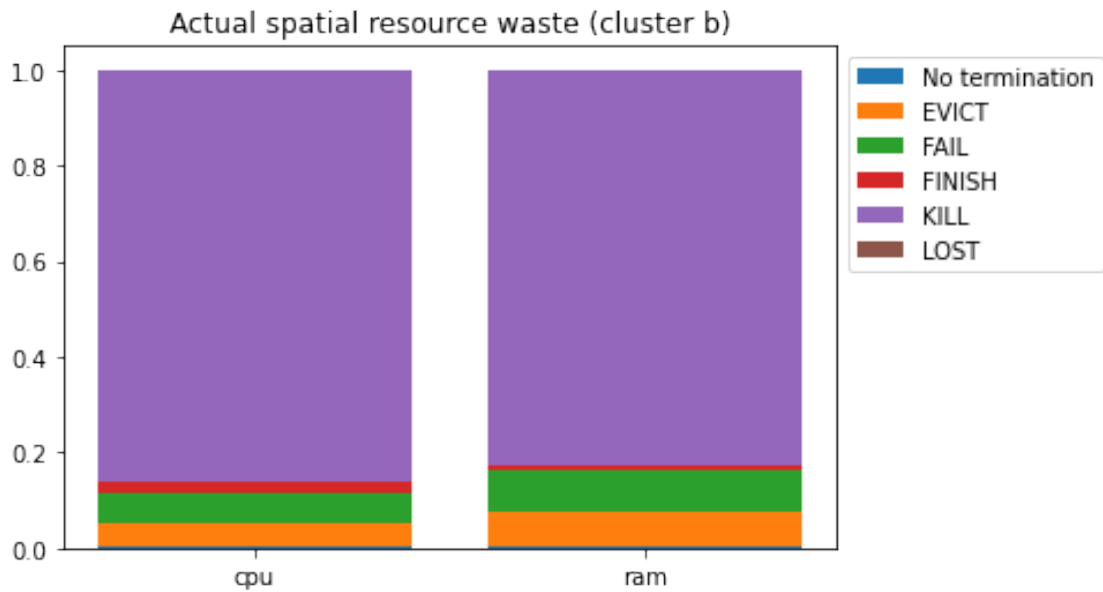
Cluster a:

	term	cpu	ram
0	-1	0.006972	0.010447
1	6	0.013963	0.011066
2	5	0.022792	0.028387
3	4	0.134392	0.118184
4	8	0.000091	0.000091
5	7	0.821791	0.831826



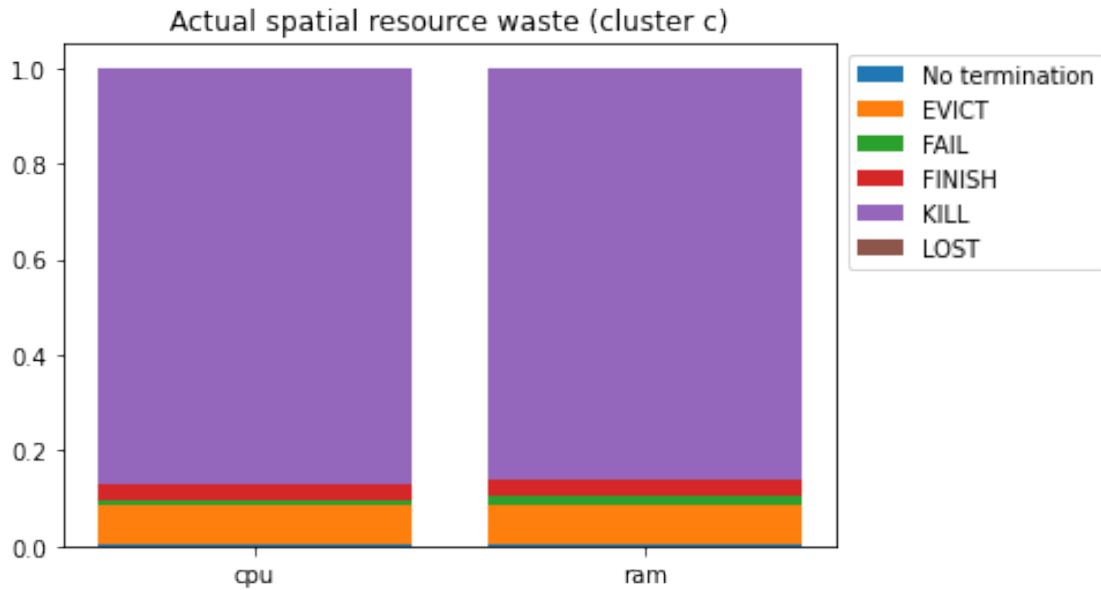
Cluster b:

term	cpu	ram	
0	-1	0.002582	0.004637
1	6	0.025877	0.012231
2	5	0.062950	0.083841
3	4	0.048340	0.073120
4	8	0.000036	0.000027
5	7	0.860215	0.826144



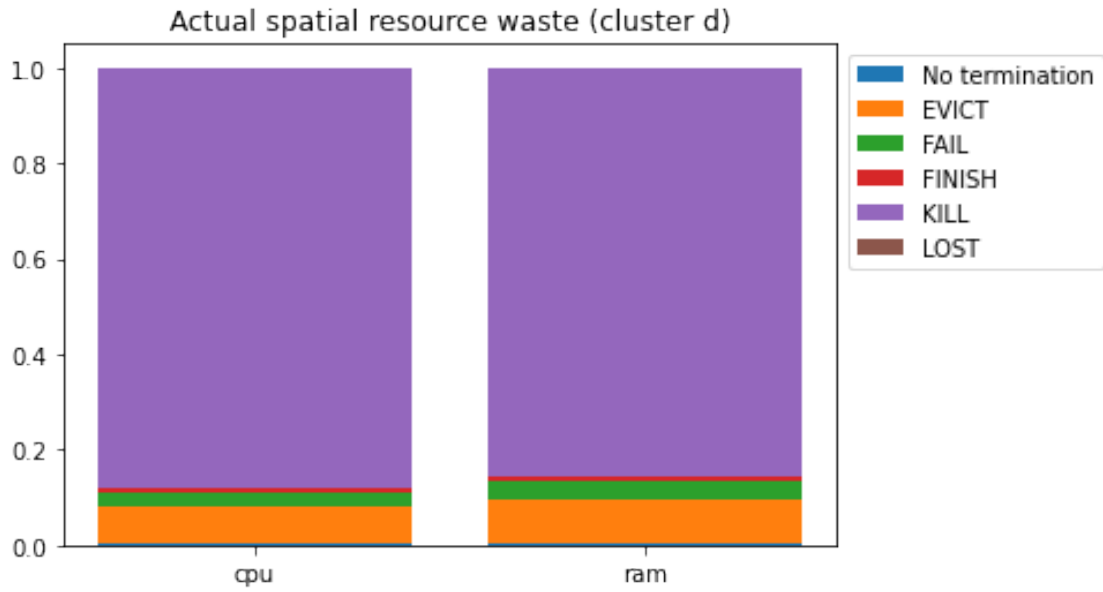
Cluster c:

	term	cpu	ram
0	-1	0.003376	0.003812
1	6	0.029399	0.033249
2	5	0.012294	0.020809
3	4	0.082099	0.080454
4	8	0.000093	0.000088
5	7	0.872740	0.861588



Cluster d:

	term	cpu	ram
0	-1	0.004995	0.004822
1	6	0.008666	0.008914
2	5	0.030288	0.039214
3	4	0.076002	0.090656
4	8	0.000039	0.000030
5	7	0.880011	0.856364



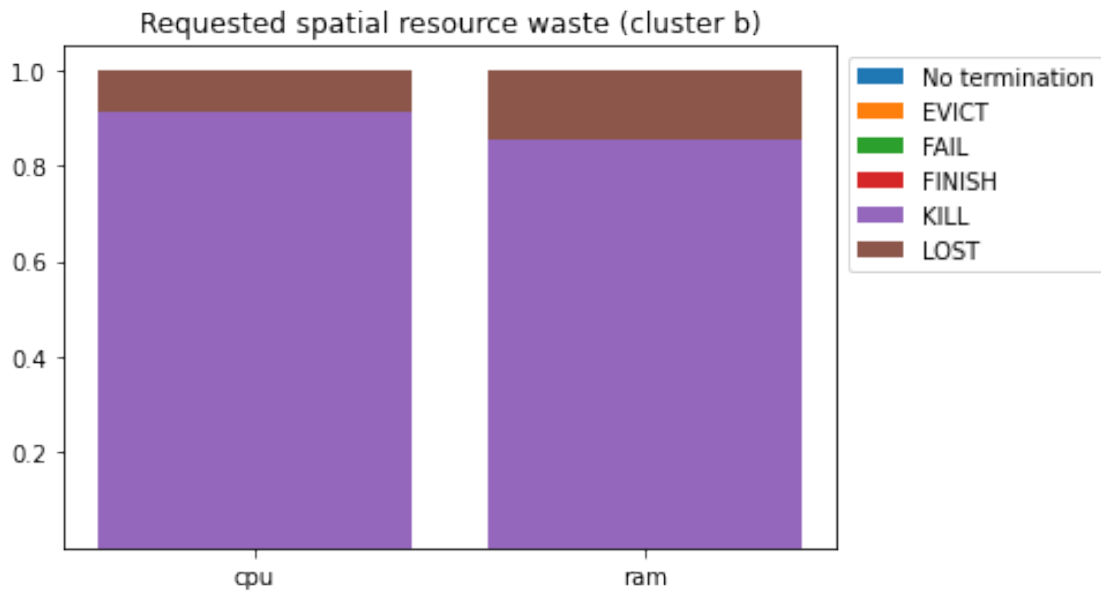
Cluster a:

term	cpu	ram	
0	-1	0.000340	0.001937
1	4	0.028384	0.033991
2	5	0.000583	0.000698
3	6	0.000001	0.000002
4	7	0.966613	0.957991
5	8	0.004079	0.005382



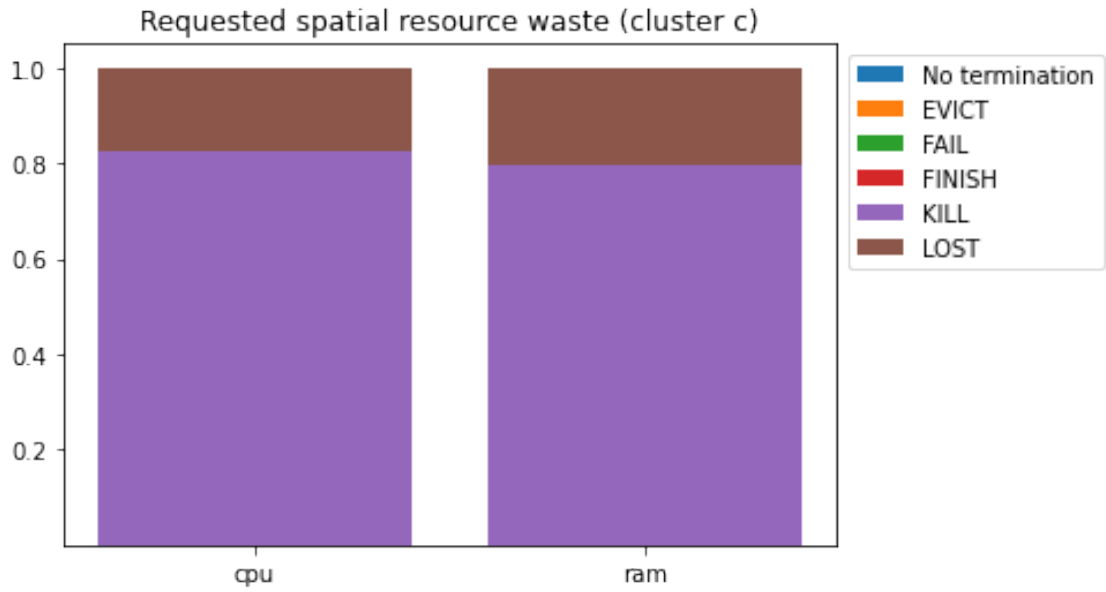
Cluster b:

	term	cpu	ram
0	-1	9.355835e-07	0.000002
1	4	3.364512e-05	0.000047
2	5	3.060723e-05	0.000050
3	6	1.269581e-04	0.000176
4	7	9.109484e-01	0.855737
5	8	8.885947e-02	0.143988



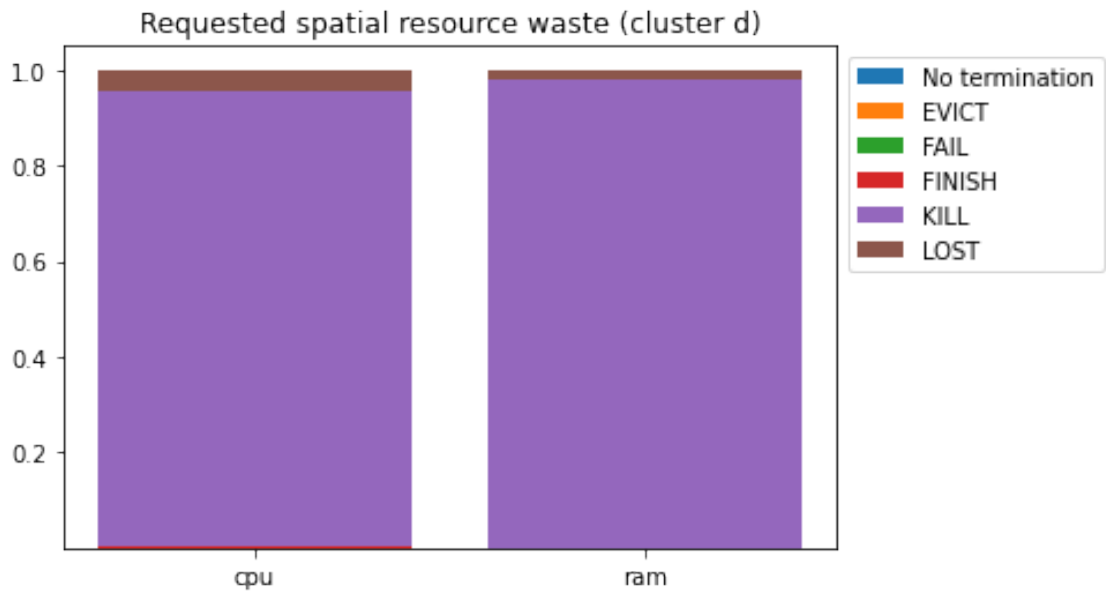
Cluster c:

	term	cpu	ram
0	-1	0.000001	0.000002
1	4	0.000086	0.000070
2	5	0.000013	0.000015
3	6	0.000150	0.000170
4	7	0.824831	0.796980
5	8	0.174918	0.202763



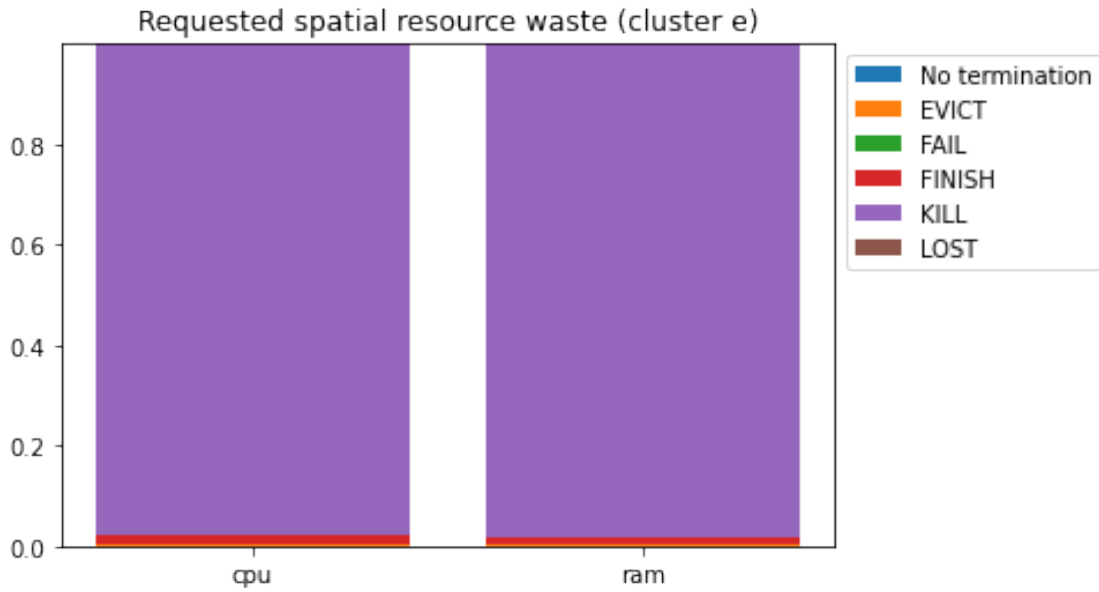
Cluster d:

	term	cpu	ram
0	-1	0.000009	0.000001
1	4	0.000461	0.000064
2	5	0.000237	0.000028
3	6	0.000954	0.000130
4	7	0.954681	0.979276
5	8	0.043658	0.020502



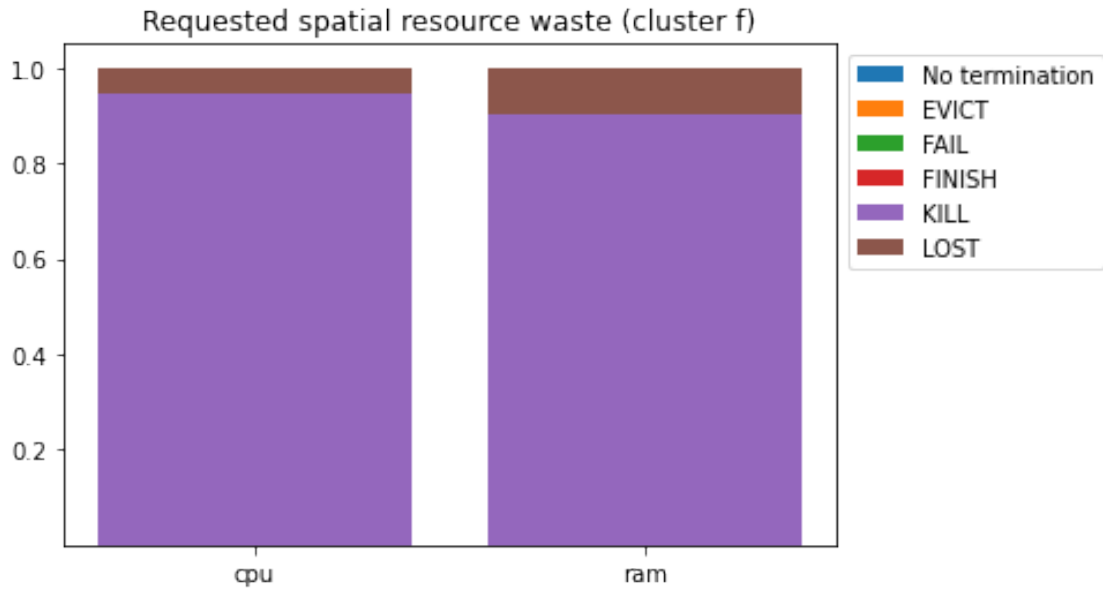
Cluster e:

	term	cpu	ram
0	-1	1.510196e-04	1.647196e-04
1	4	3.620883e-03	3.212742e-03
2	5	5.137287e-04	4.737717e-04
3	6	1.672195e-02	1.310360e-02
4	7	9.789918e-01	9.830448e-01
5	8	6.259843e-07	3.428963e-07



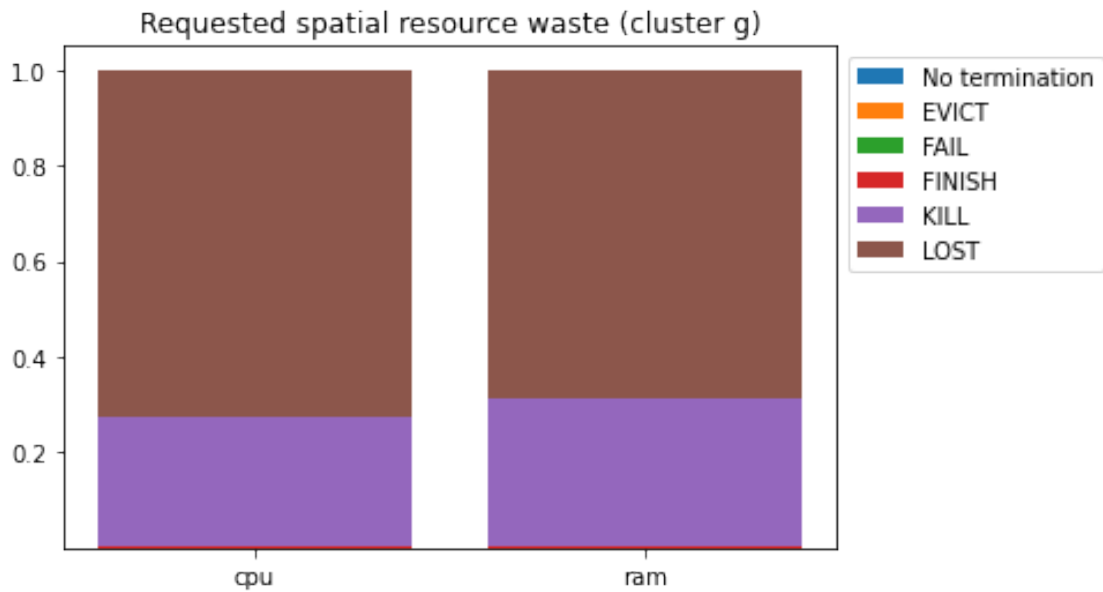
Cluster f:

	term	cpu	ram
0	-1	0.000001	0.000003
1	4	0.000080	0.000135
2	5	0.000009	0.000021
3	6	0.000133	0.000218
4	7	0.943965	0.902279
5	8	0.055811	0.097345



Cluster g:

	term	cpu	ram
0	-1	0.000013	0.000007
1	4	0.000340	0.000253
2	5	0.000044	0.000039
3	6	0.001761	0.001667
4	7	0.273768	0.309543
5	8	0.724074	0.688491



Cluster h:

	term	cpu	ram
0	-1	0.000001	2.221178e-07
1	4	0.000060	7.513351e-06
2	5	0.000009	1.435151e-06
3	6	0.000156	1.872738e-05
4	7	0.789101	9.771332e-01
5	8	0.210673	2.283888e-02

