My algorithm = Verification of consistency between pod connectivity defined by NetworkPolicies and node connectivity defined by Security Group (and their rules) both on an existing cluster and incrementally with each new pod layer event.

Issue:

1. I can not compare directly against existing state of the art:

* Grasshopper assumes NPs are correct and enforces SGs to be compliant so conflicts don’t occur
* Kano only looks at pod level of conflicts.

1. It is not fully new:

* I verify policies, but am not complete enough since I do not offer a conflict resolution step.

SOLUTION:

My thesis will be split in 2 parts in term of research questions:

1. I will compare my kano-matrix updating part of the algorithm against fully regenerating the kano matrix as they did in their first paper.

**How does regenerating the kano matrix compare with my approach of updating the matrix in terms of time?**

Variables to control: Amount of pods and networkpolicies

Hypothesis: The regeneration method might outperform the updating approach for pod creation and deletion events in term of time but will be slower for the network policy creation and deletion events. This difference will be more apparent when upscaling the amount of pods and policies

1. I will measure the overhead that my full solution brings in terms of resource and time consumption.

**How much overhead in regards to time and computation does the verification against the VMmatrix add?**

Variables to control: Amount of pods and networkpolicies

Hypothesis: This will be smaller than the overhead of the matrix updating measured in question 1.