

# k8s\_nemesis

Resources and microservices

# Product description

**Product Description:** A cloud-native service designed to enhance application scalability and performance in Kubernetes (K8s) environments, specifically targeting machine learning (ML) applications with unique scaling and resource requirements.

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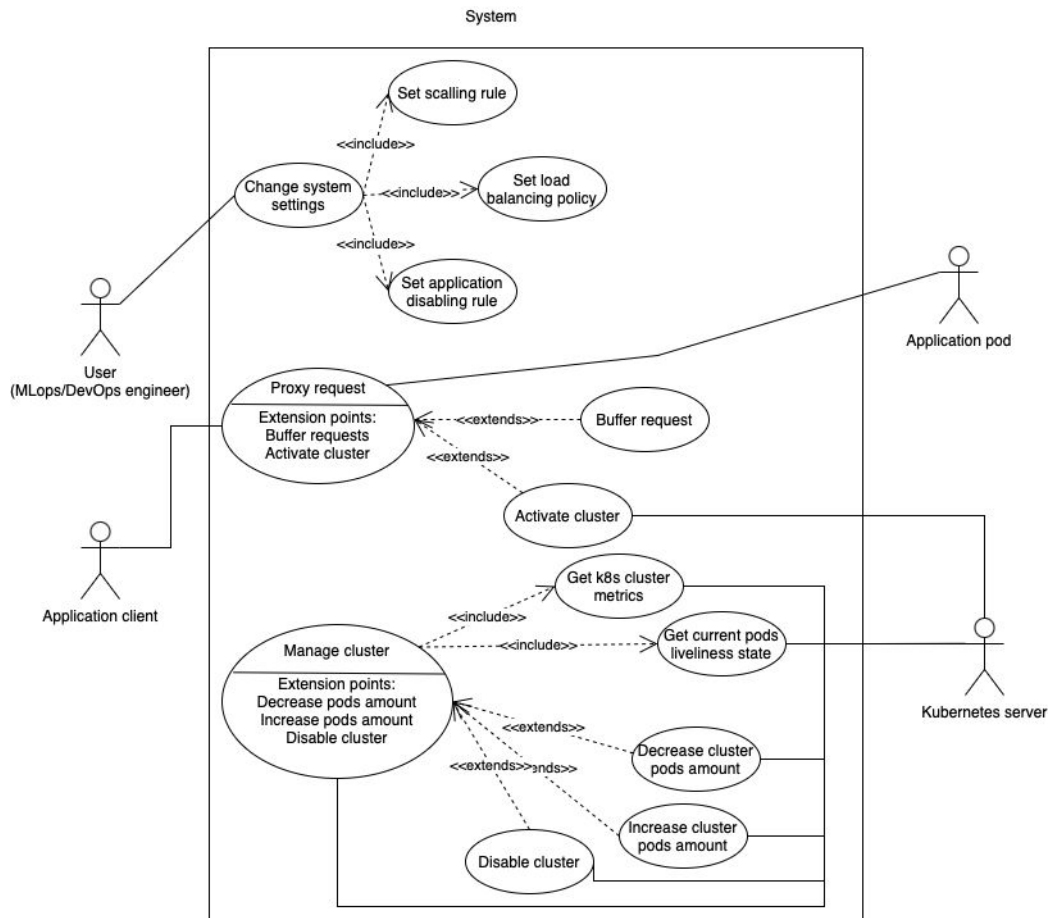
Repo: [https://github.com/Lokhmat/k8s\\_nemesis/tree/main](https://github.com/Lokhmat/k8s_nemesis/tree/main)

Report: [https://github.com/Lokhmat/k8s\\_nemesis/blob/main/task\\_9\\_1\\_slides.pdf](https://github.com/Lokhmat/k8s_nemesis/blob/main/task_9_1_slides.pdf)

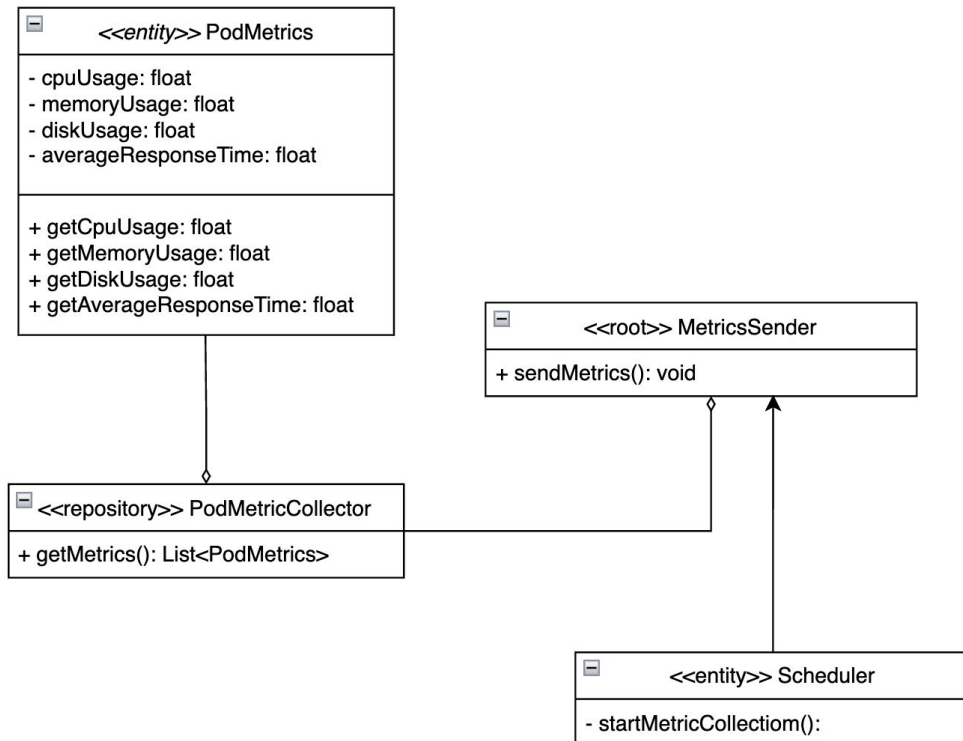
# Use case diagram

Textual use case scenarios:

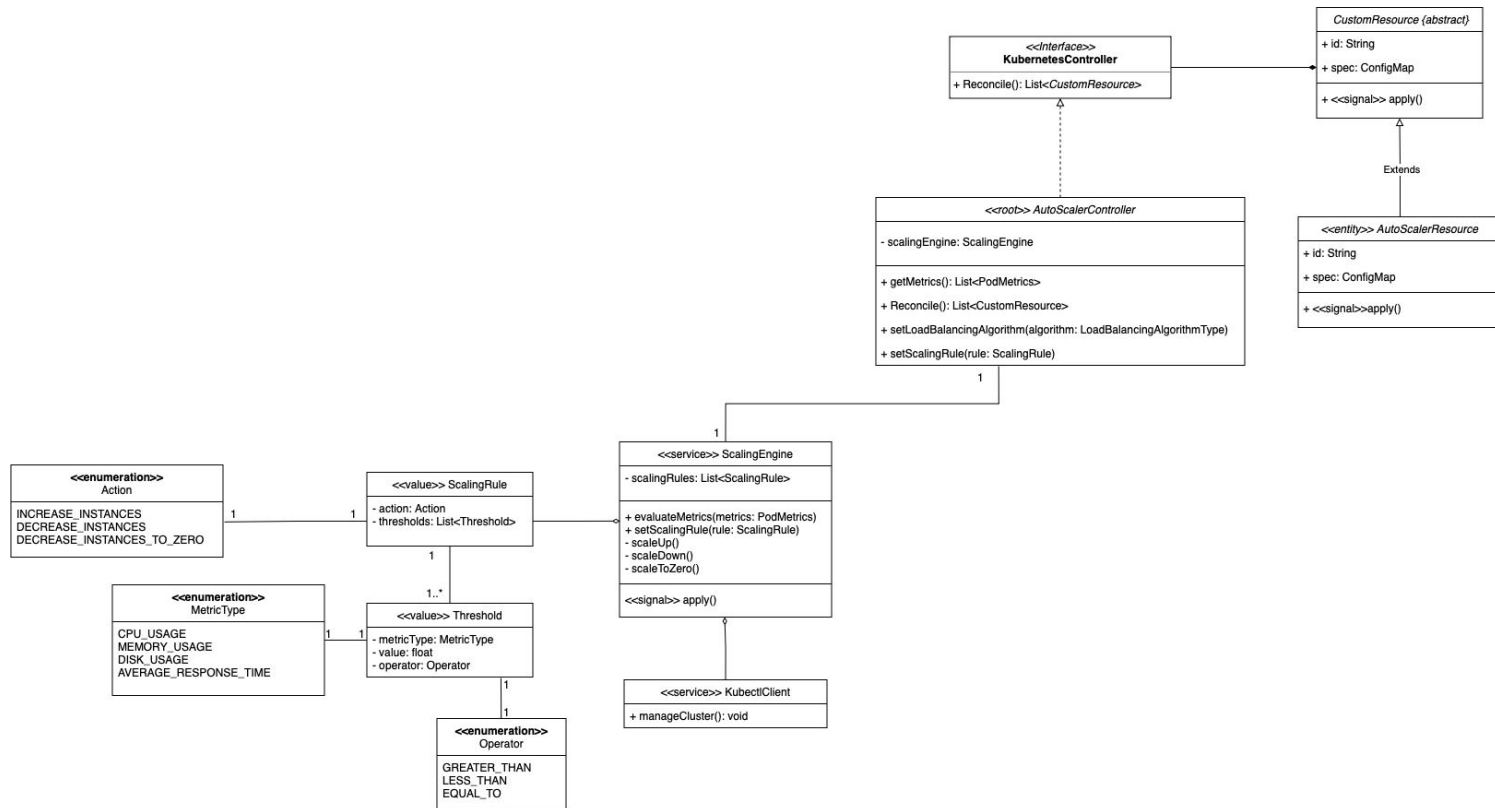
[https://github.com/Lokhmat/k8s\\_nemesis/blob/main/final\\_task\\_materials/textual\\_use\\_cases.md](https://github.com/Lokhmat/k8s_nemesis/blob/main/final_task_materials/textual_use_cases.md)



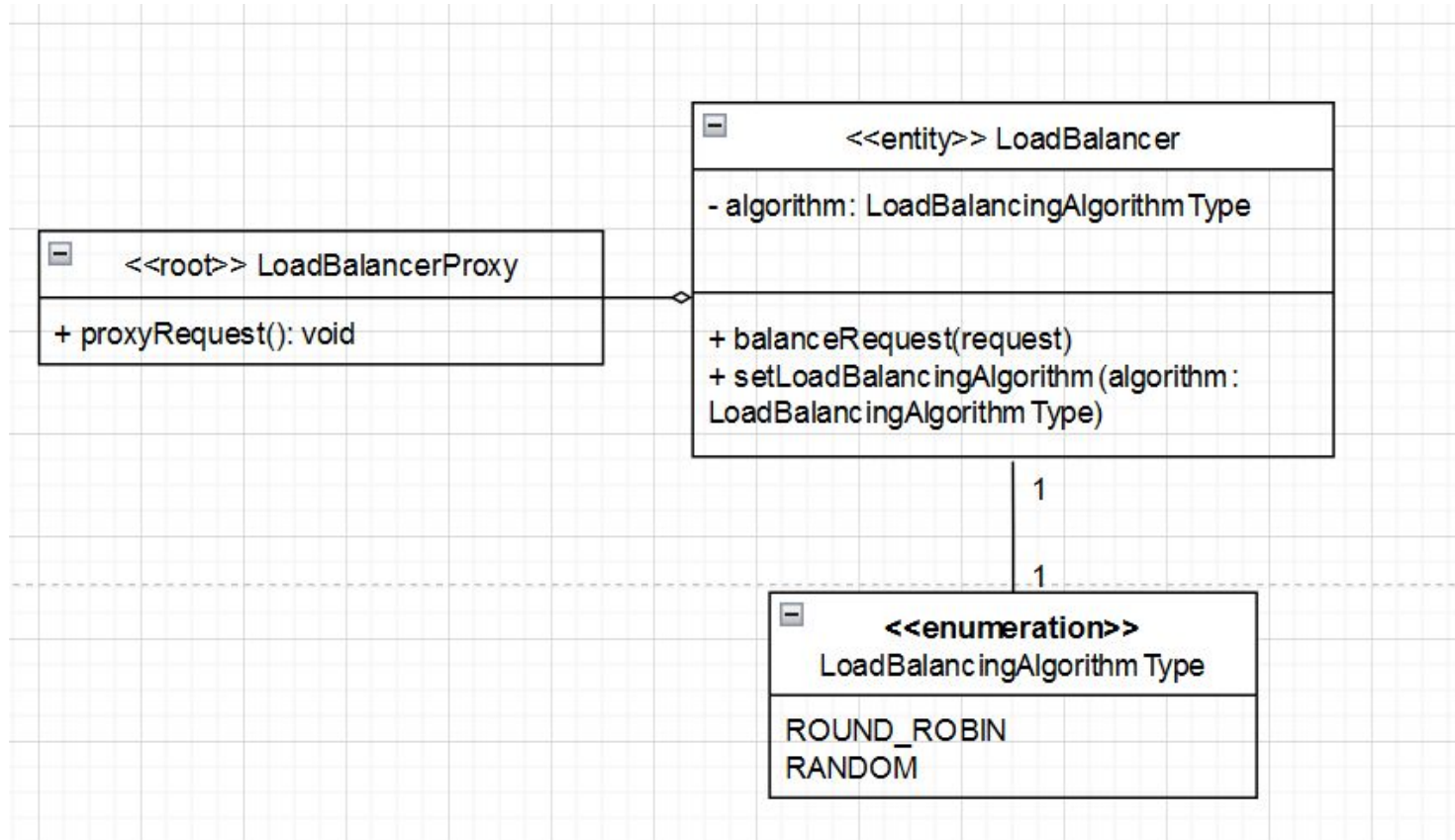
# Detailed class diagram - Sidecar



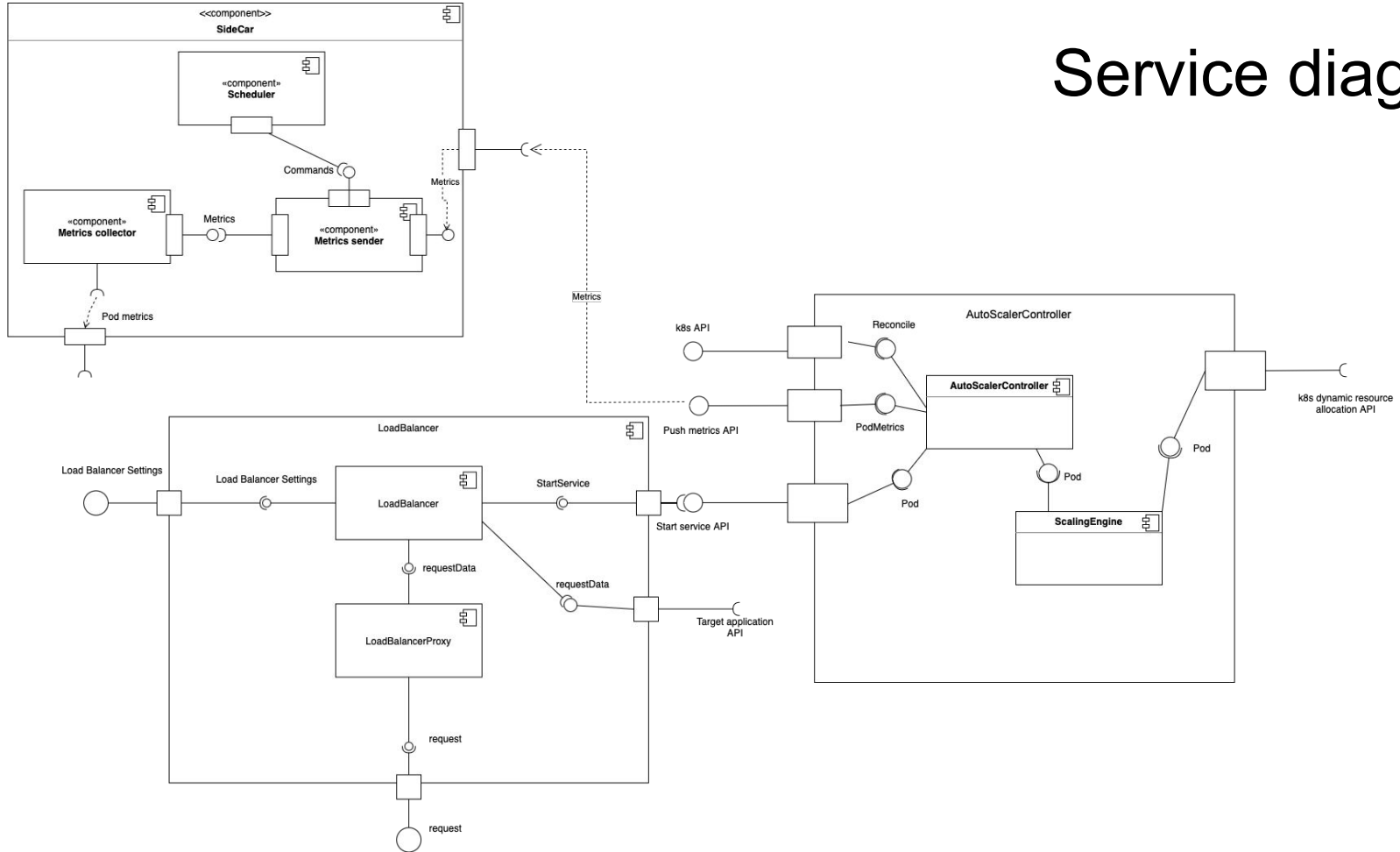
# Detailed class diagram - Aggregate AutoScalerController



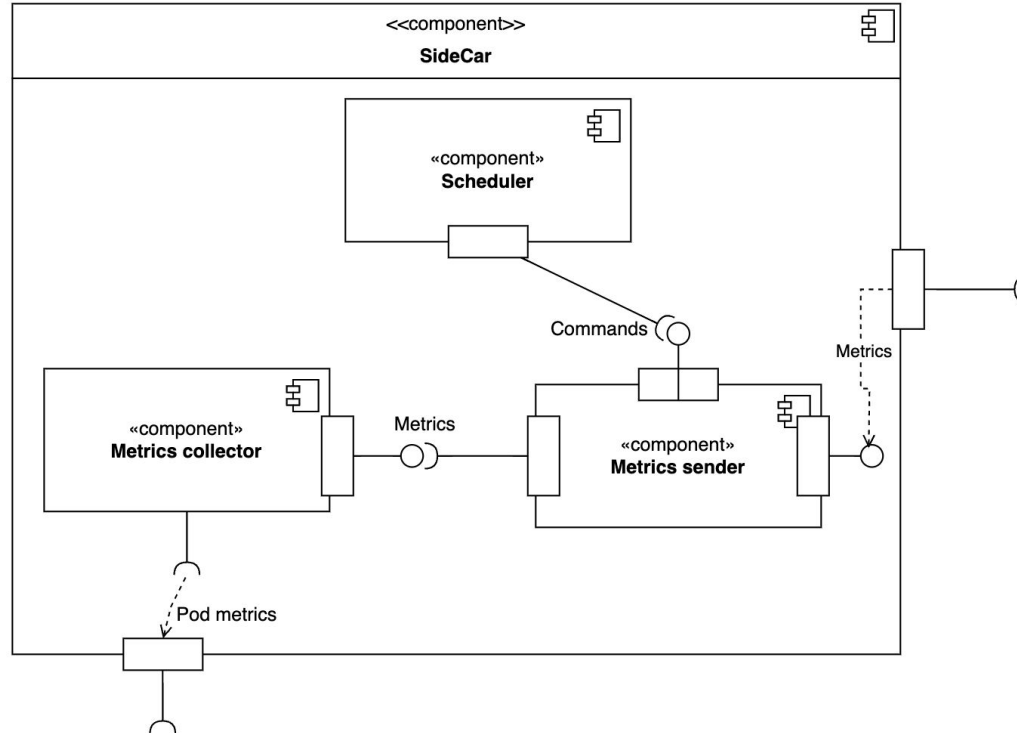
# Detailed class diagram - Aggregate LoadBalancer



# Service diagram

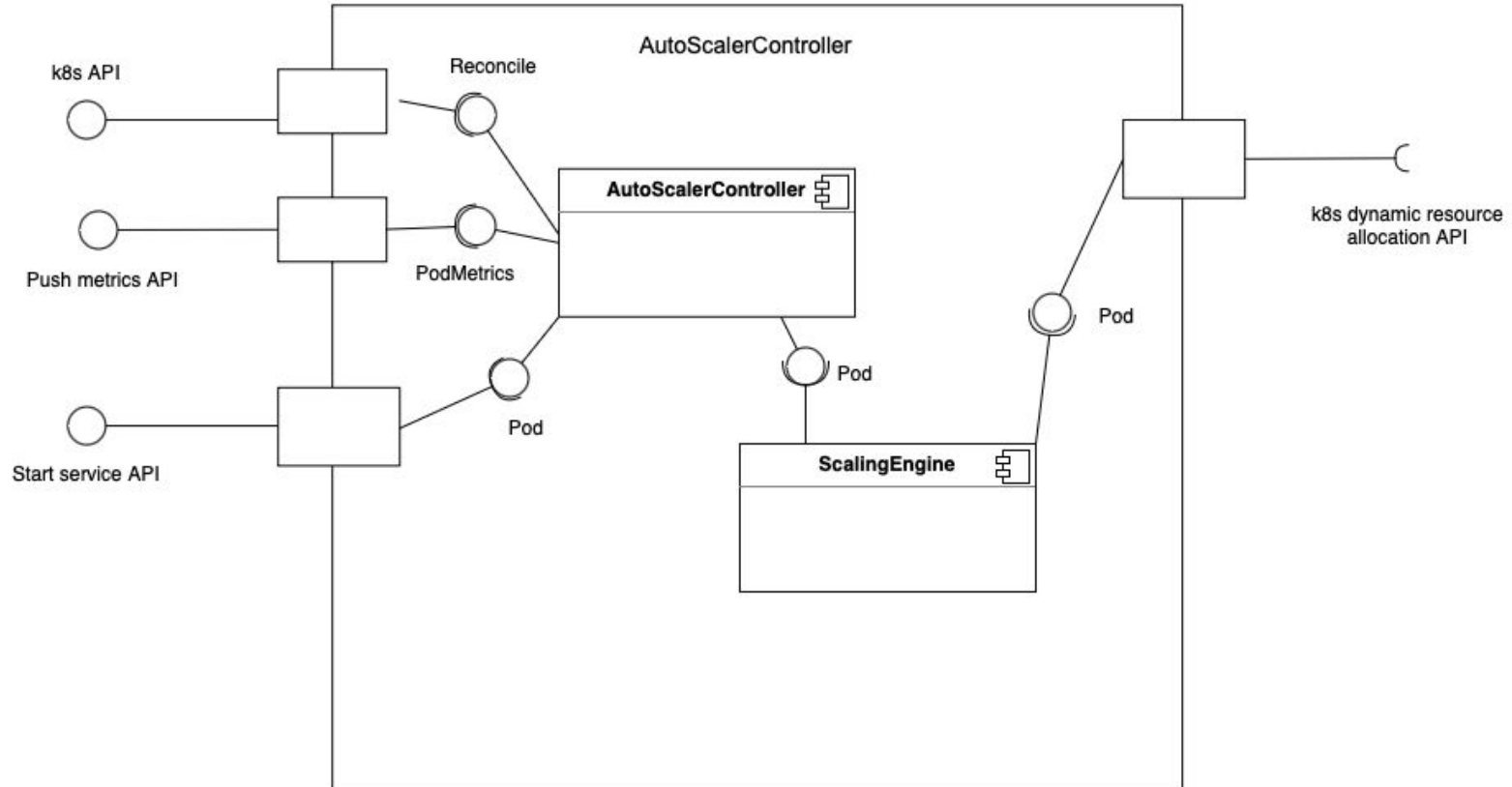


# Component diagram - SideCar

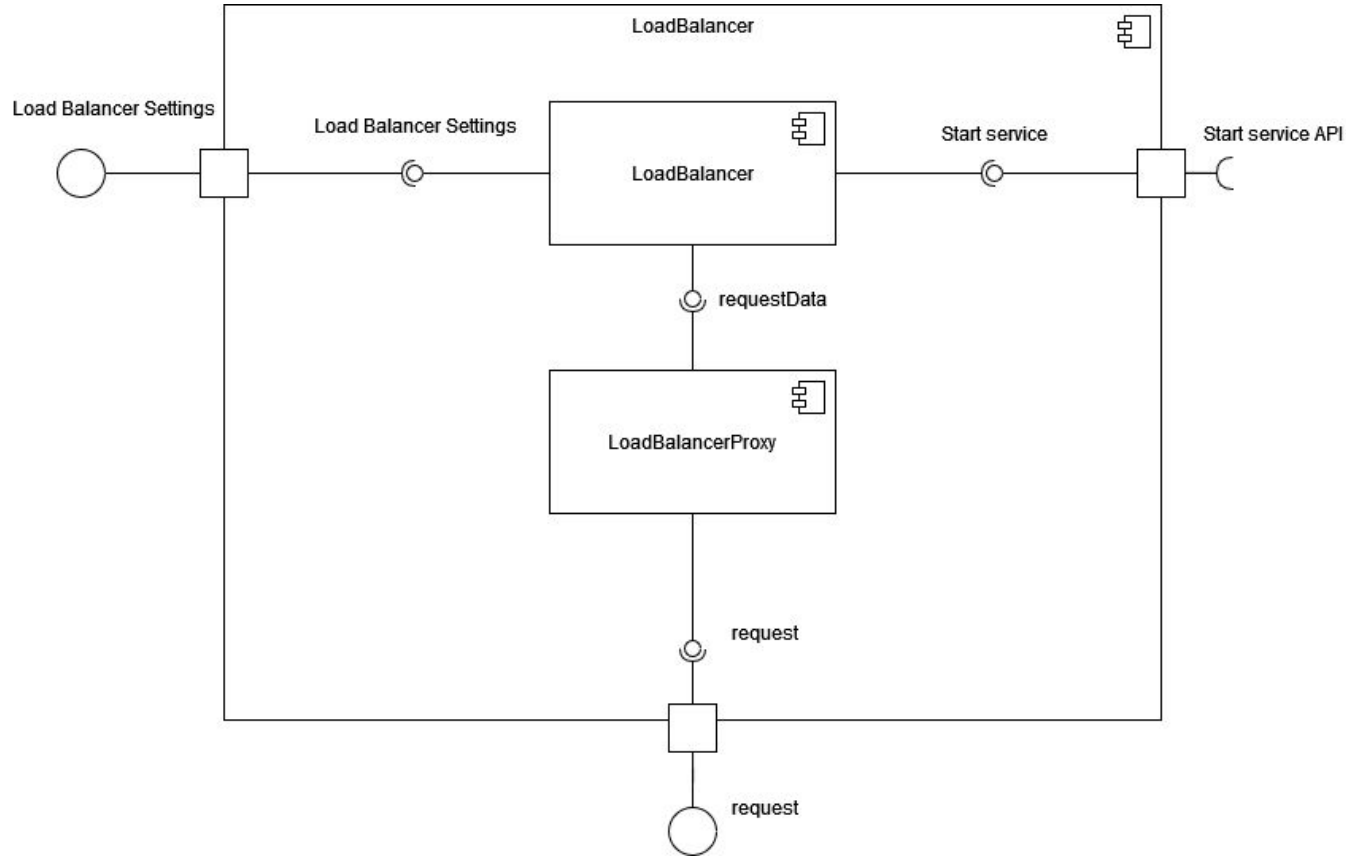




# Component diagram - AutoScalerController



# Component diagram - LoadBalancer



# Traceability

<b>Microservice (component)</b>	<b>Resource (interface)</b>	<b>Domain classes in the microservice</b>	<b>Use case that use the microservice</b>
SideCar	PodMetrics	Scheduler, PodMetricCollector	Get k8s cluster metrics
Auto Scaller	Pod, PodMetrics, Reconcile	AutoScalerController ScalingEngine	Manage Cluster(+all ext. points) Set load balancing policy Set application disable rule
Load balancer	Load Balancer settings requestData StartService request	LoadBalancer LoadBalancerProxy	Manage Cluster Set Load Policy Proxy request