



Climbing up the Scaling Ladder

About me

- I'm Bastian
- Enthusiast about auto scaling and automation
- Part of the Cloud Foundation team

```
$ whoami
```

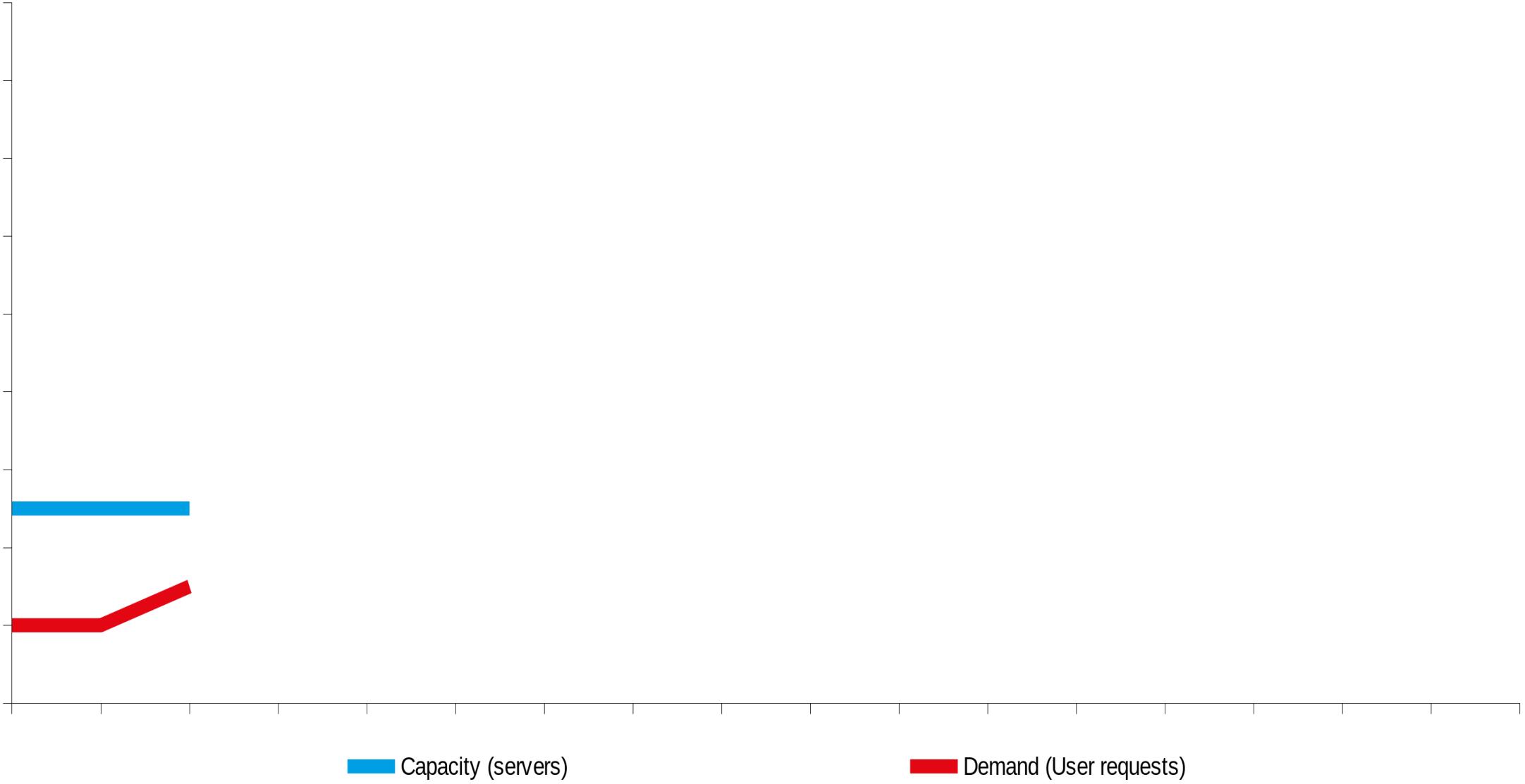
```
I am groot
```

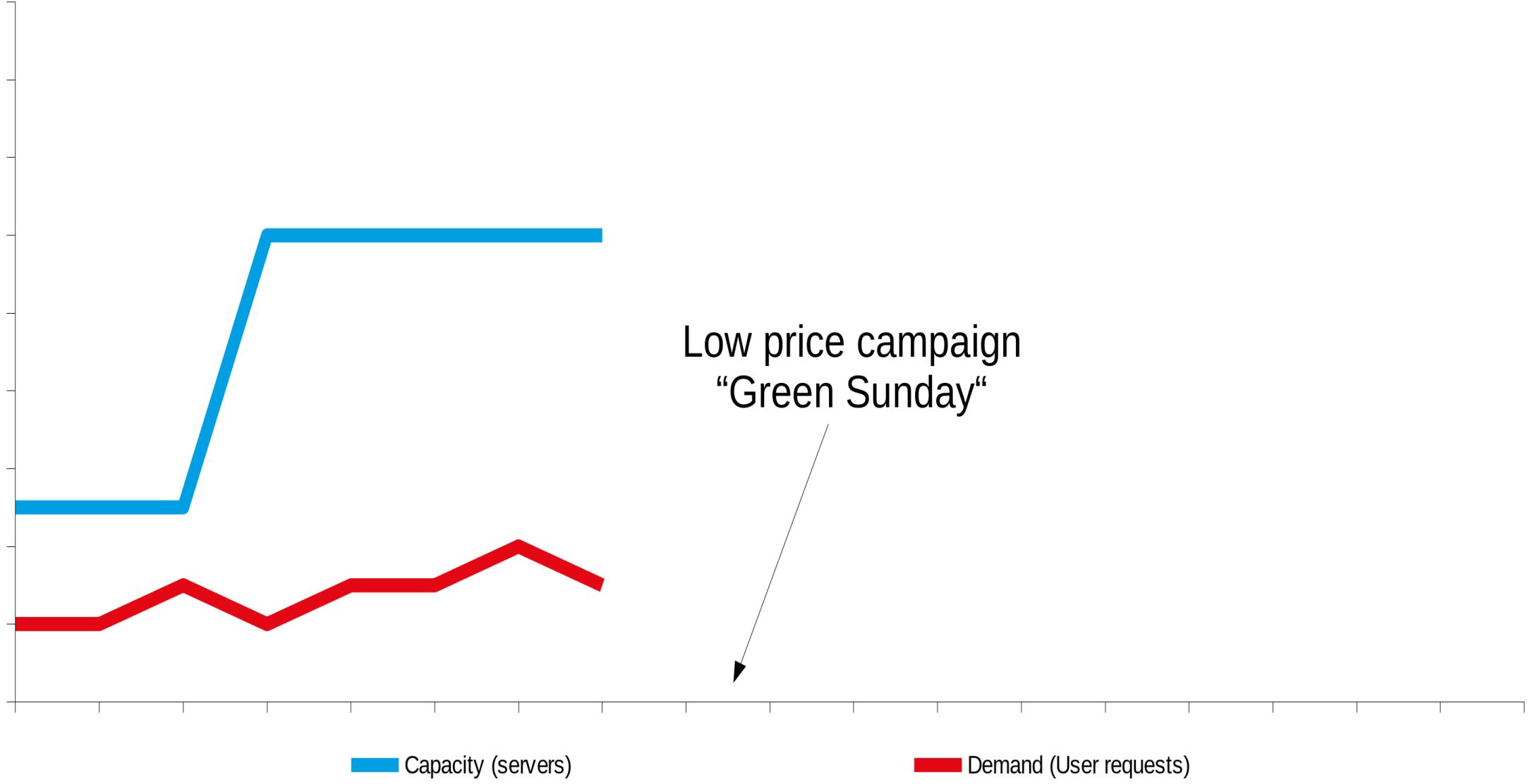


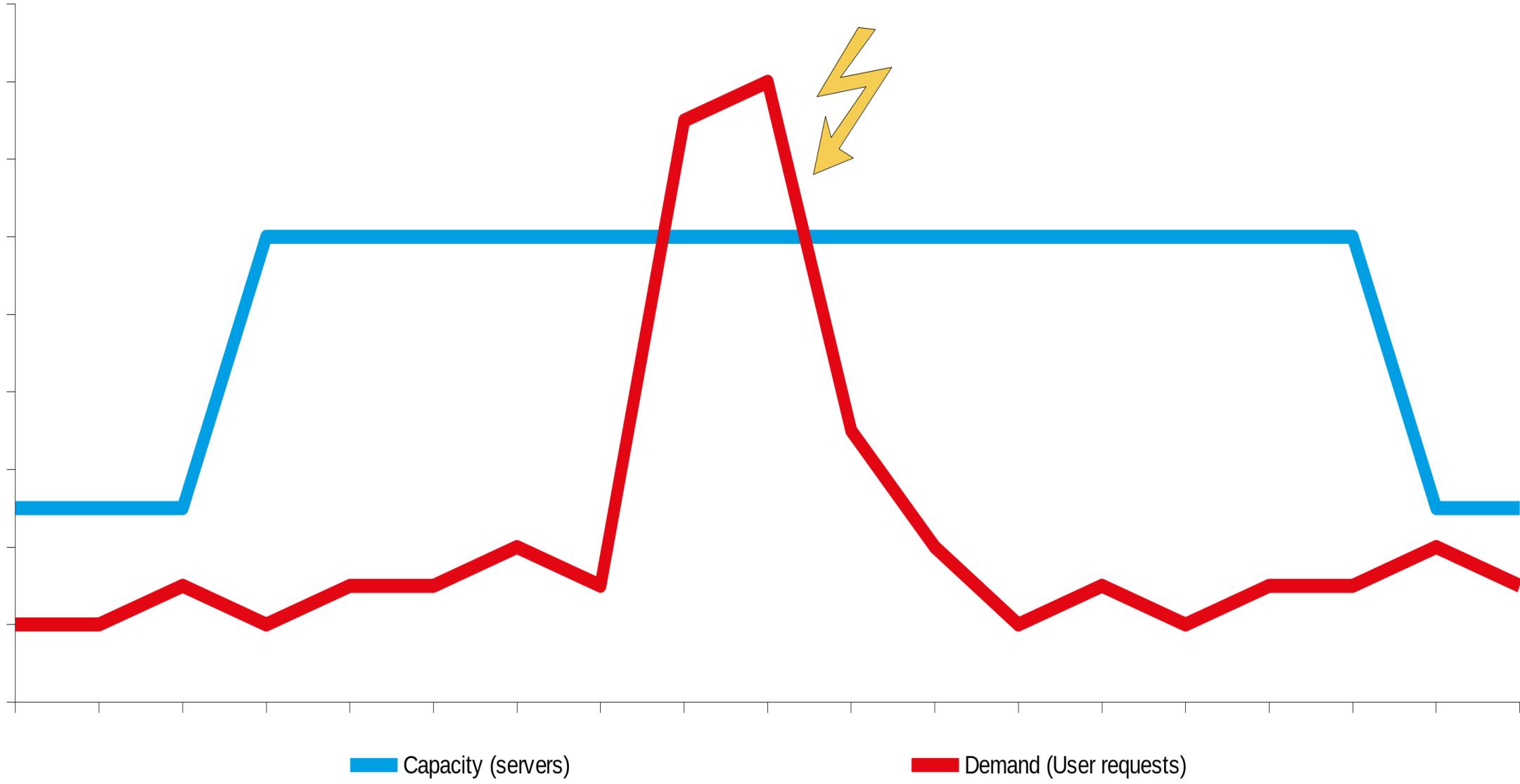
Problem Statement

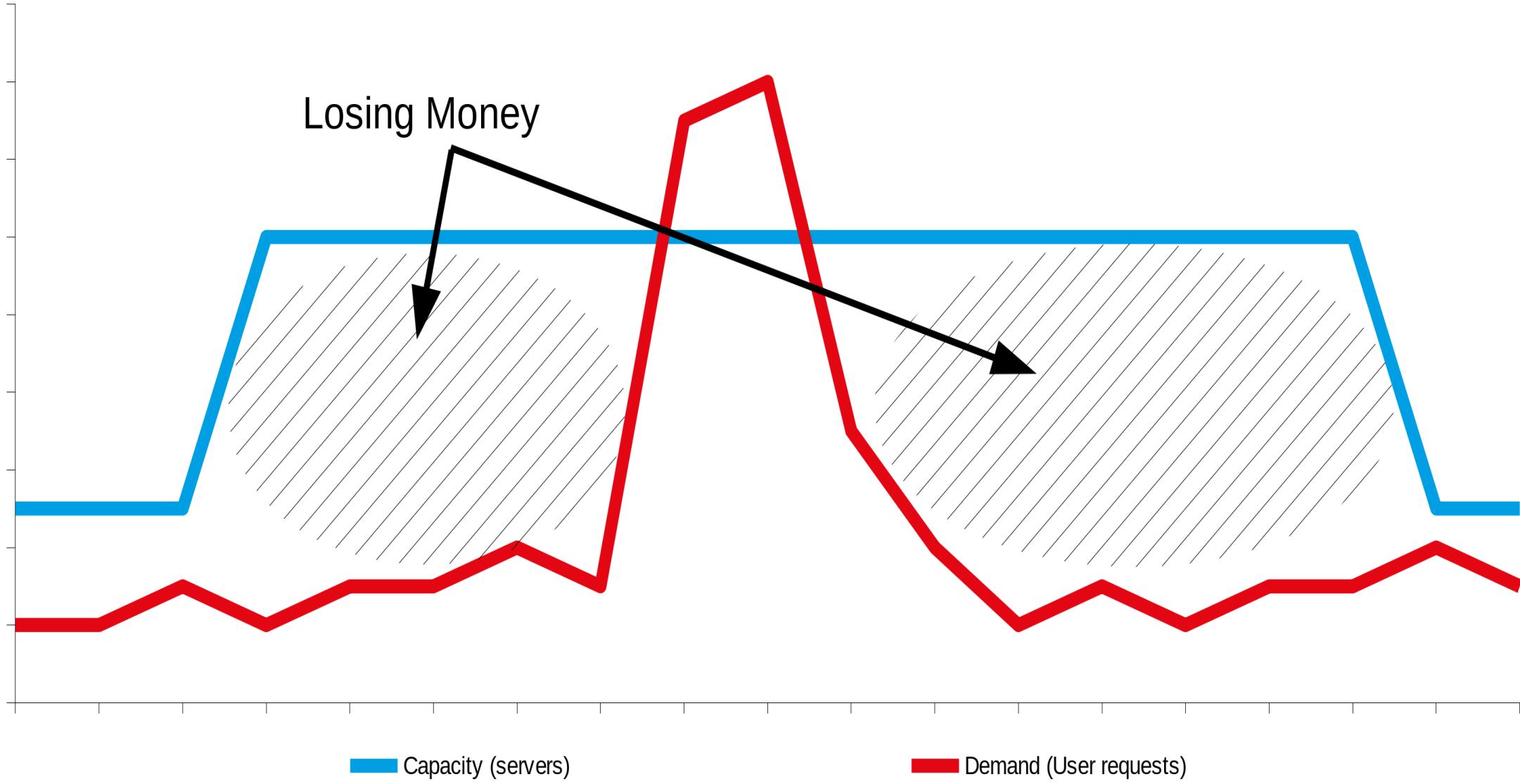
With inappropriate scaling you are losing

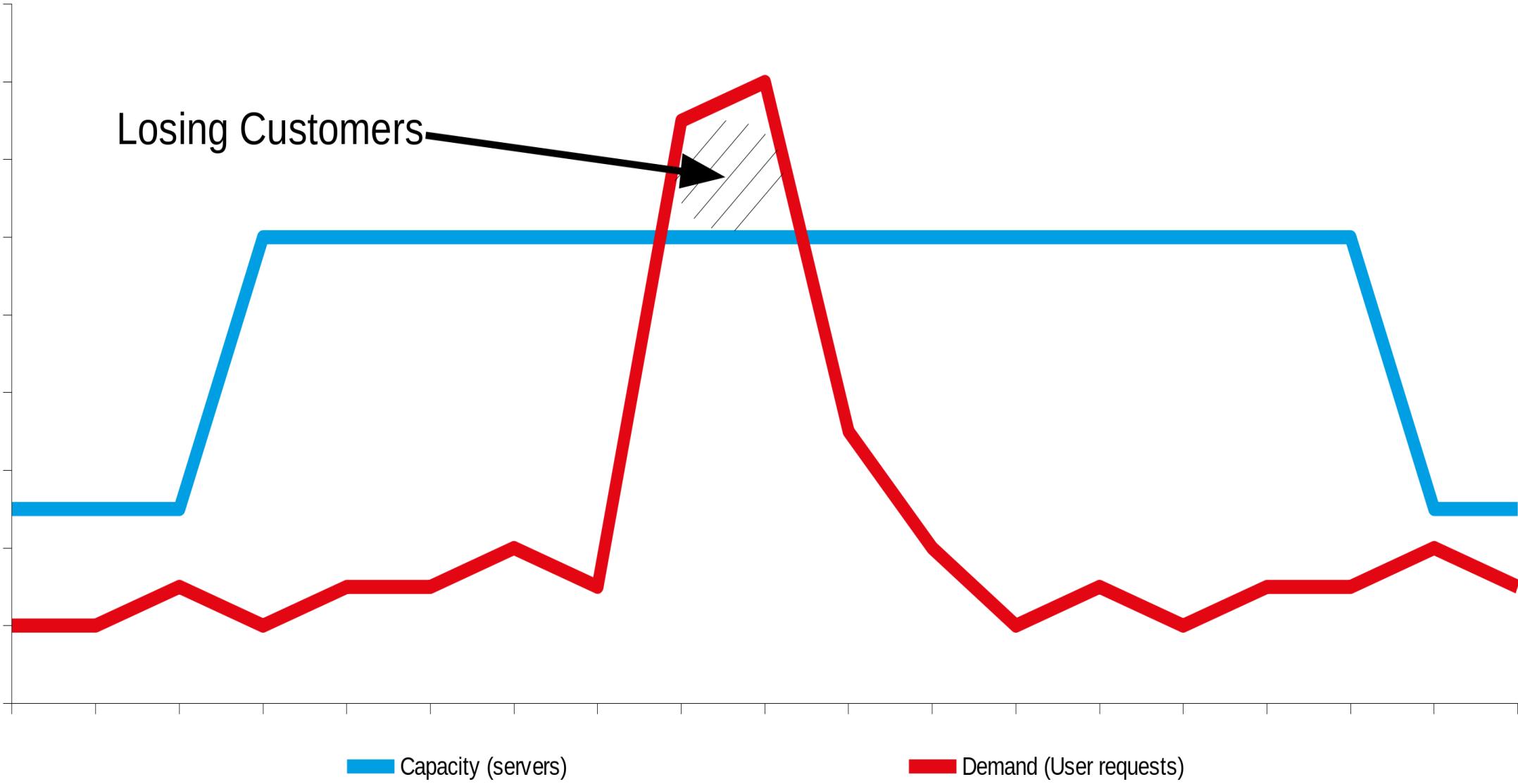
- customers 
- and money 





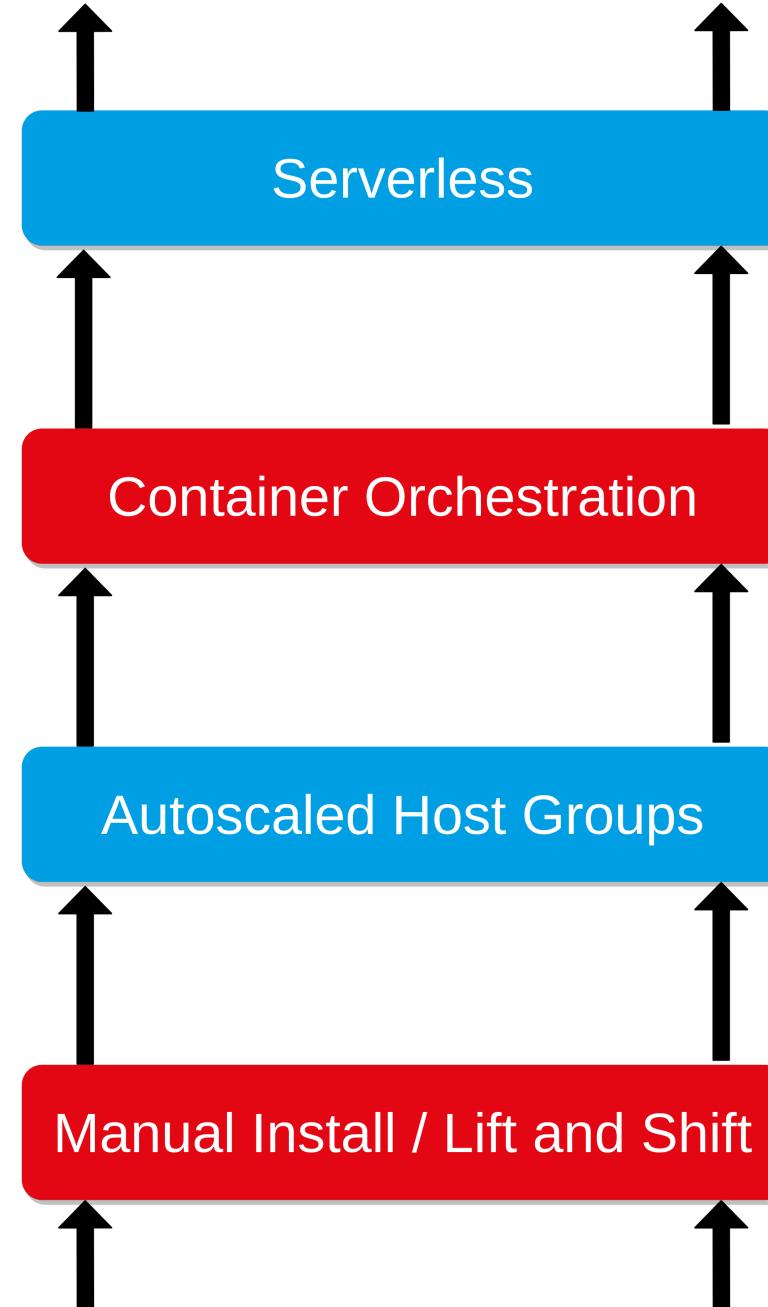








Scaling in the Cloud





Lift and Shift

- Migrate legacy VMs with no modification
- Doesn't scale very well
- Your mess for less
- Conclusion: don't do it

Autoscaled Host Groups

- Lift and Shift done right

Three Step process:

1. Persist data outside VM
2. Automate VM setup
3. Create VM image



Example Autoscaled Host Groups



- VM Image

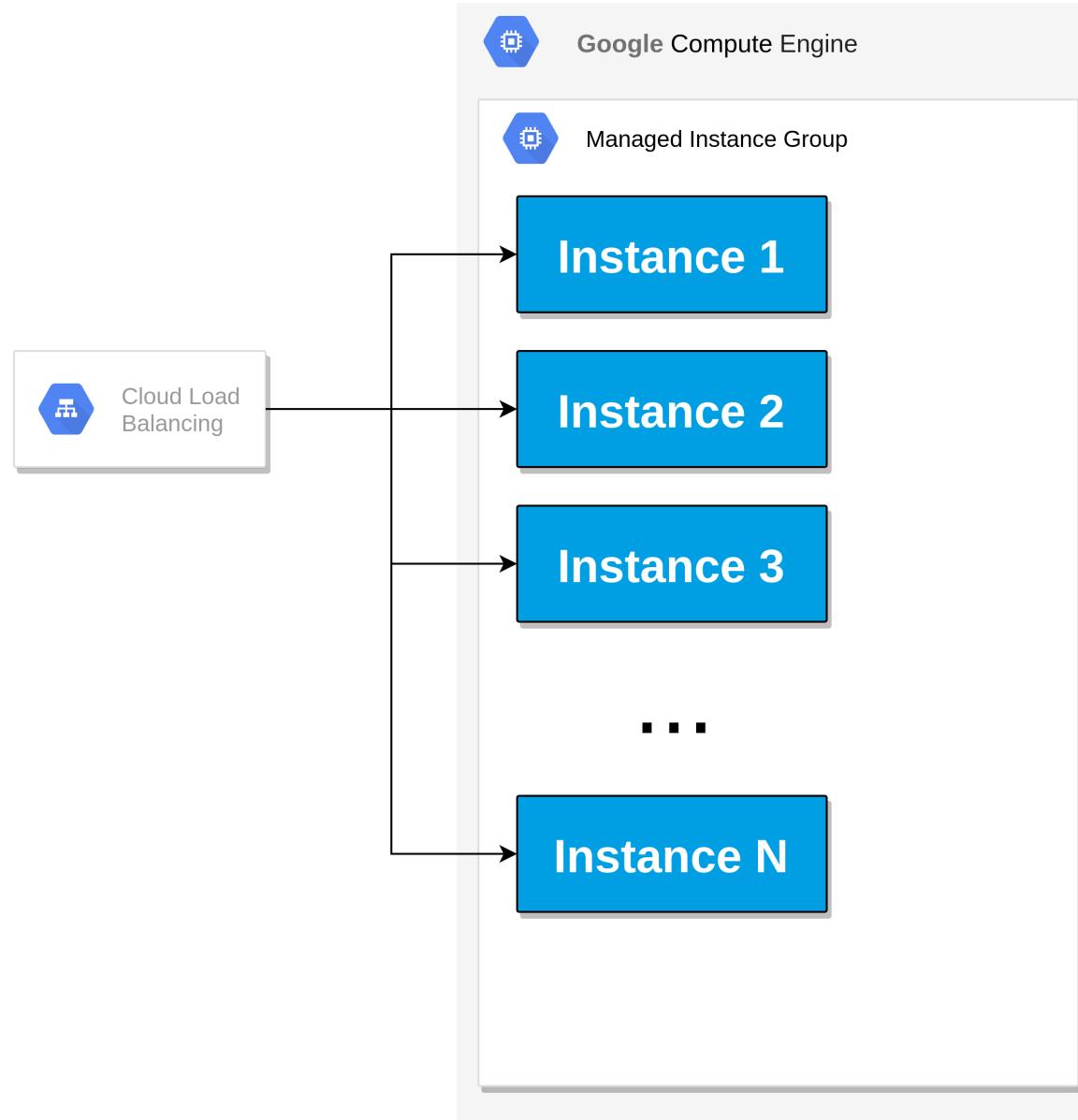


- Managed Instance Group -> VM Autoscaler



- VM Template
- Managed instance group
- Loadbalancer

Managed Instance Group in GCP



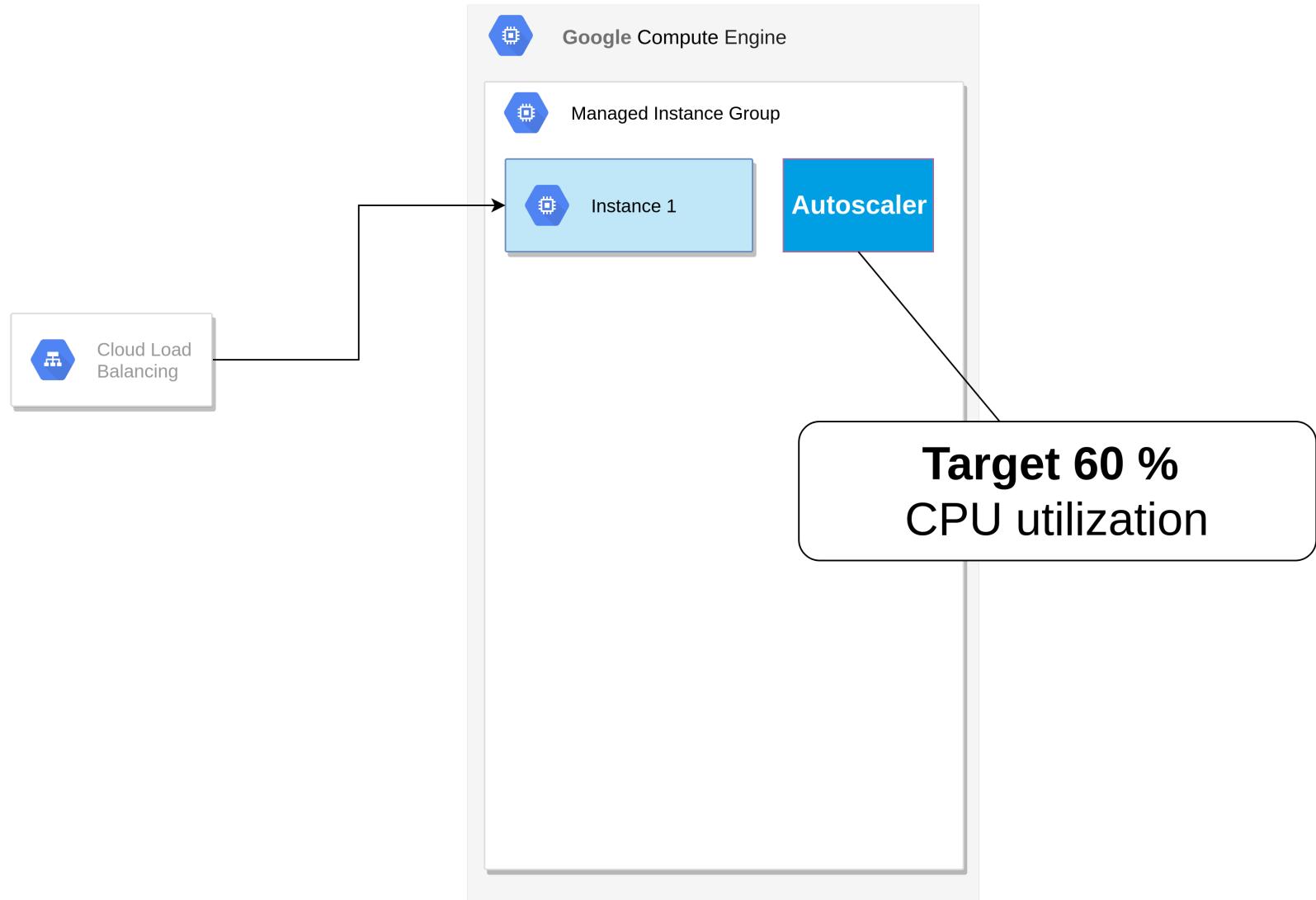
Example Application

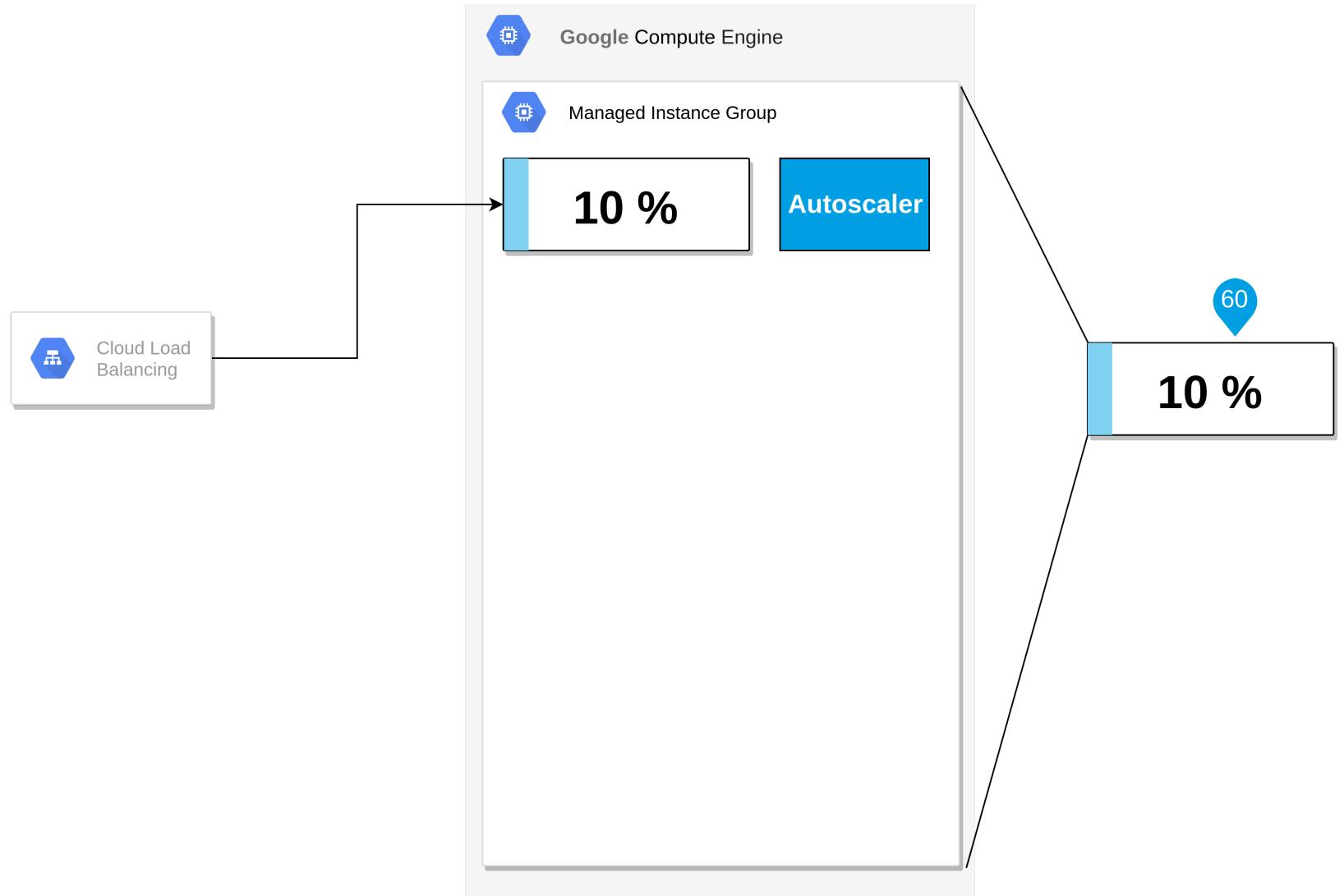
- Hashy

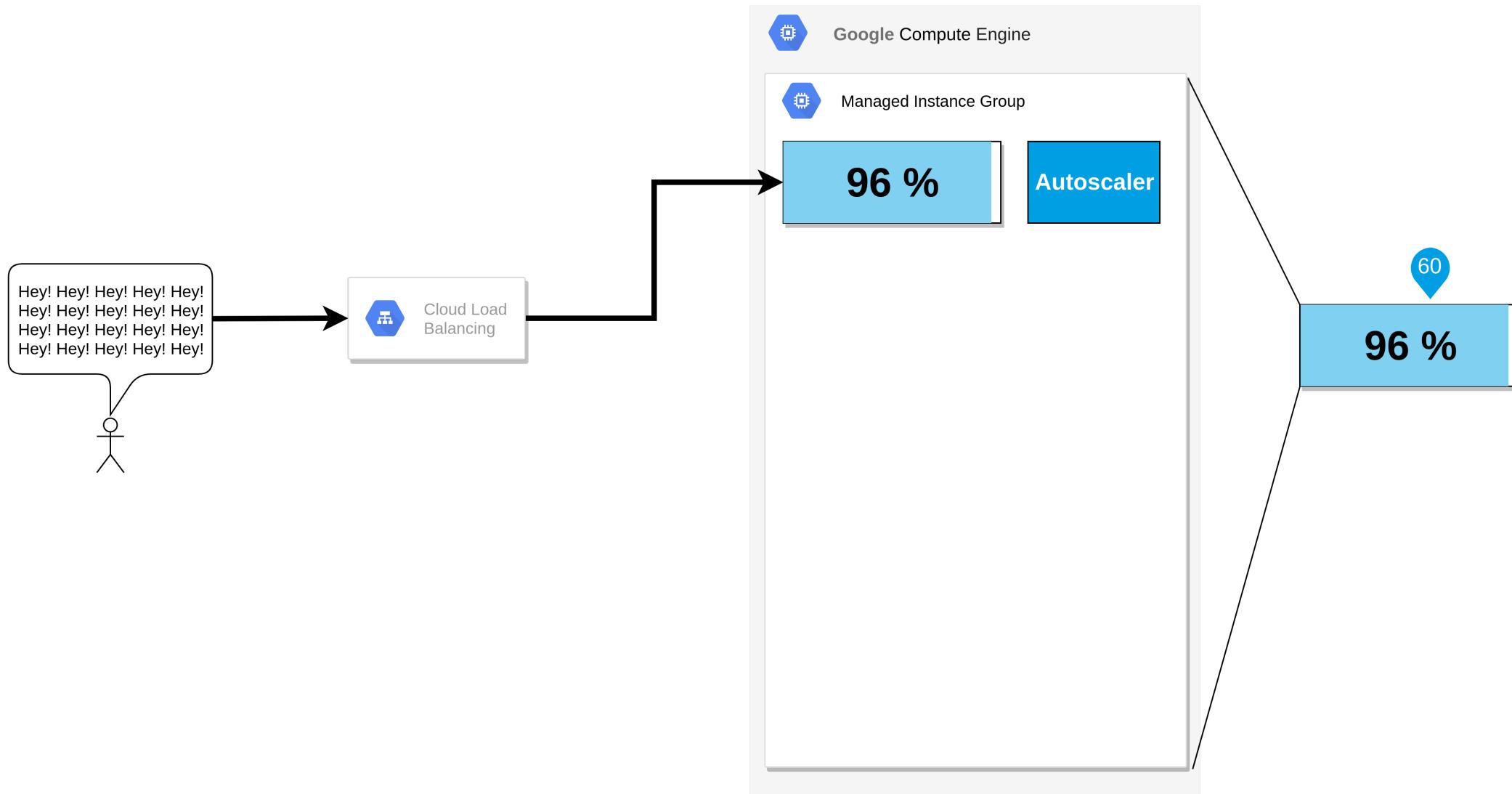
```
bcrypt( time.now() )
```

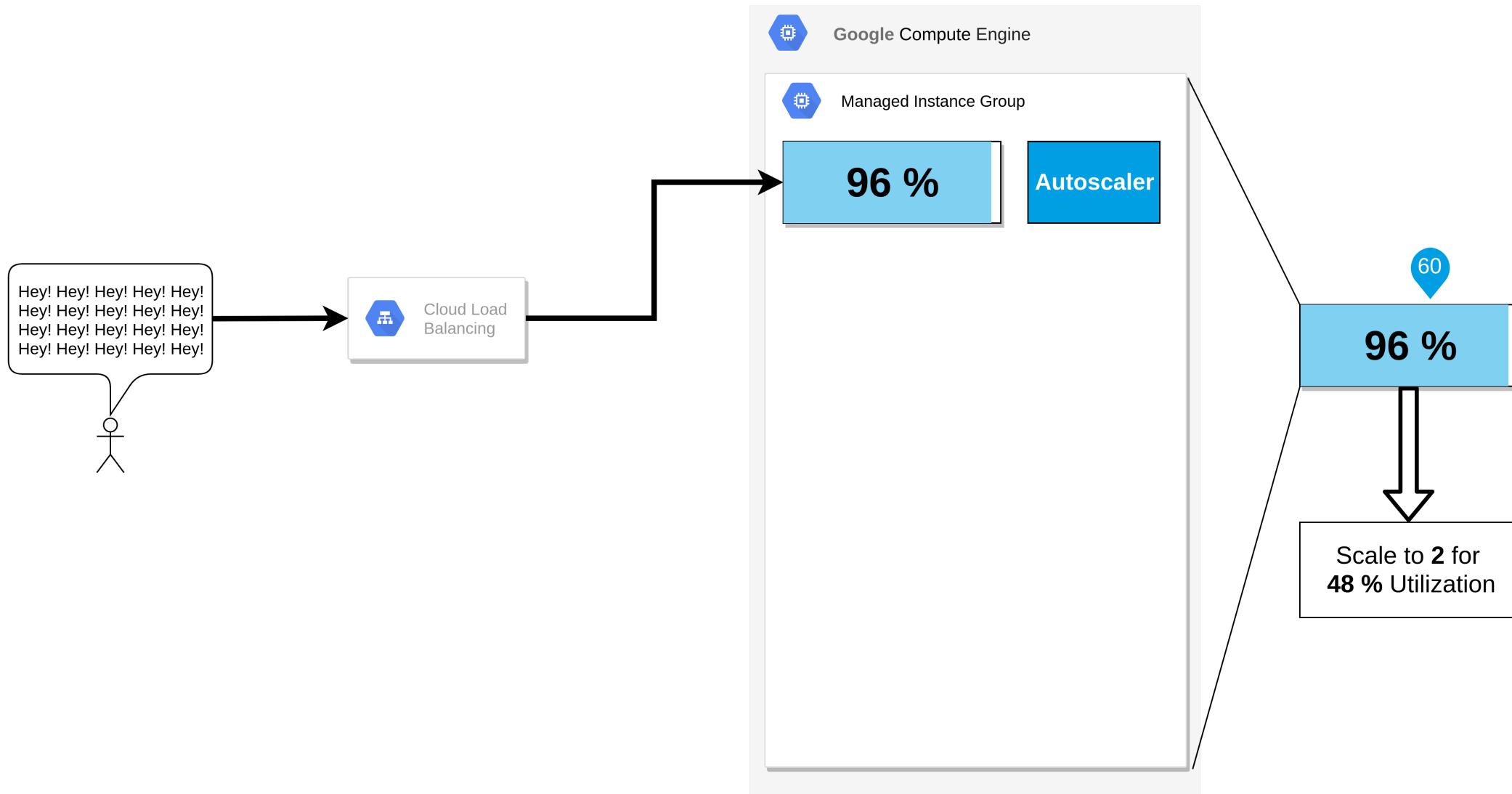
Demo Managed Instance Group Part 1

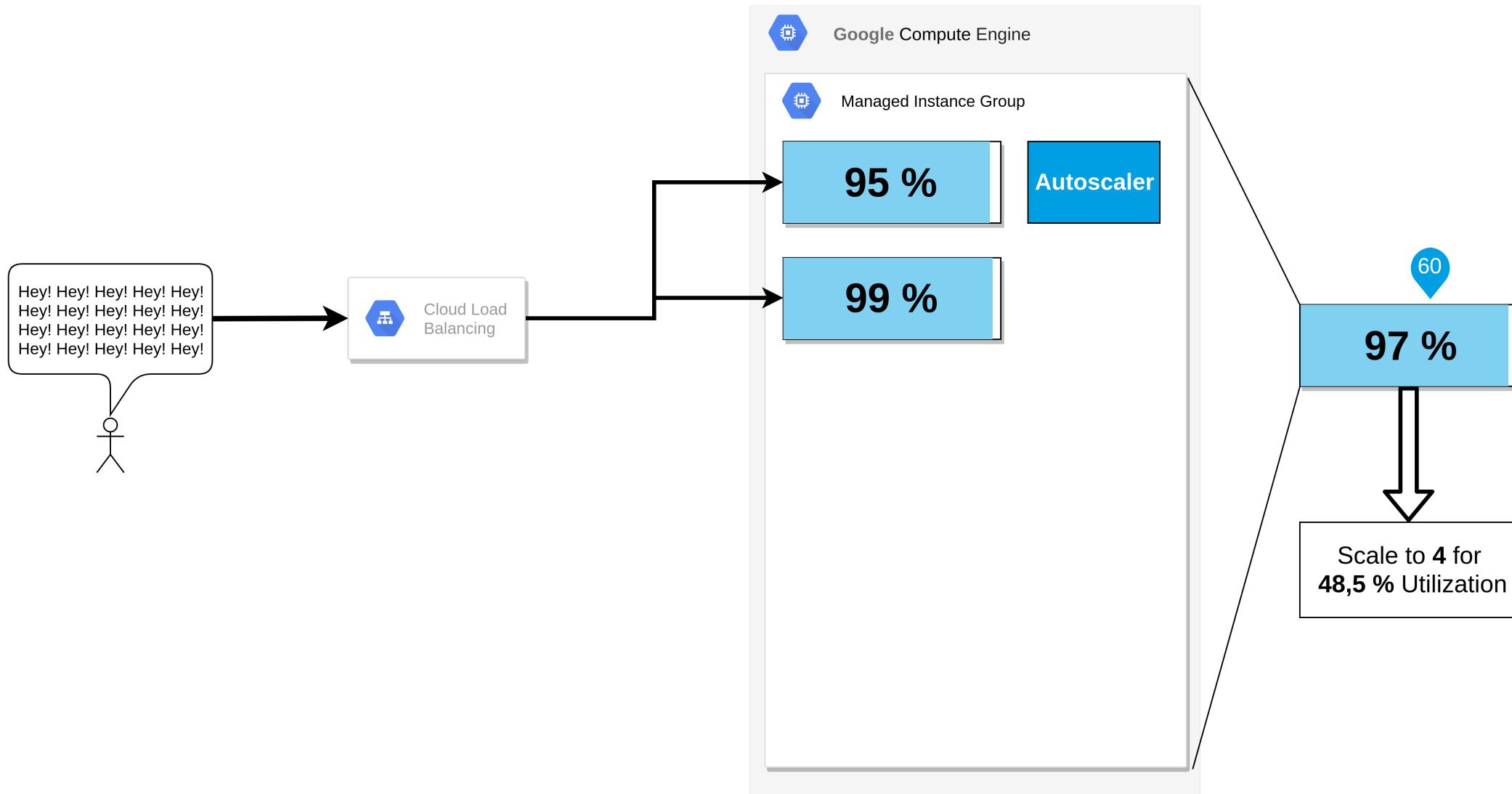


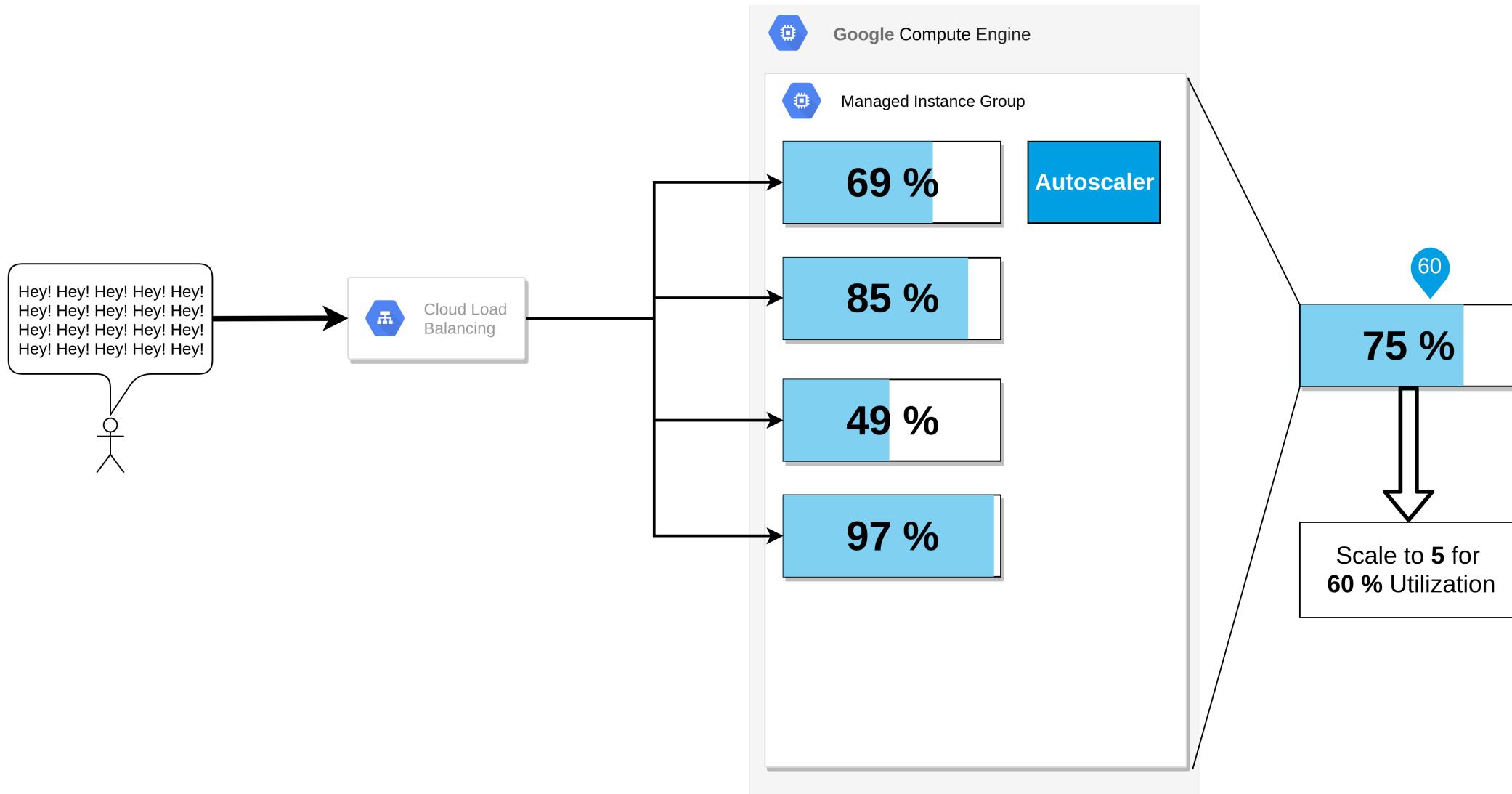


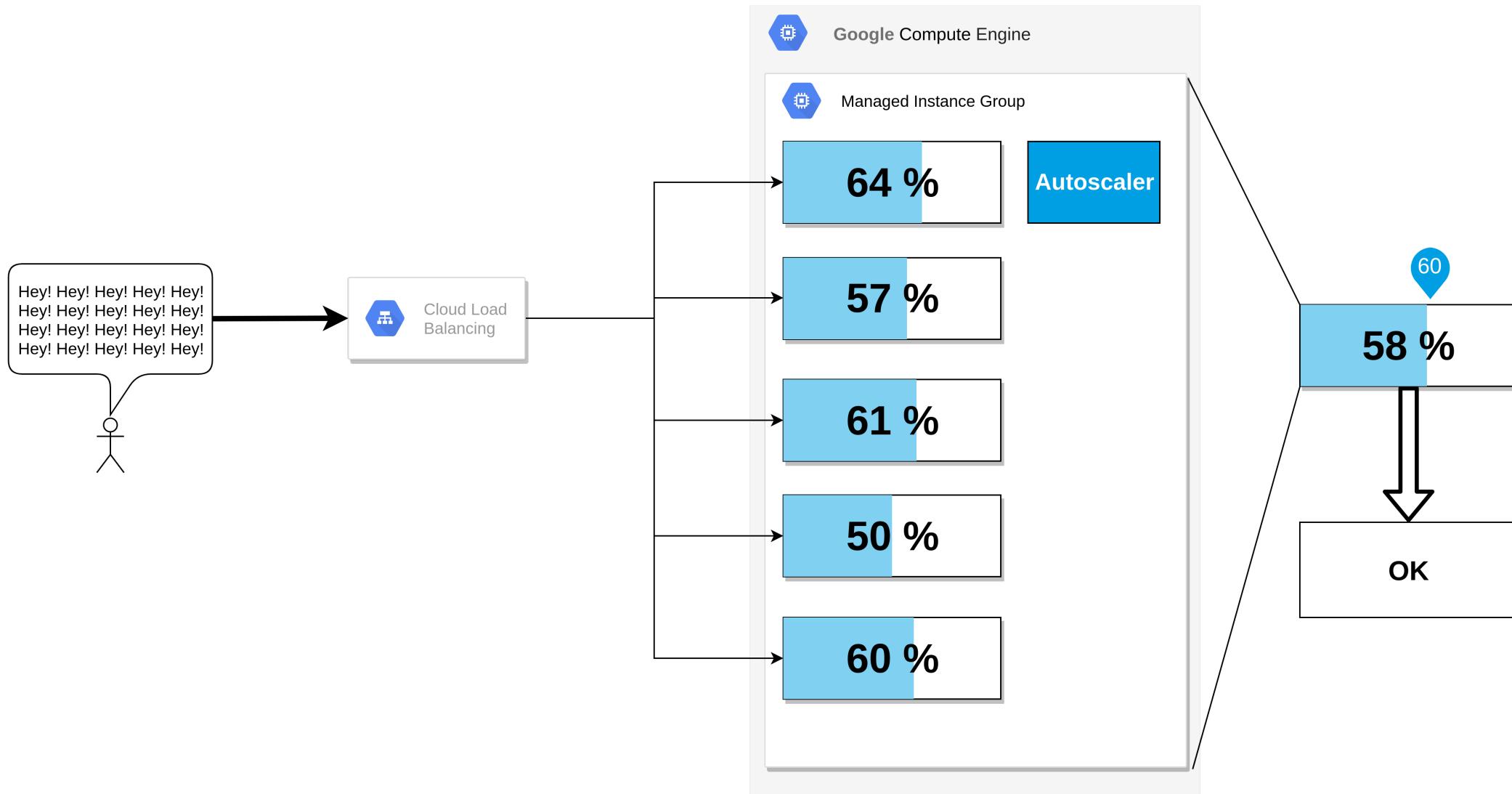












Demo Managed Instance Group Part 2

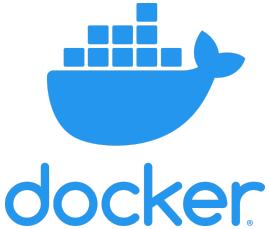




Container Orchestration

- Paradigm shift: There are no VMs
- Pool of resources
- Services containerized
 - > strip out OS
 - > runtime image instead VM image

Example Container Orchestration



- Container Image

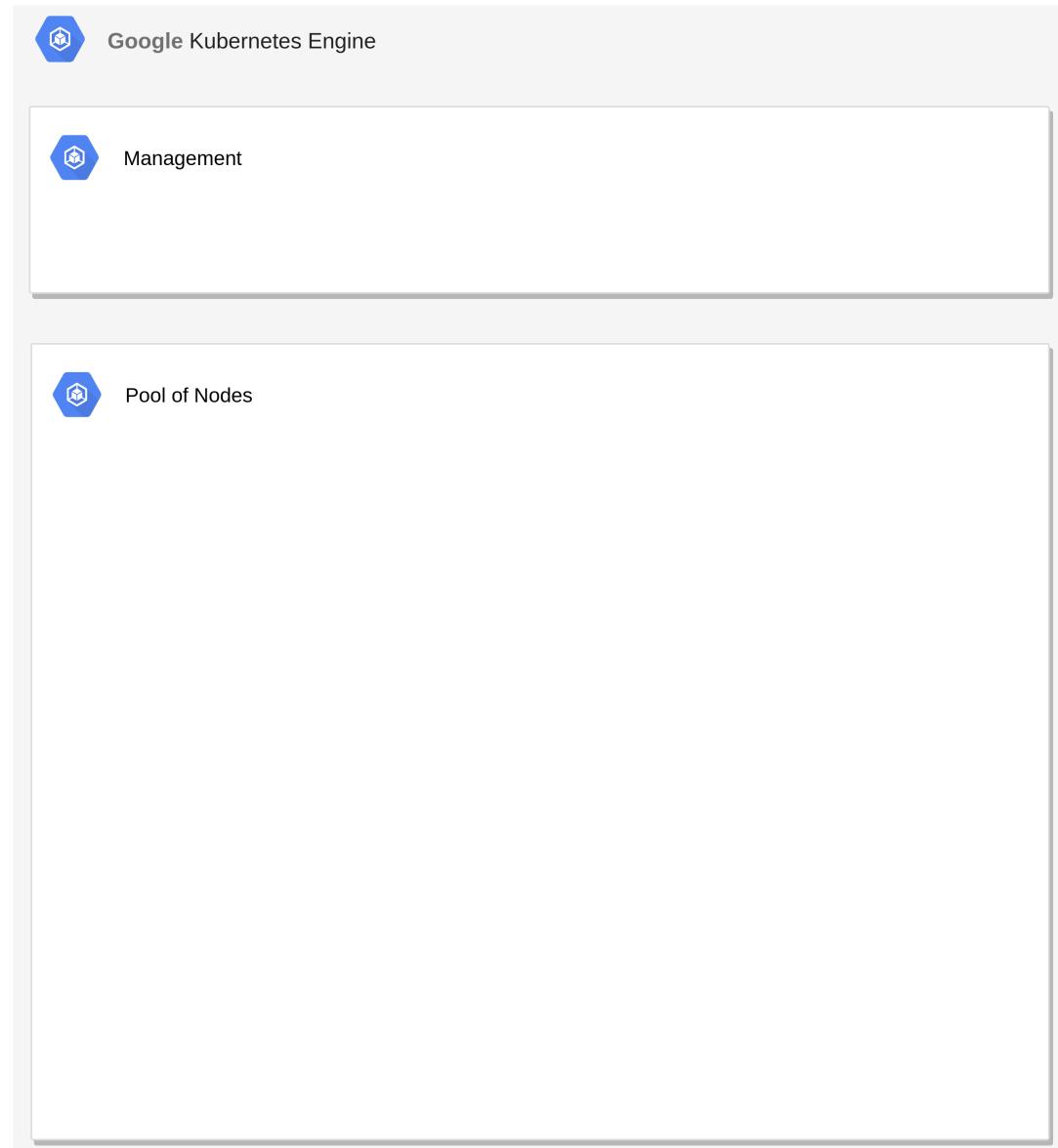


- Deployment
- Horizontal Pod Autoscaler
- Service

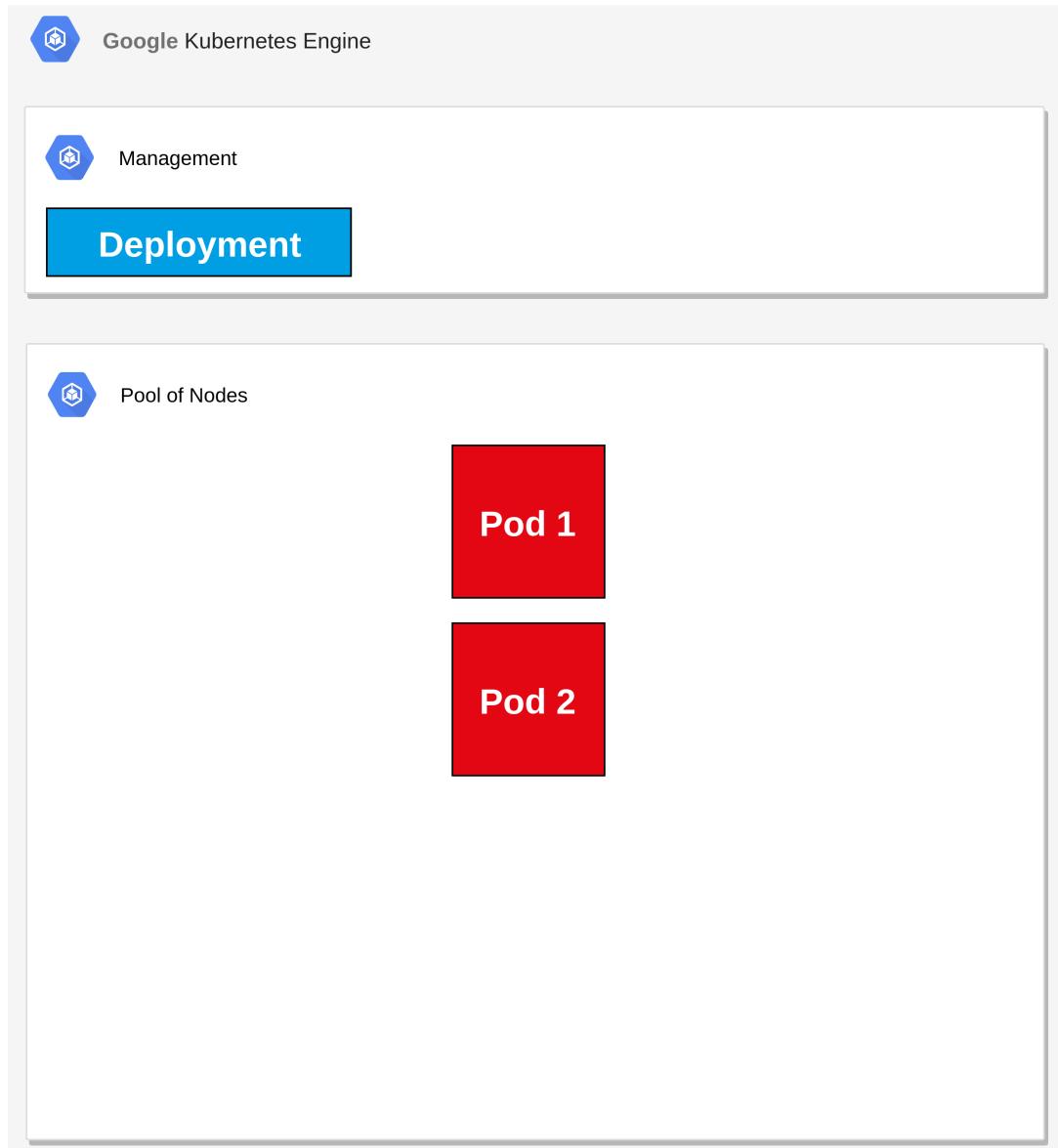


- Kubernetes Cluster
- Node Autoscaler

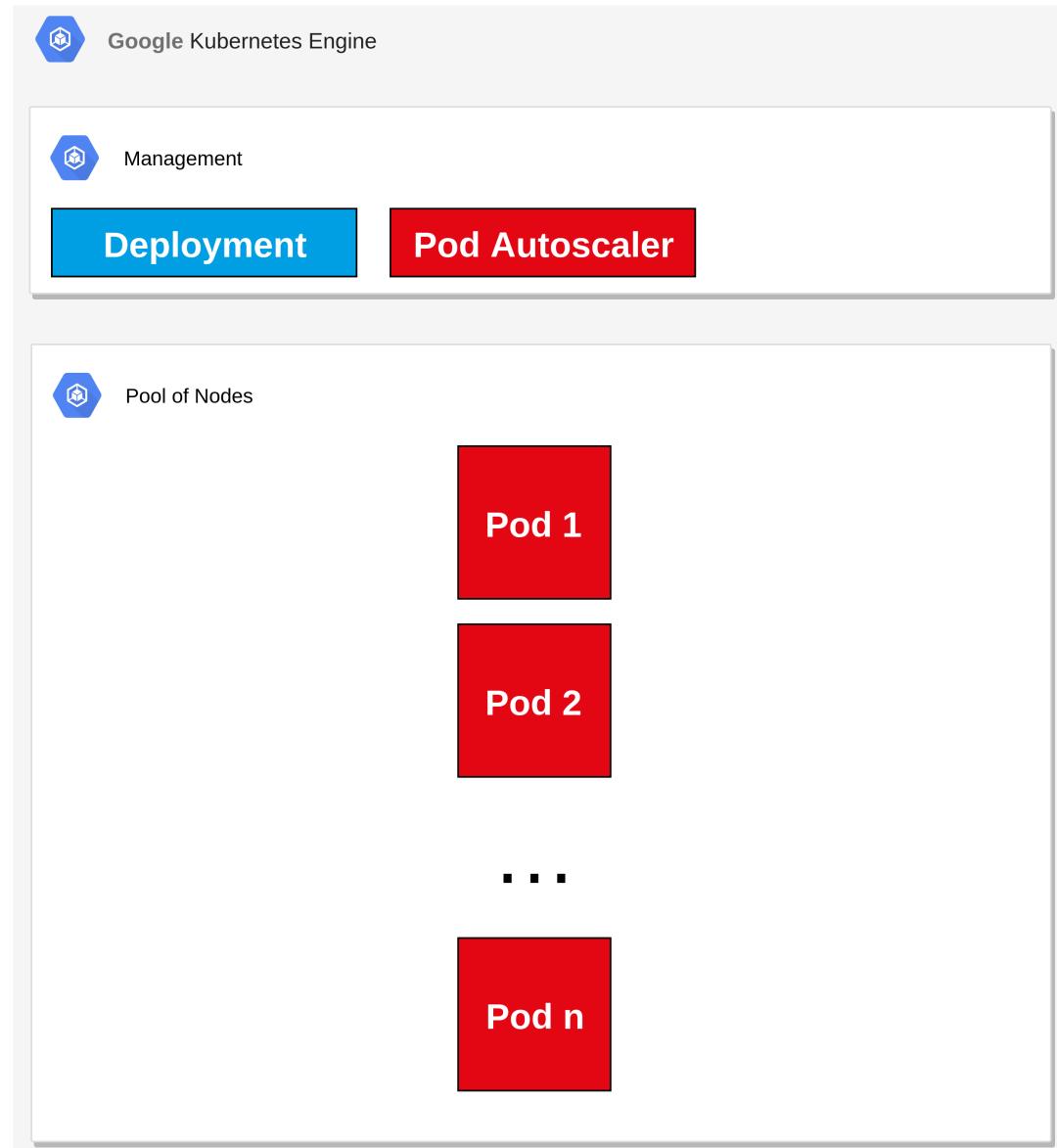
Kubernetes Cluster



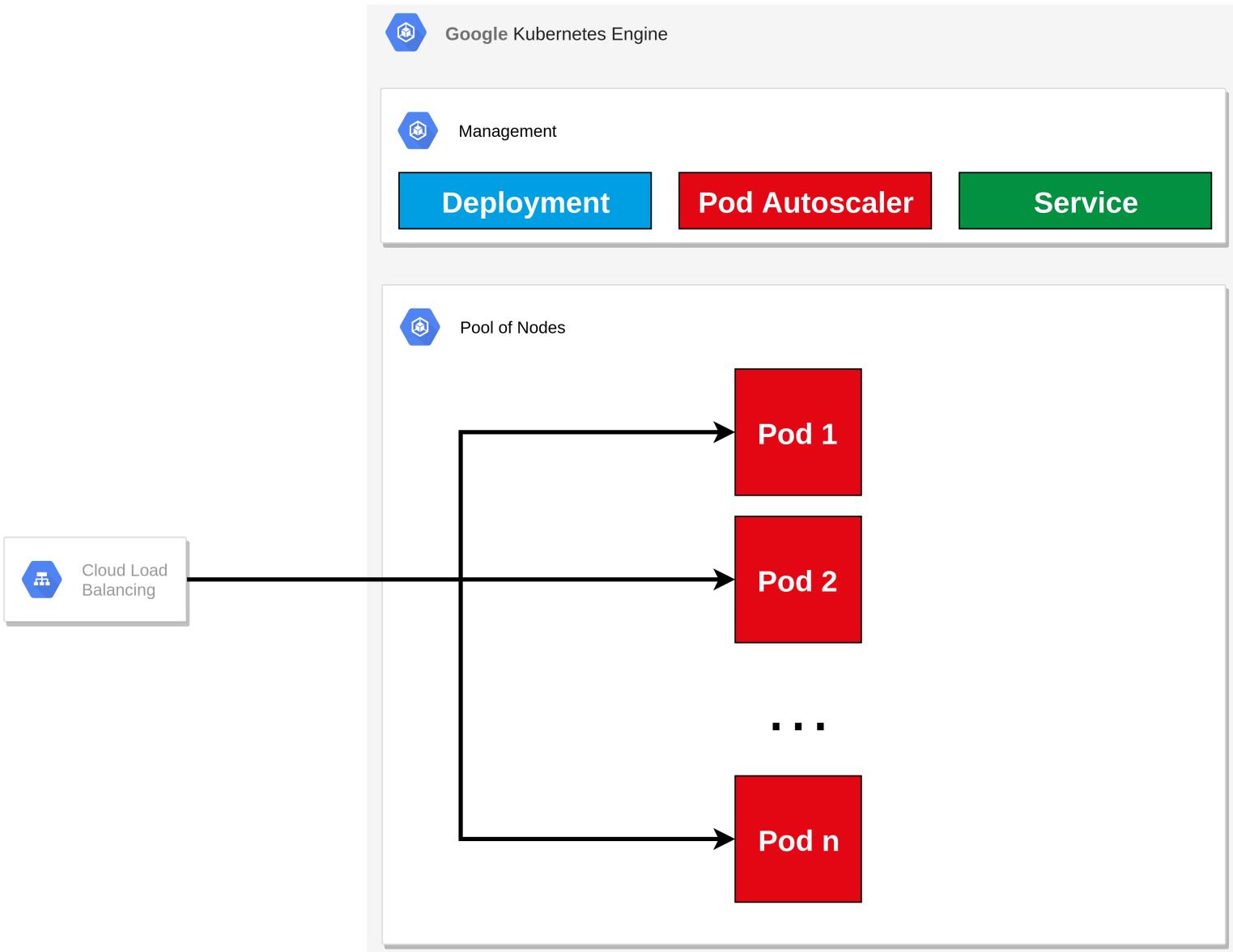
Kubernetes Deployment



Kubernetes Pod Autoscaler



Kubernetes Service

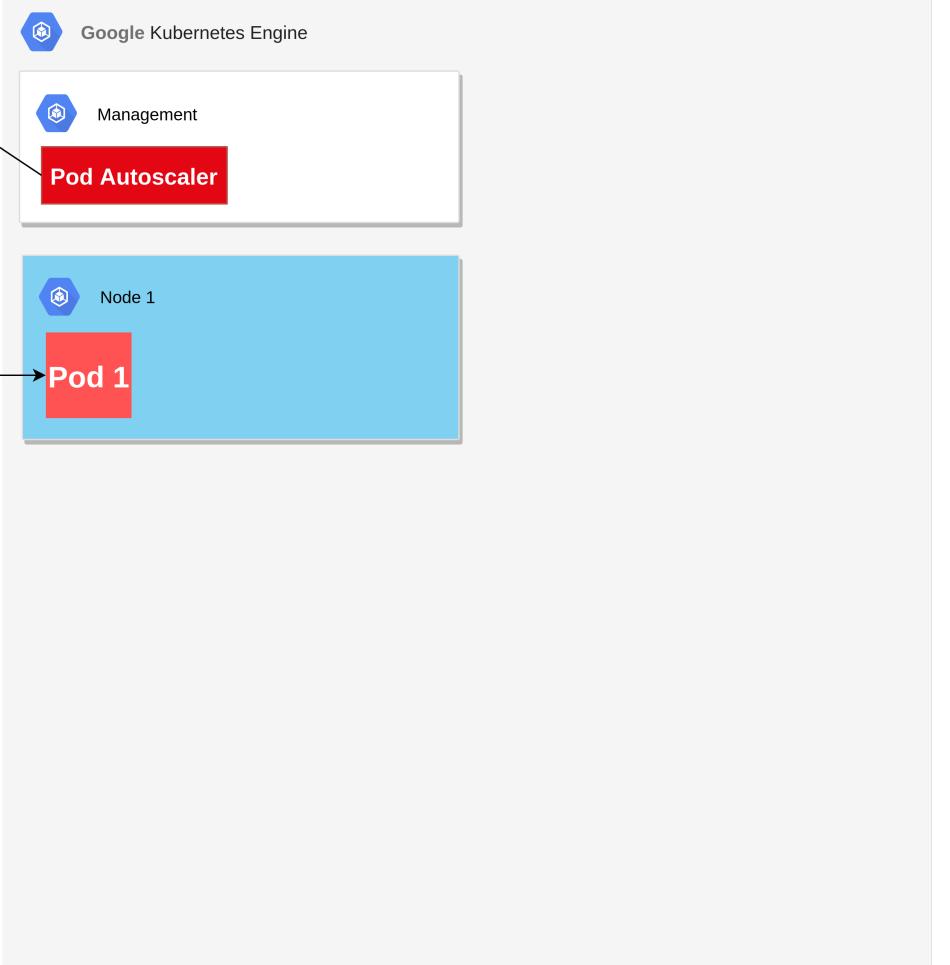


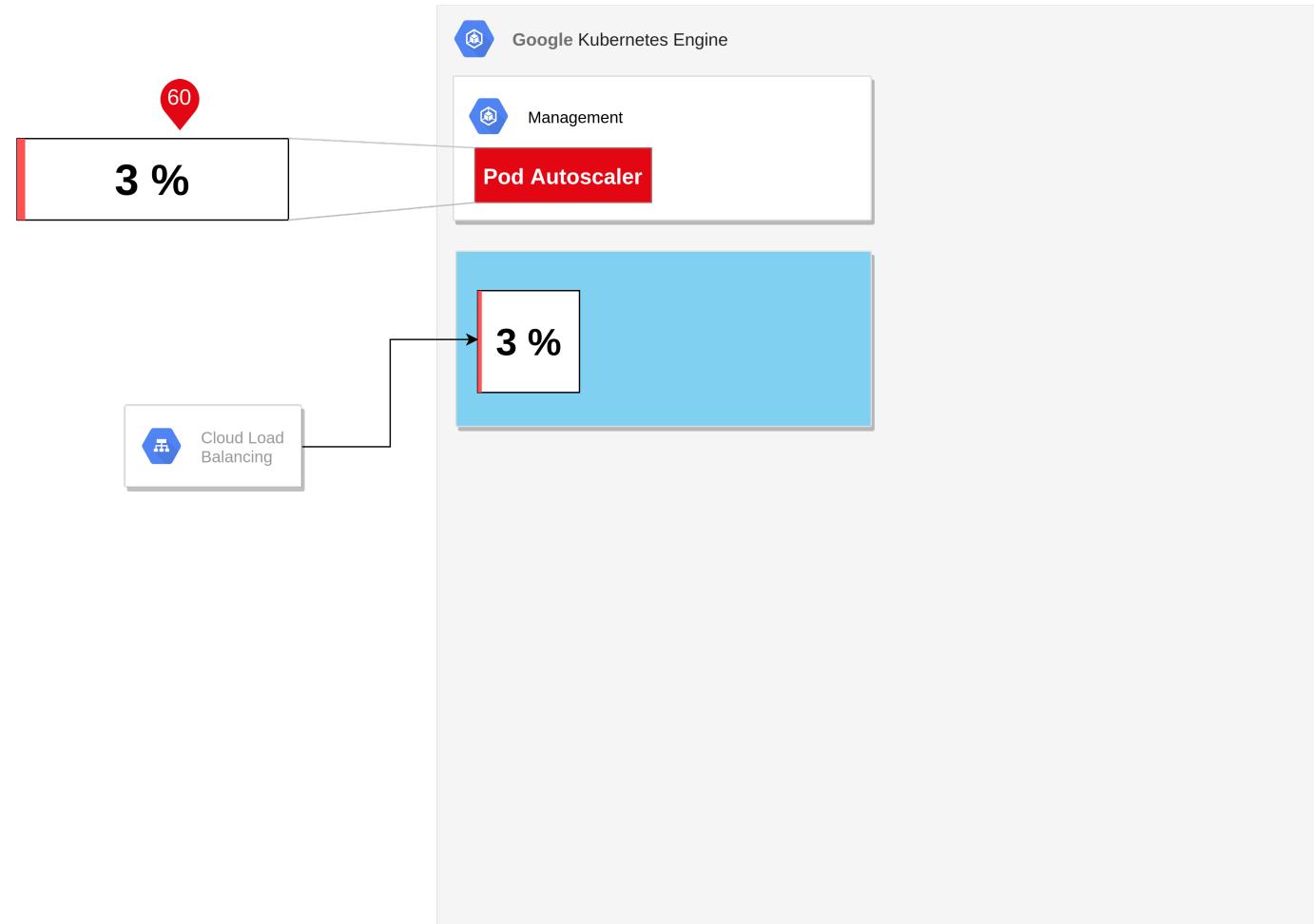
Demo Kubernetes

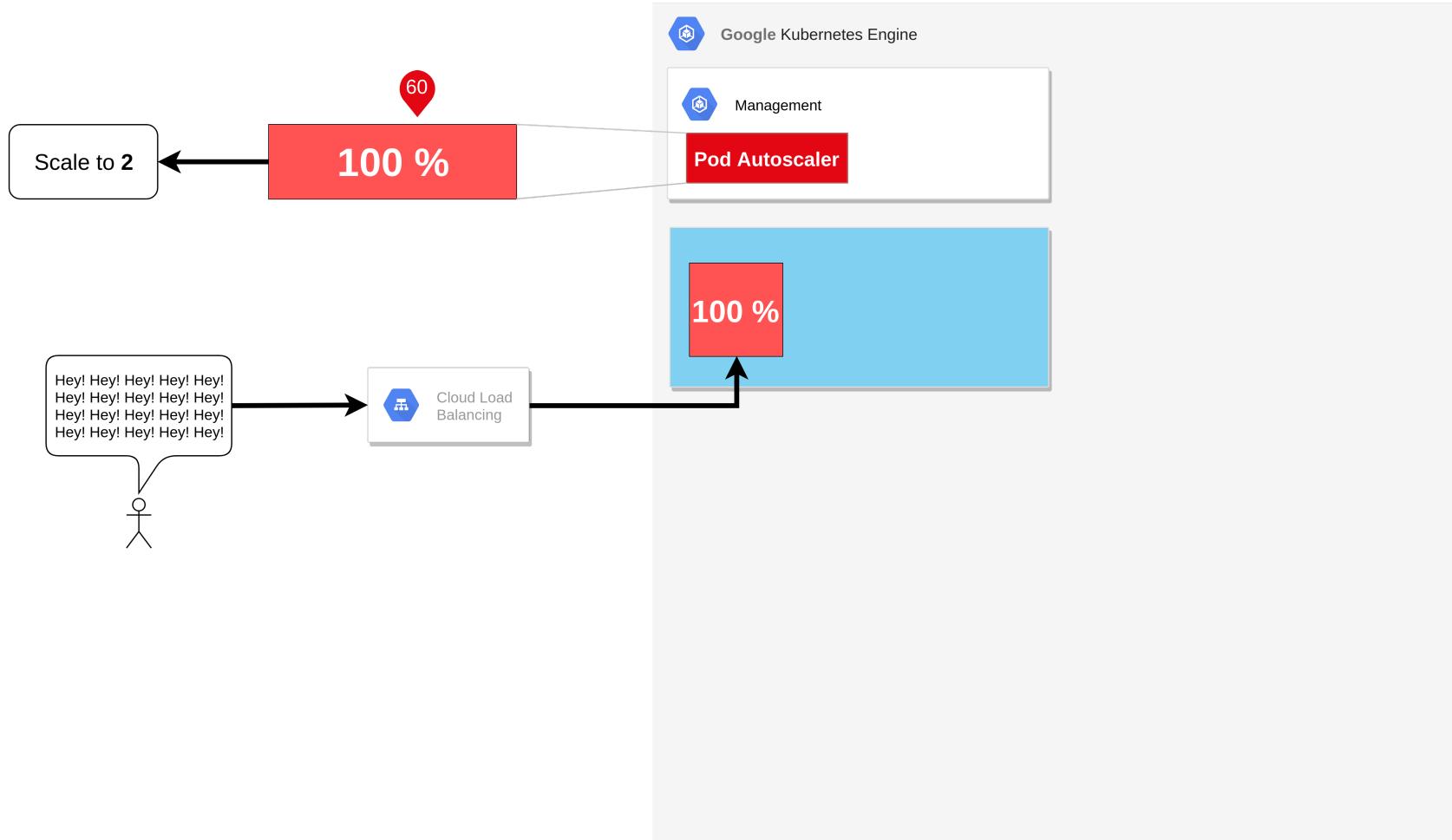
Part 1

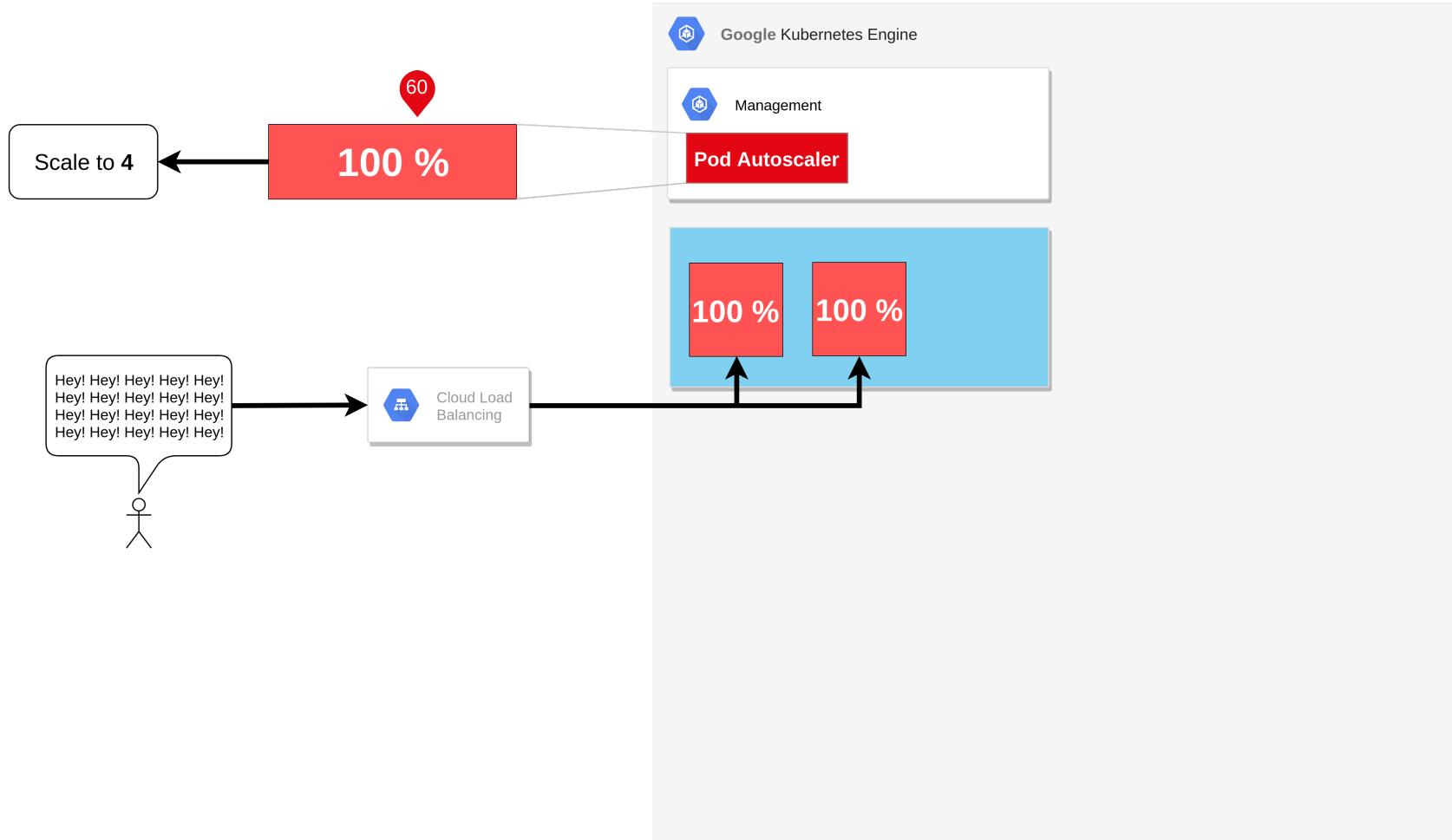


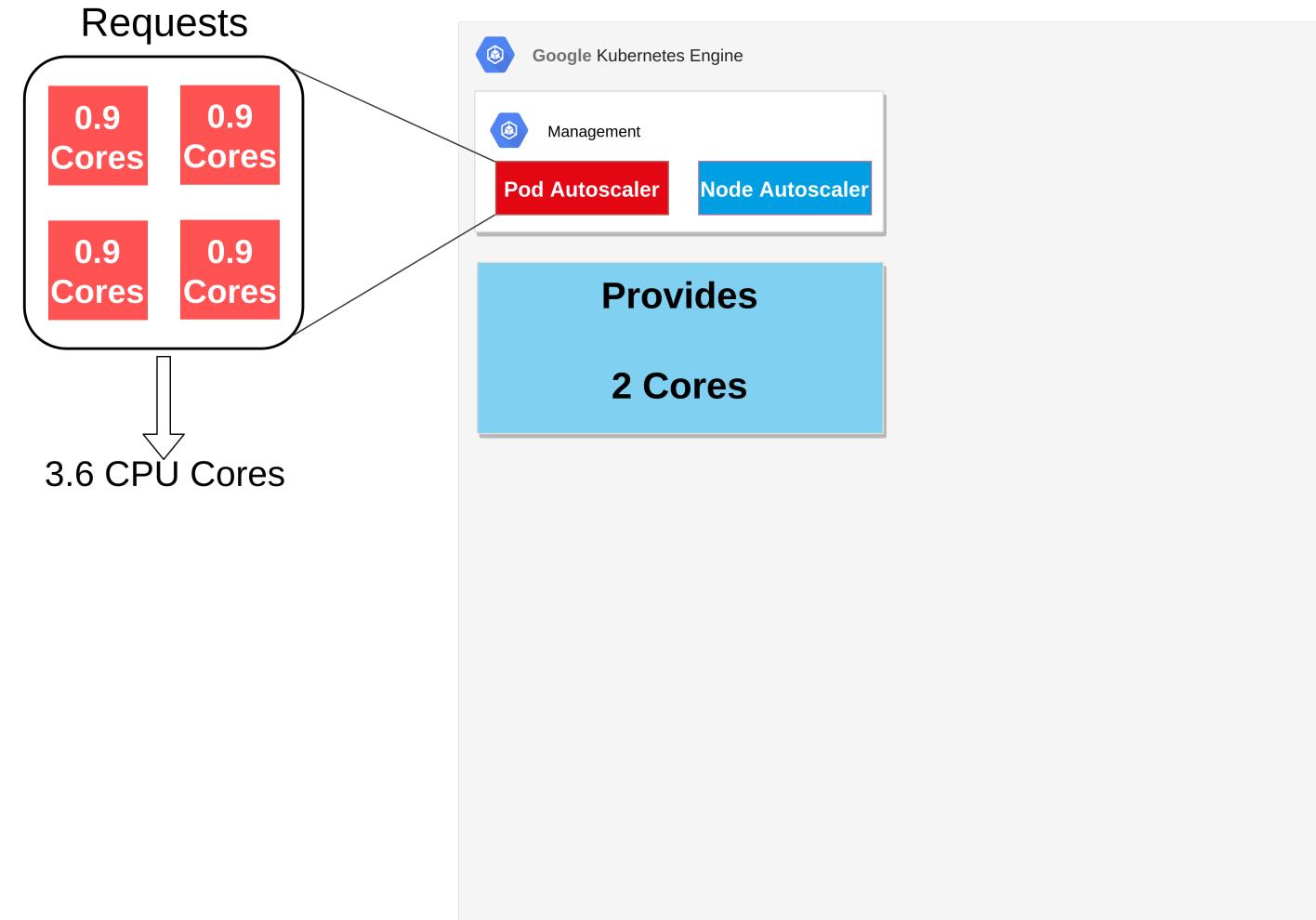
**Target 60 %
CPU utilization**

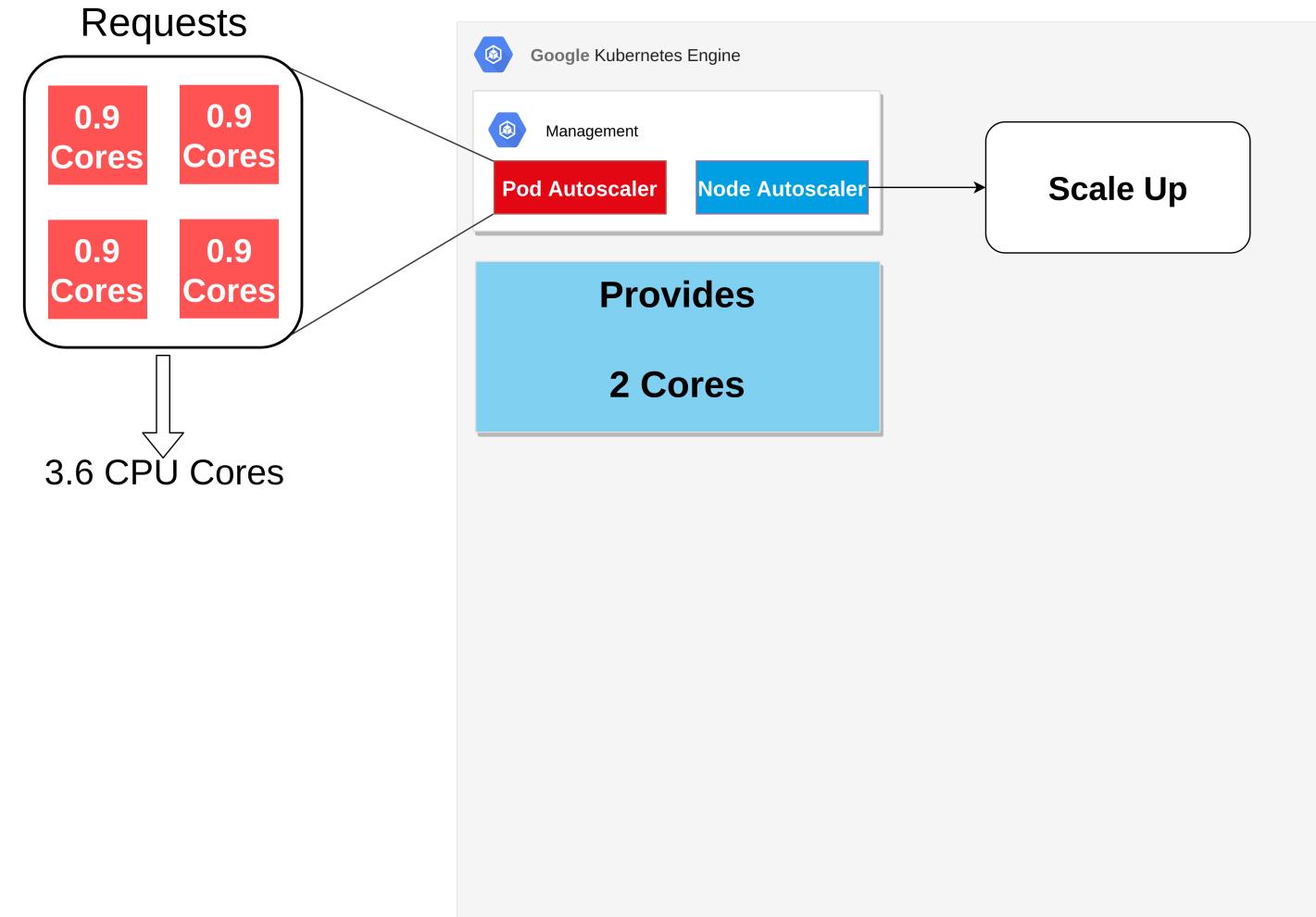


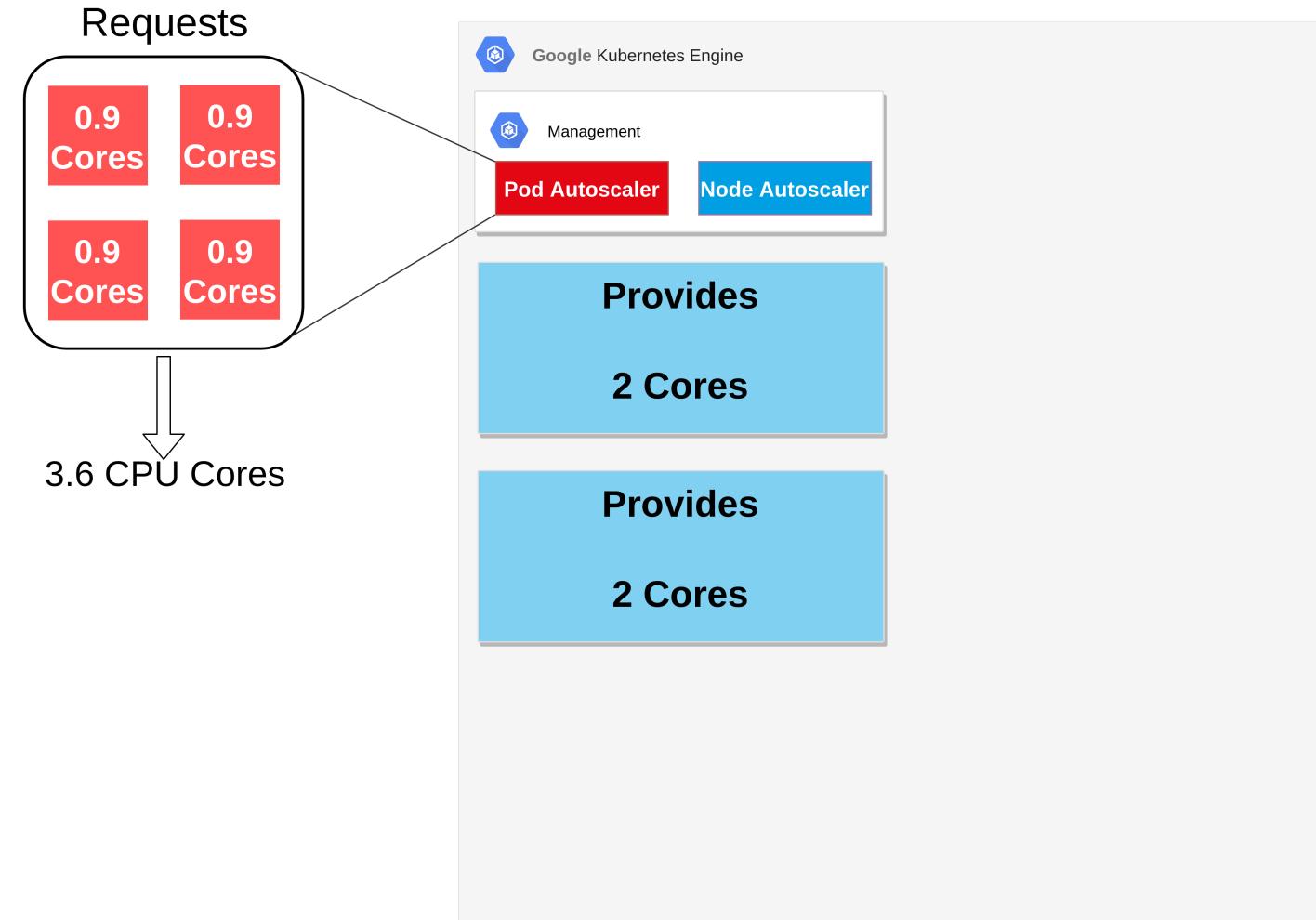


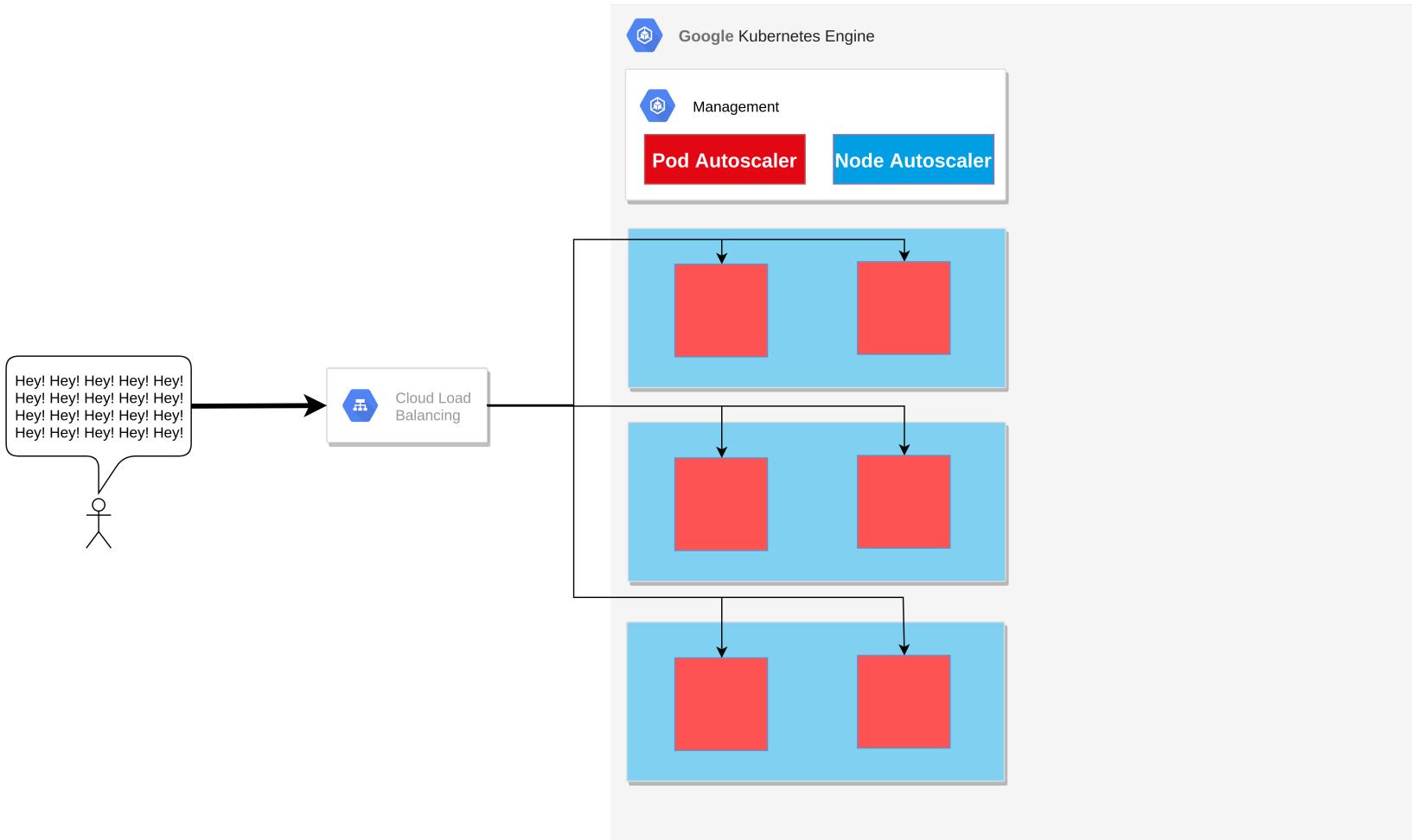












Demo Kubernetes

Part 2

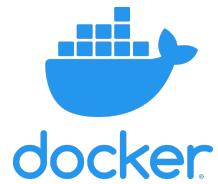




Serverless

- Paradigm shift: There is no infrastructure
- No infrastructure management
- Pay per use
- Stateless

Example Serverless



Container Image



Deployment

Demo Serverless





Takeaways

- Scalability is a fundamental requirement
- Cloud providers make scaling easy
- Don't do lift and shift

Thanks for listening

- Demos can be found at scale.8c.at  8 
- Questions?