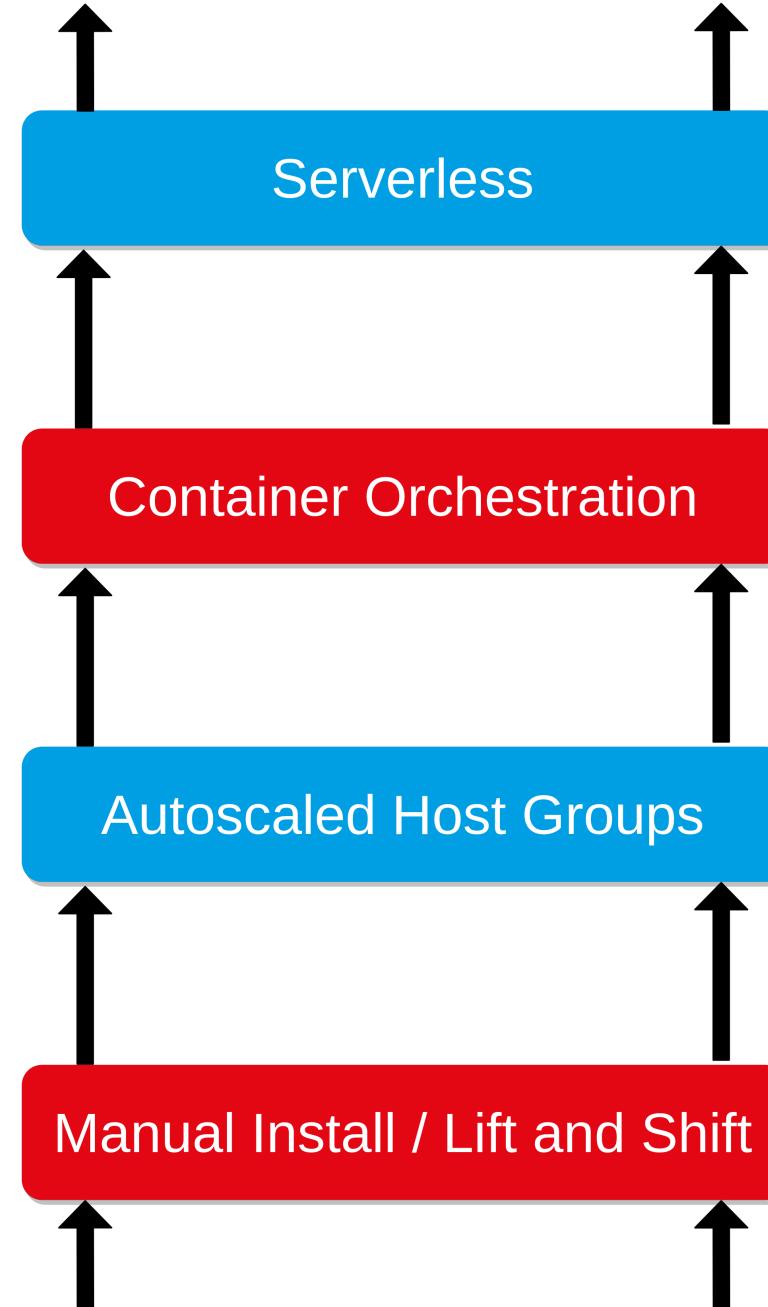


Climbing up the Scaling Ladder

Scaling in the Cloud

- Disclaimer: Focus on standard applications (not Machine Learning or Storage)
- 3 Scaling scenarios (with examples)
- Demos at scale.8c.at 
- Cloud is not about cost, it is about scaling
- Reduced cost is a side effect





Lift and Shift

- Migrate legacy VMs / Software with (almost) no modification
- Doesn't scale very well (bigger VMs, faster disks)
- Your mess for less
- Conclusion: don't do it (in most cases)

Autoscaled Host Groups

- Lift and Shift done right
- Paradigm shift: VMs are containers
- Make infrastructure immutable
- Persist data outside VM



Example Autoscaled Host Groups



HashiCorp
Packer

- VM Image



HashiCorp
Terraform

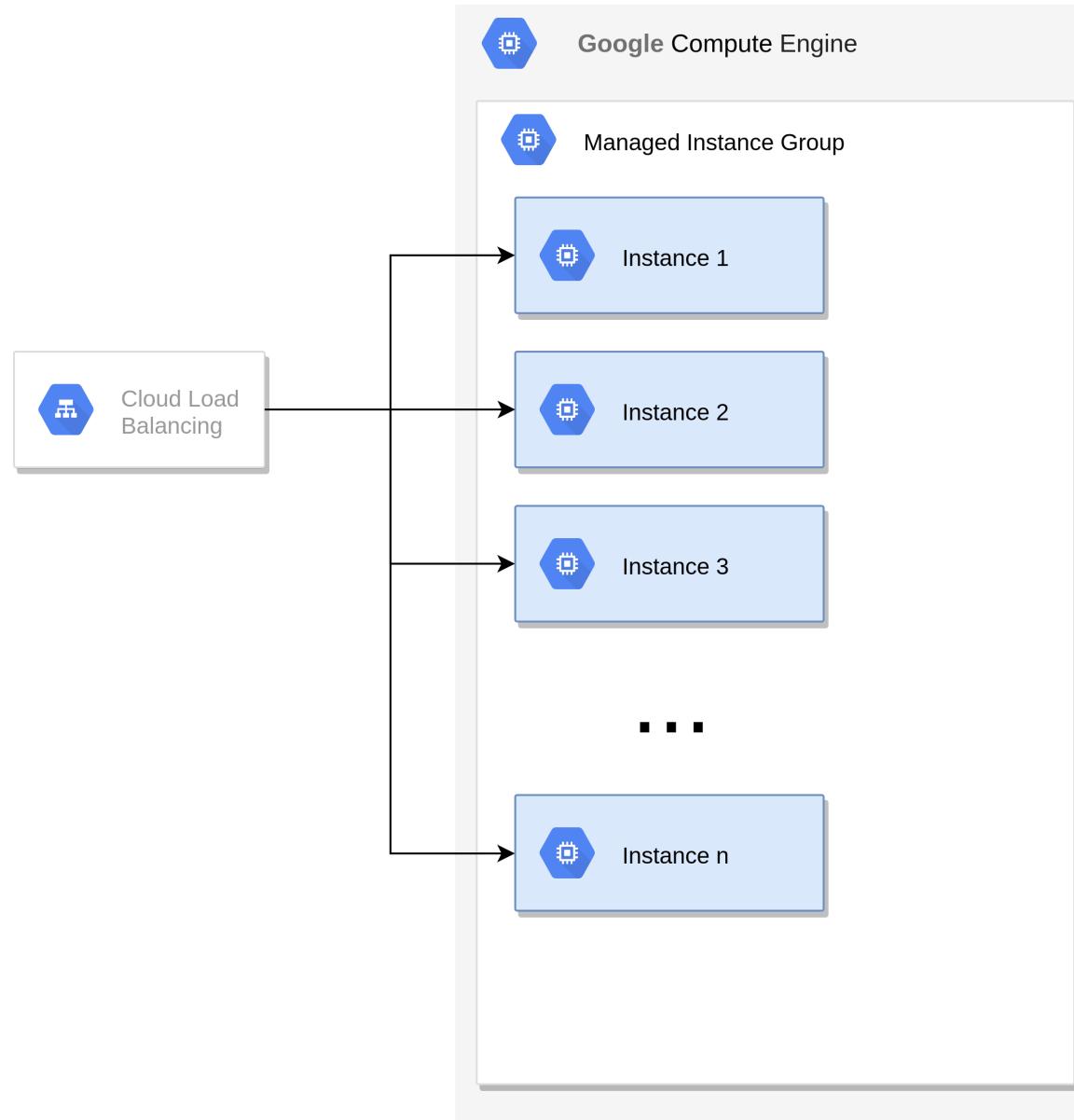
- Managed Instance Group -> VM Autoscaler



HashiCorp
Terraform

- VM Template
- Managed instance group
- Loadbalancer

Managed Instance Group in GCP



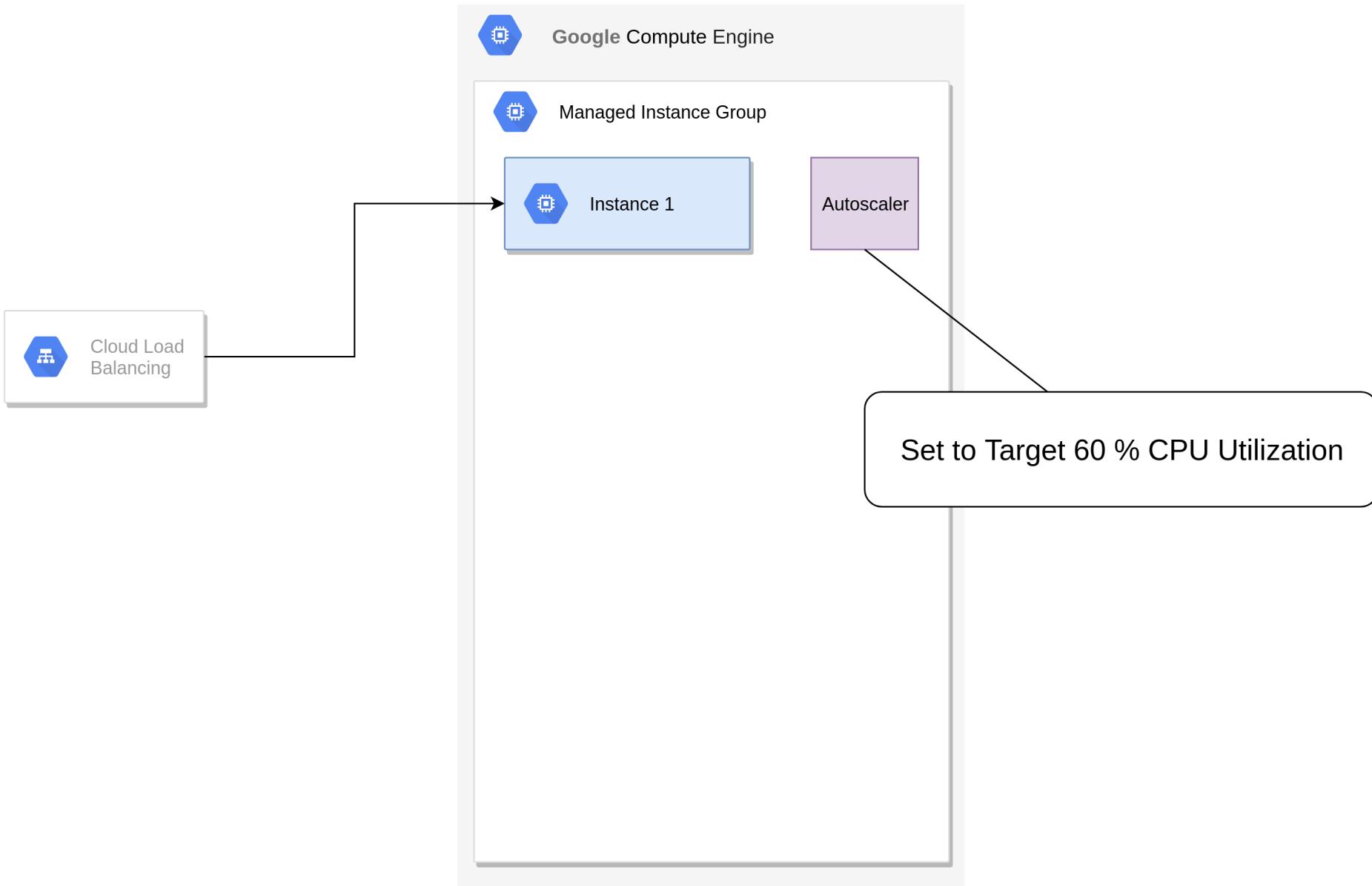
Example Application

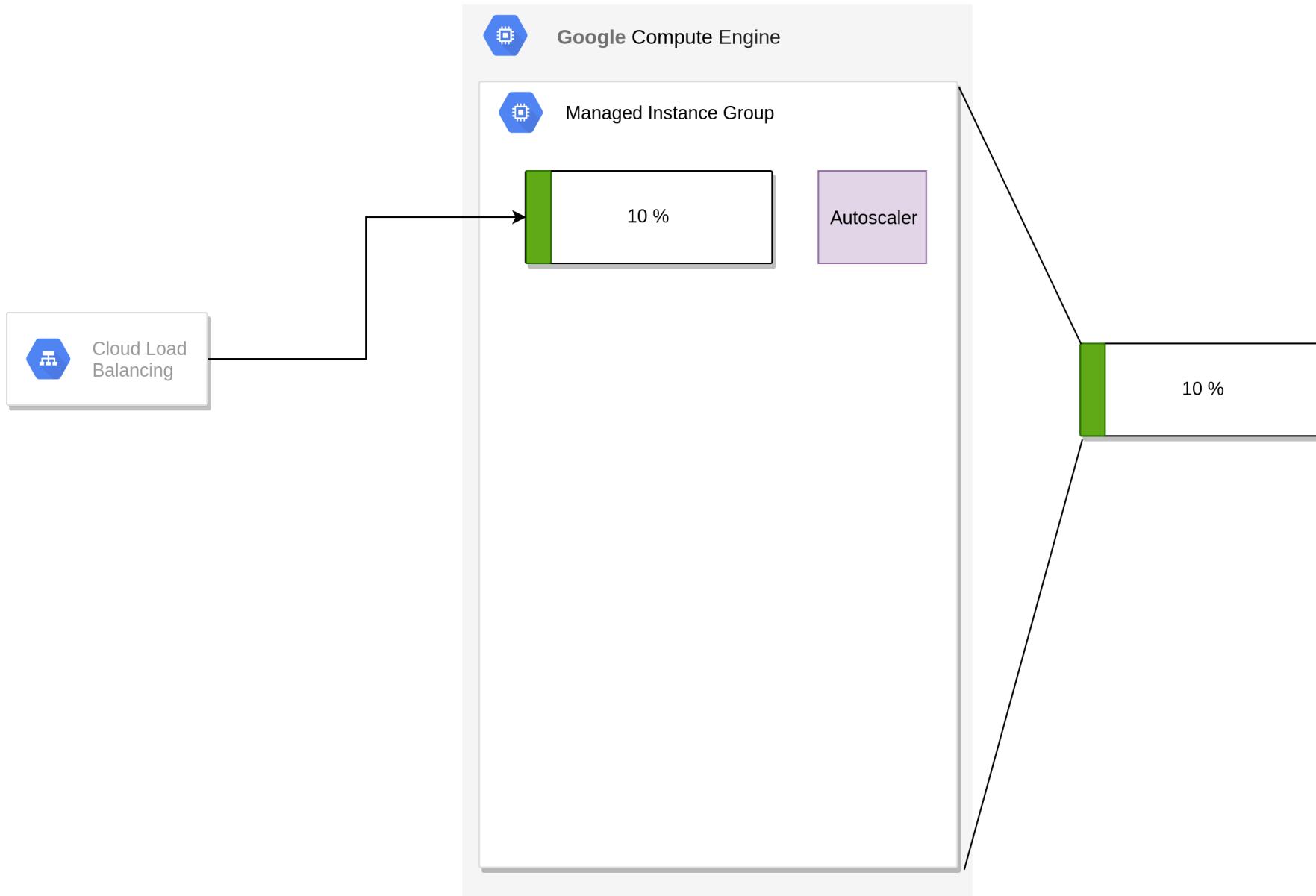
- Hashy

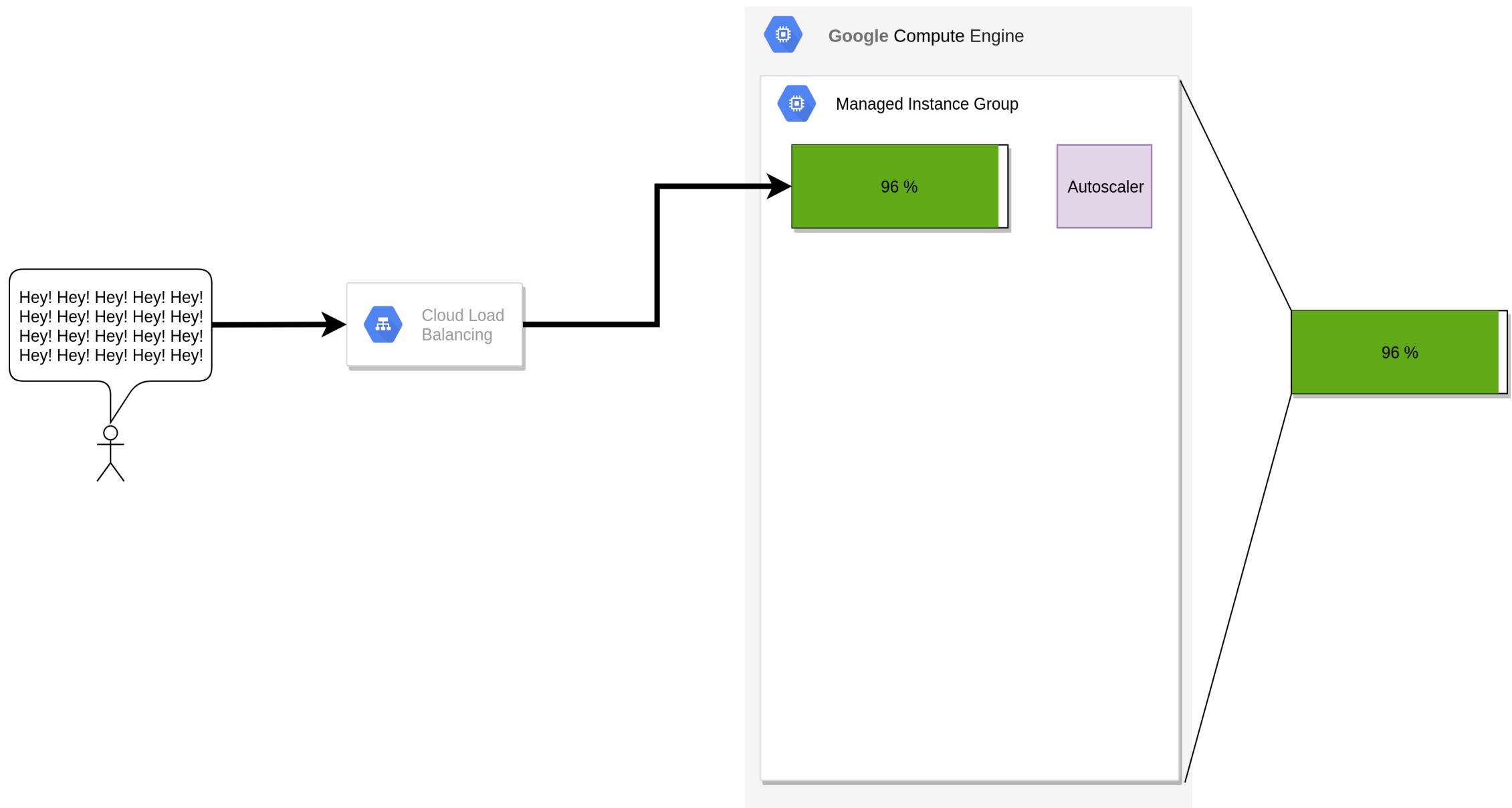
```
bcrypt( data=time.now(), cost=12 )
```

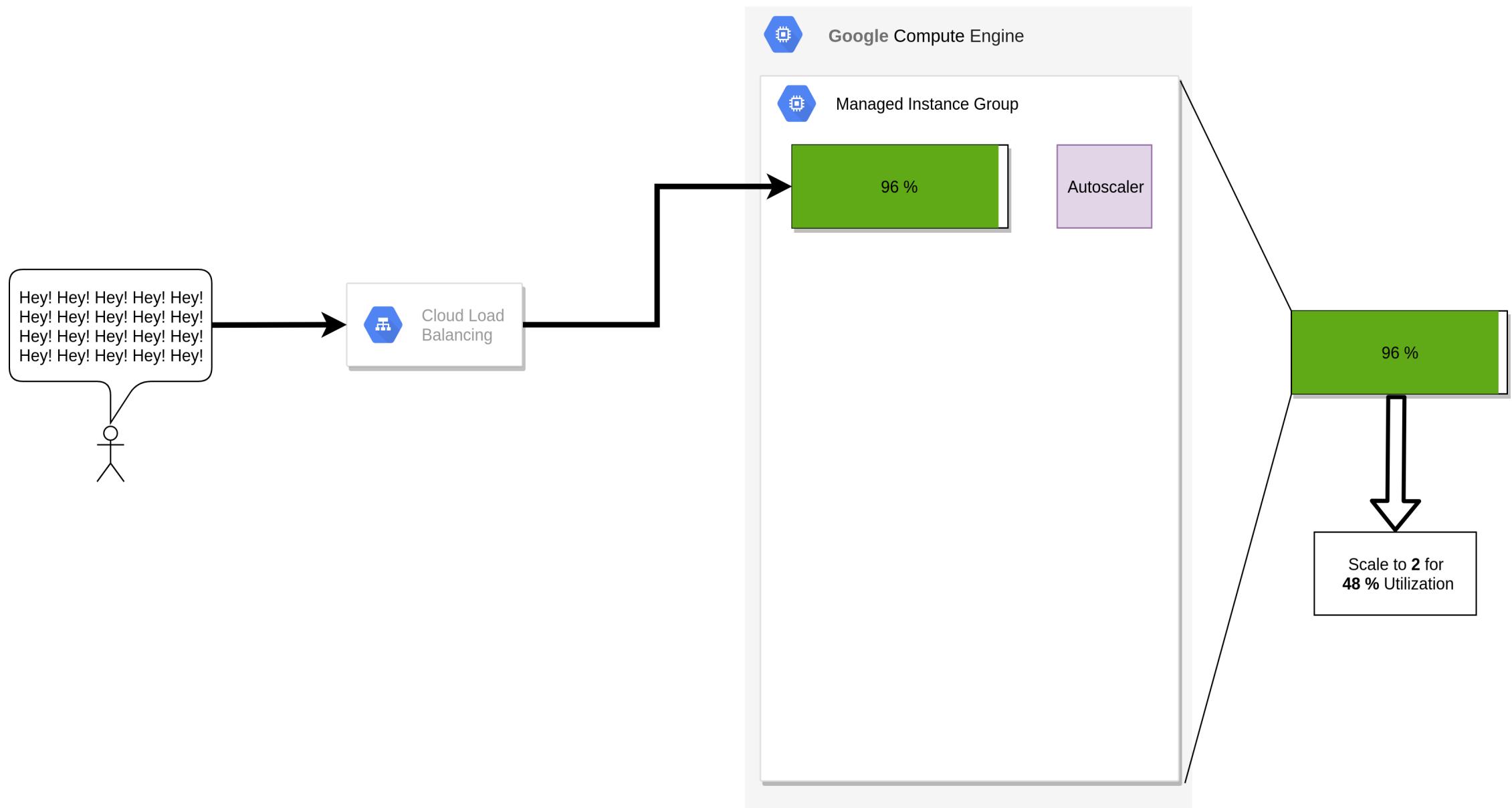
Demo Managed Instance Group Part 1

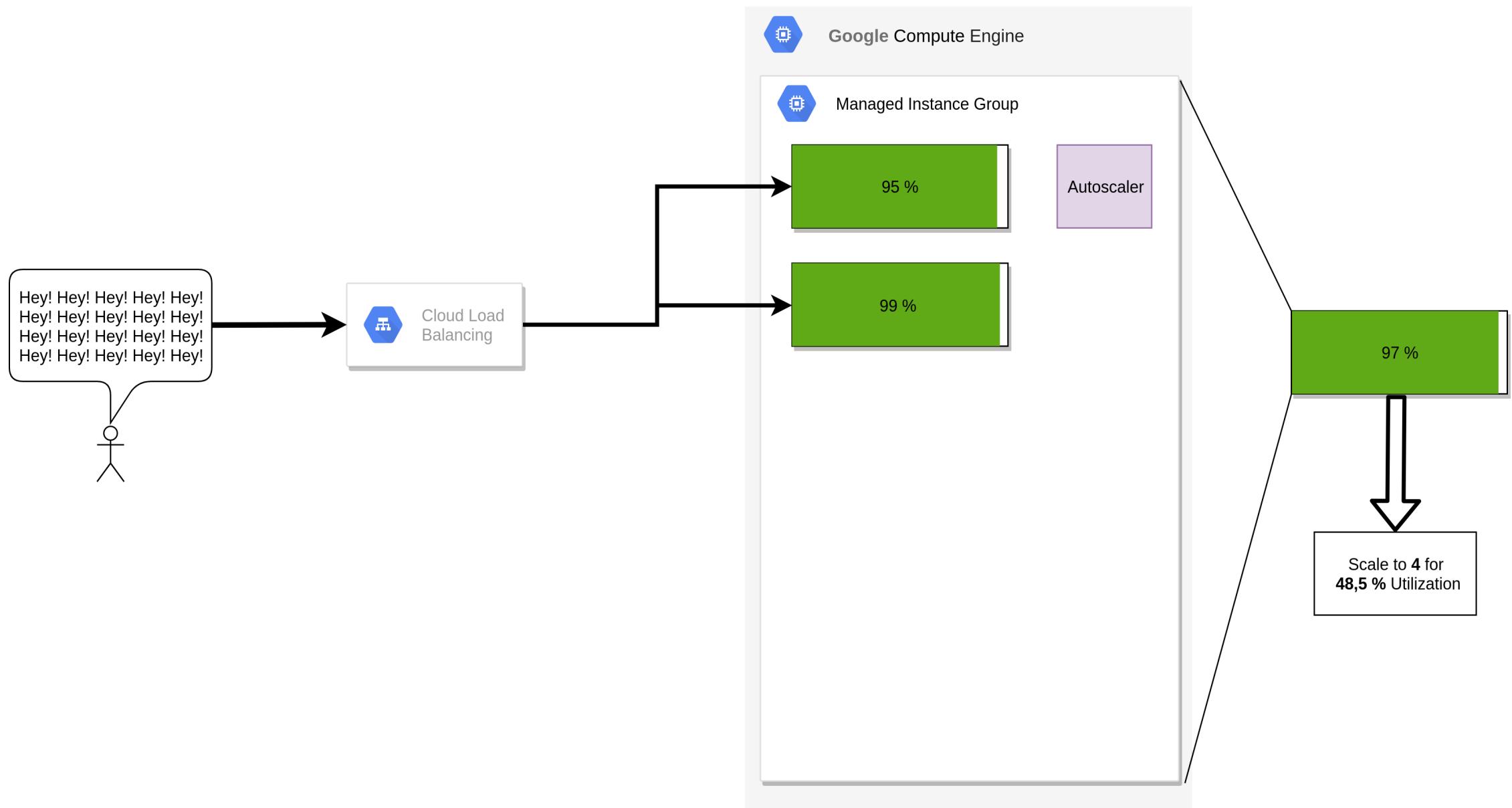


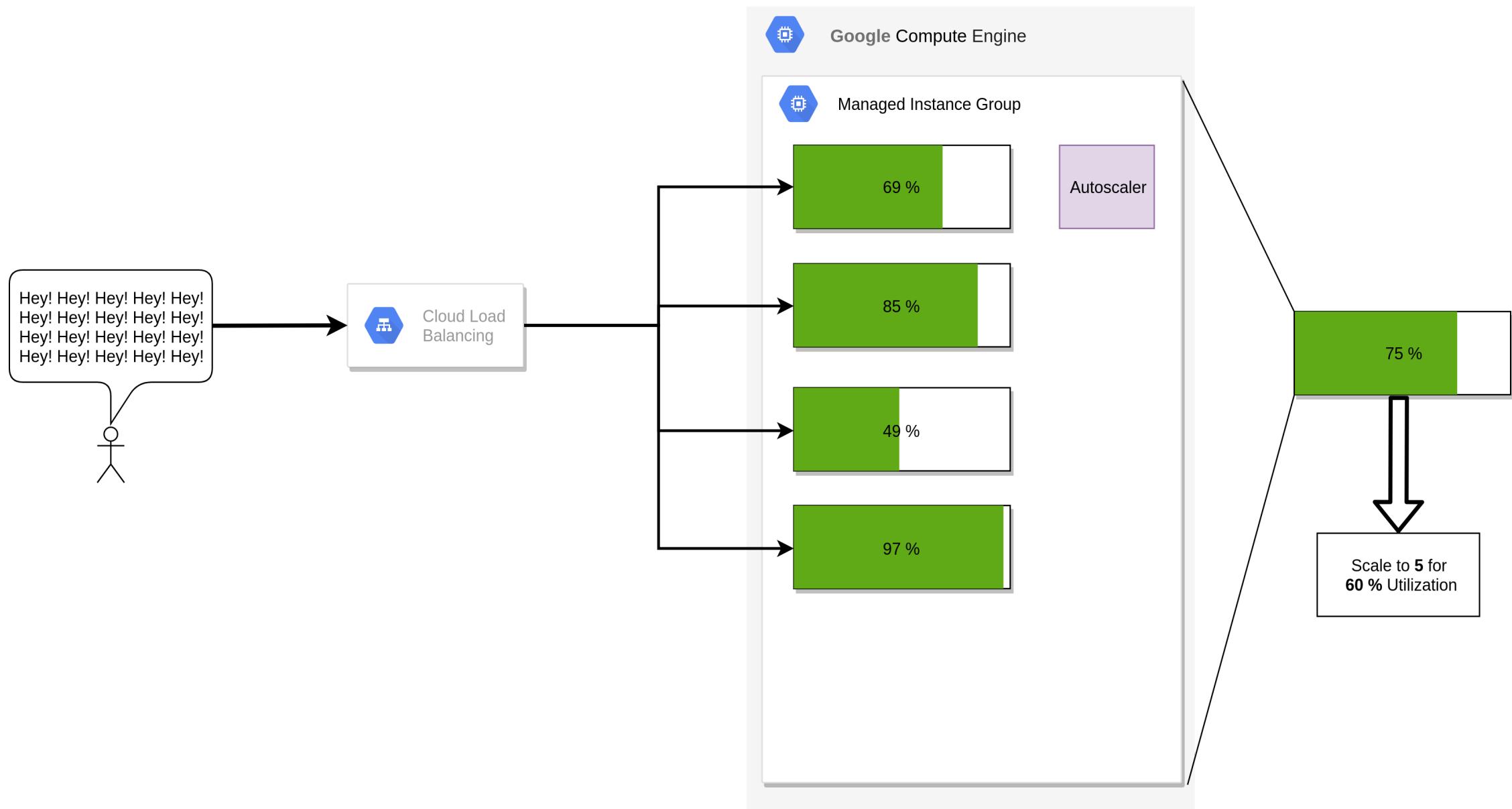


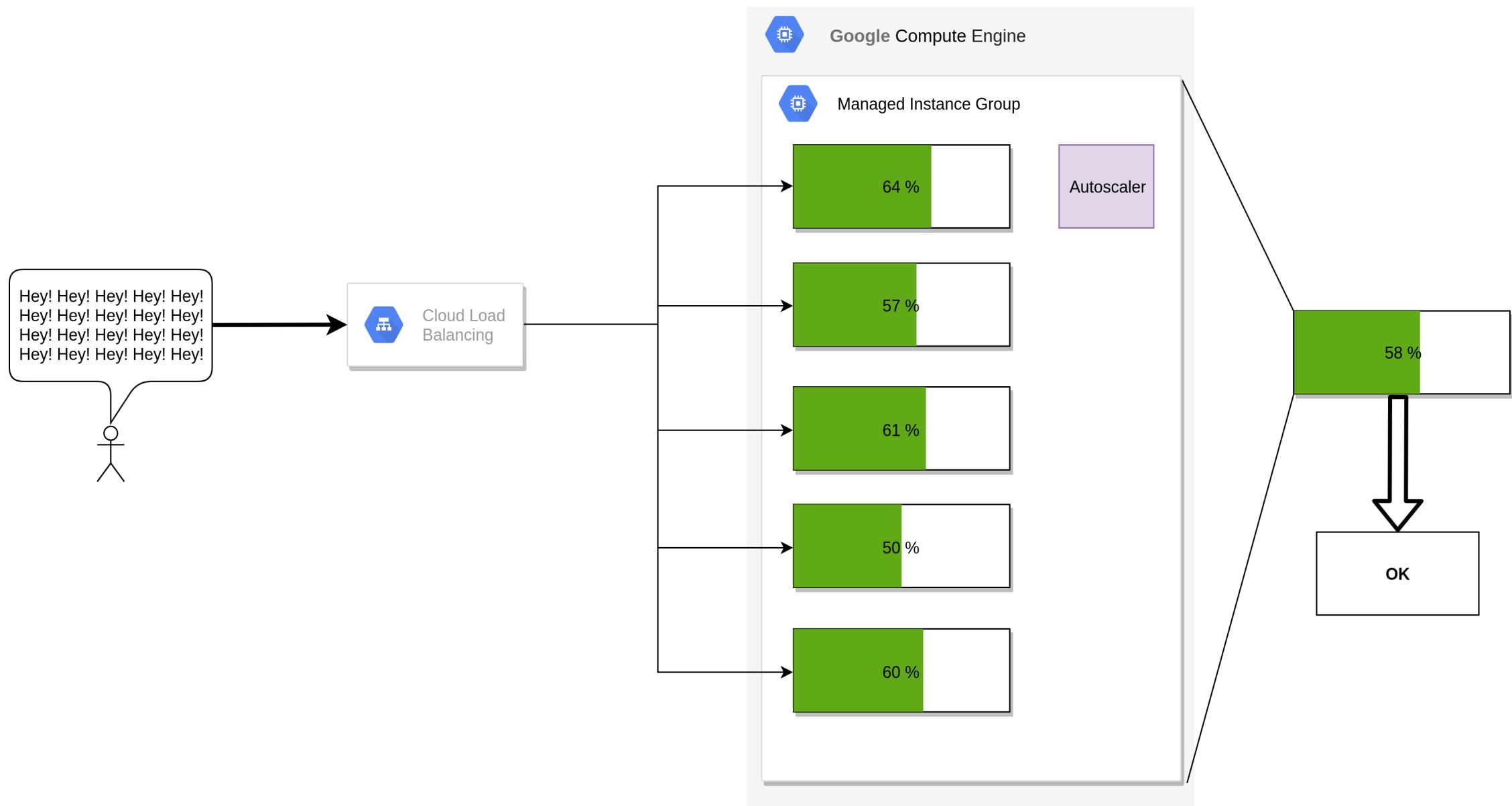












Demo Managed Instance Group Part 2





Container Orchestration

- Paradigm shift: There are no VMs
- Pool of resources
- Services containerized

Example Container Orchestration



- Kubernetes Cluster
- Node Autoscaler

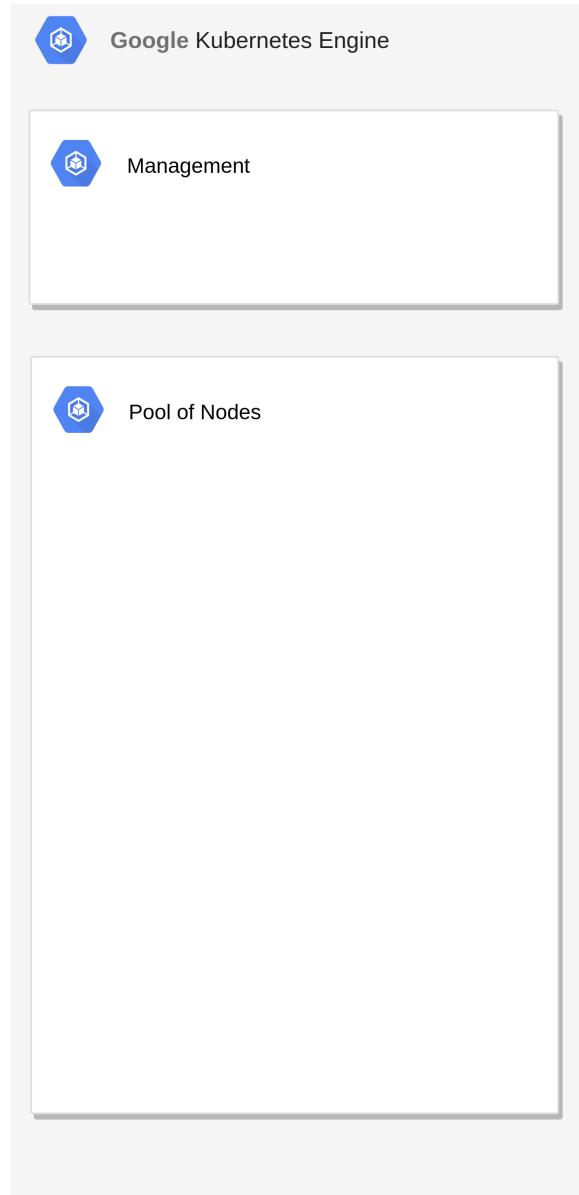


- Container Image

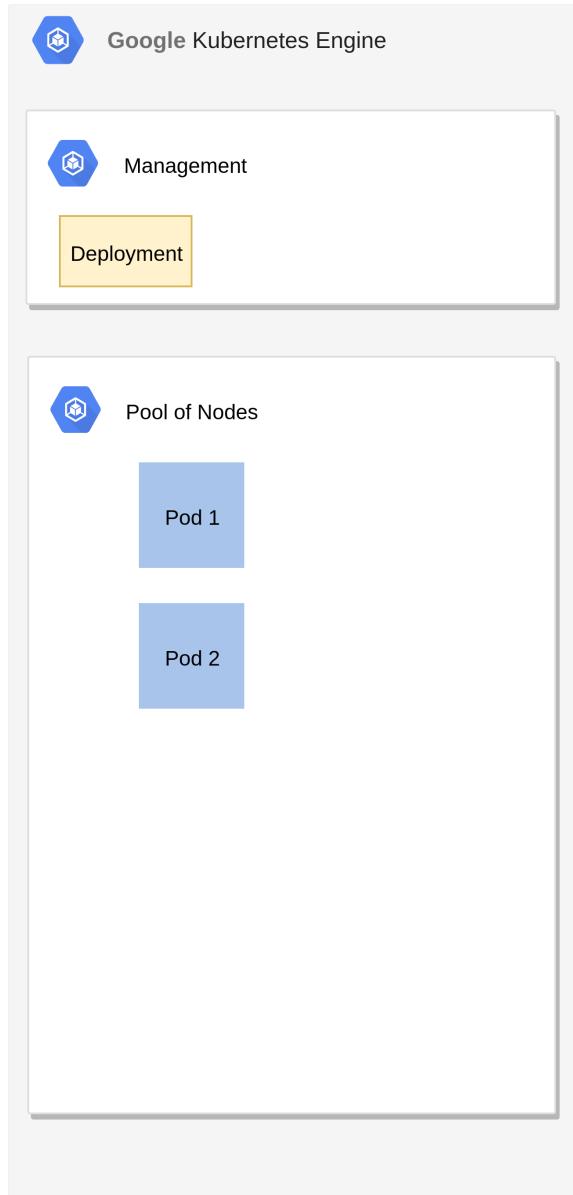


- Deployment
- Horizontal Pod Autoscaler
- Service

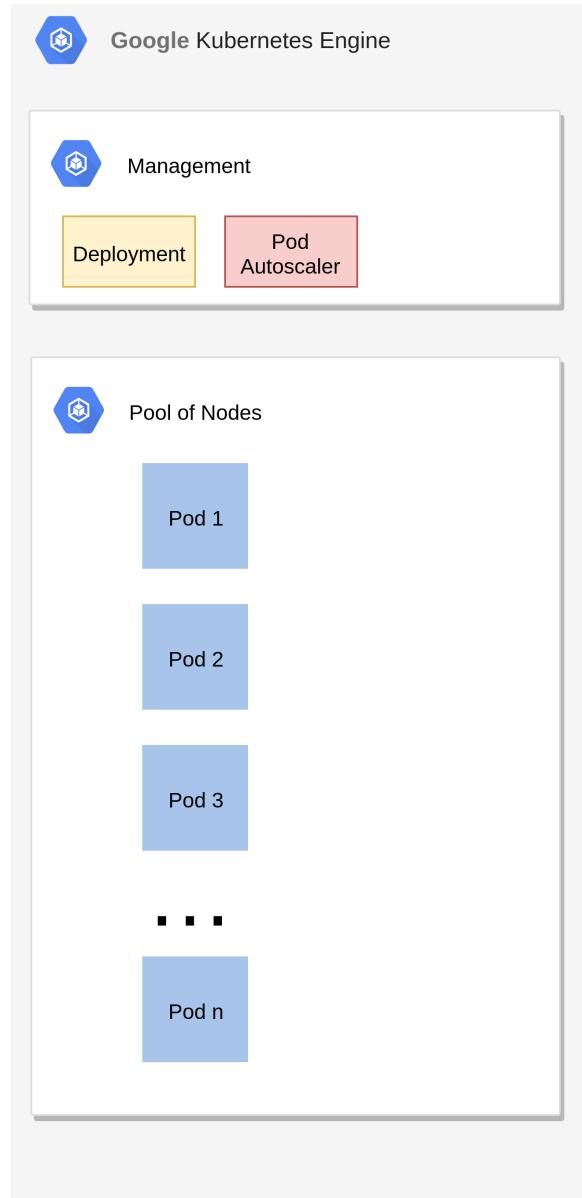
Kubernetes cluster



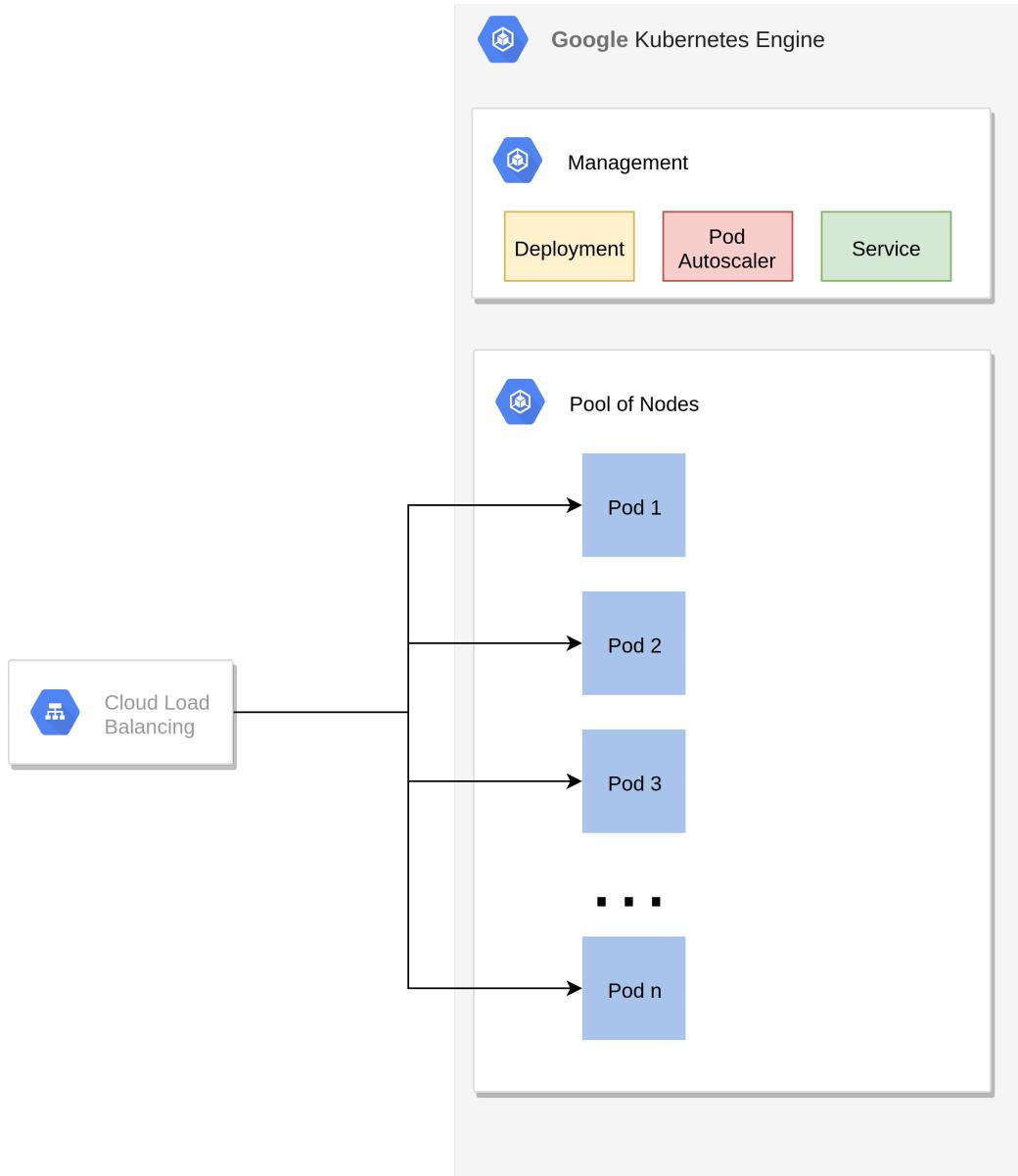
Kubernetes Deployment



Kubernetes Pod Autoscaler



Kubernetes Service

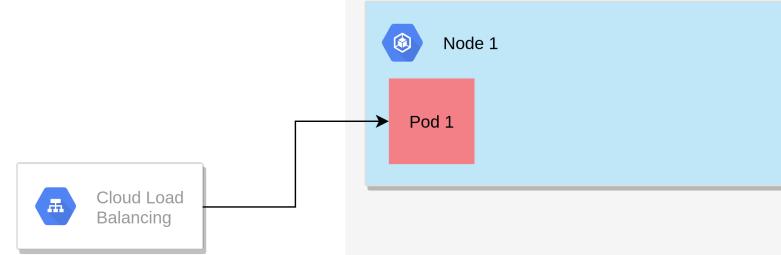
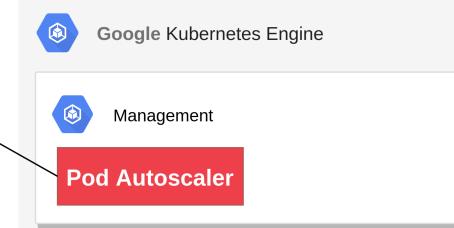


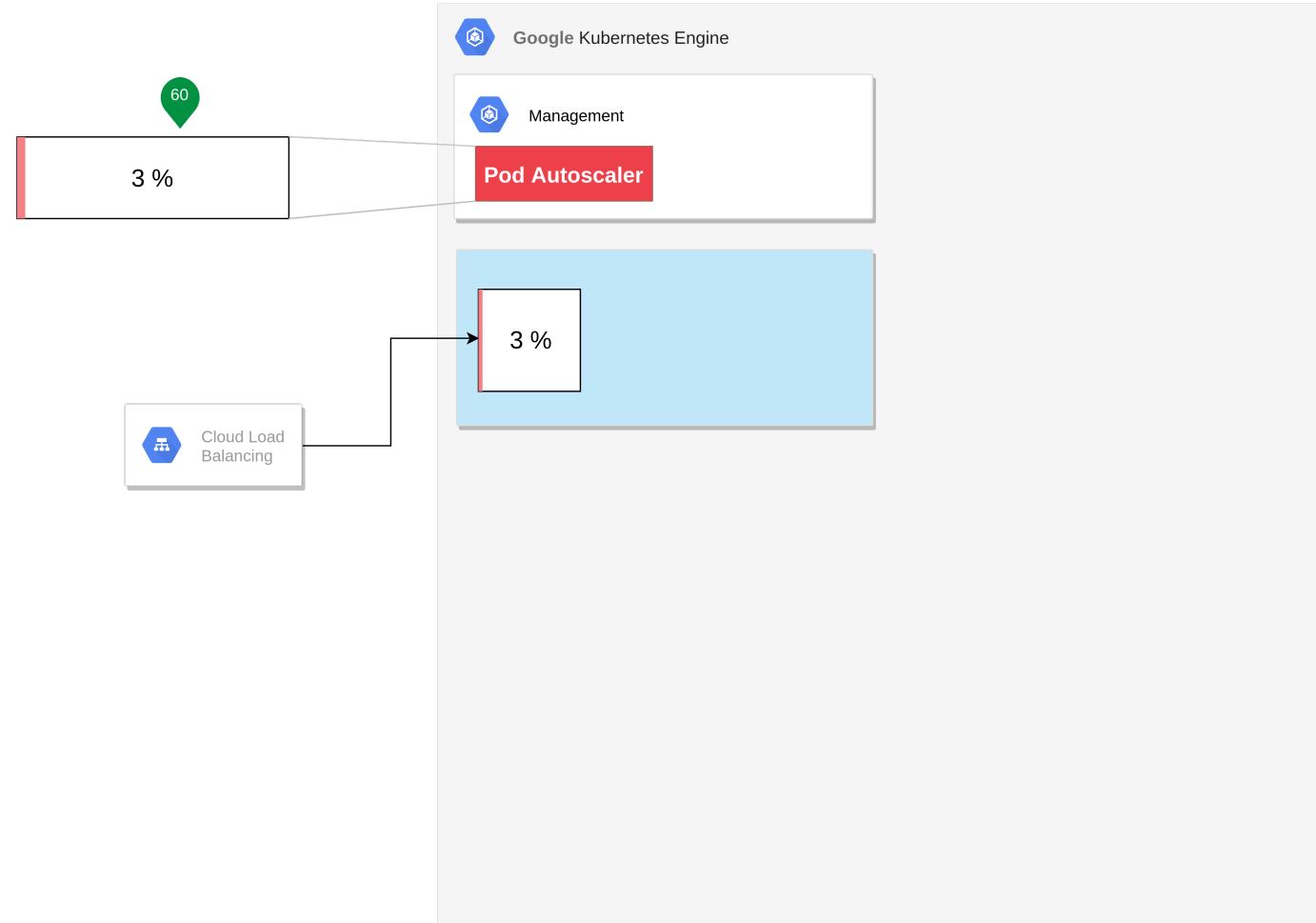
Demo Kubernetes

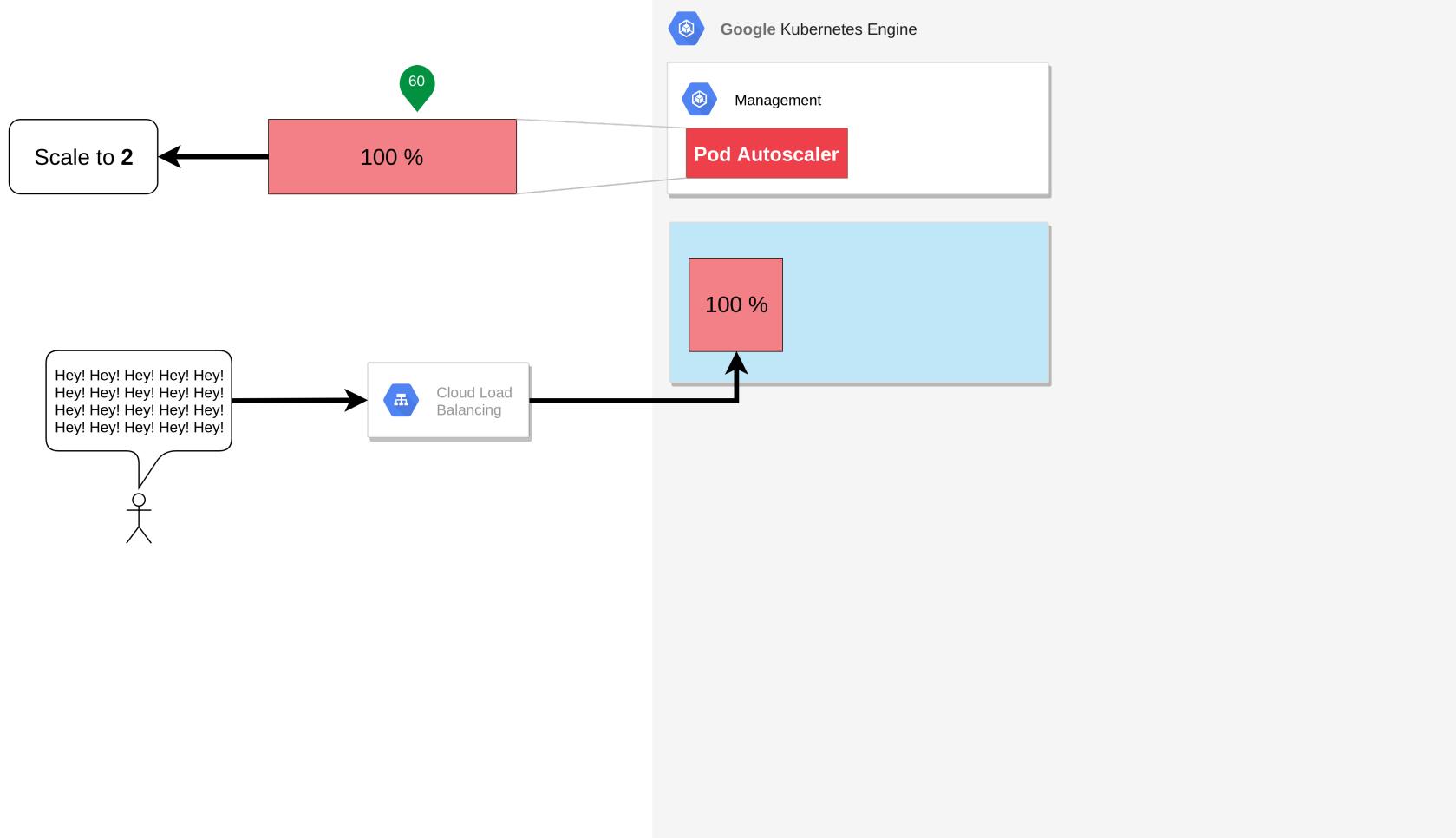
Part 1

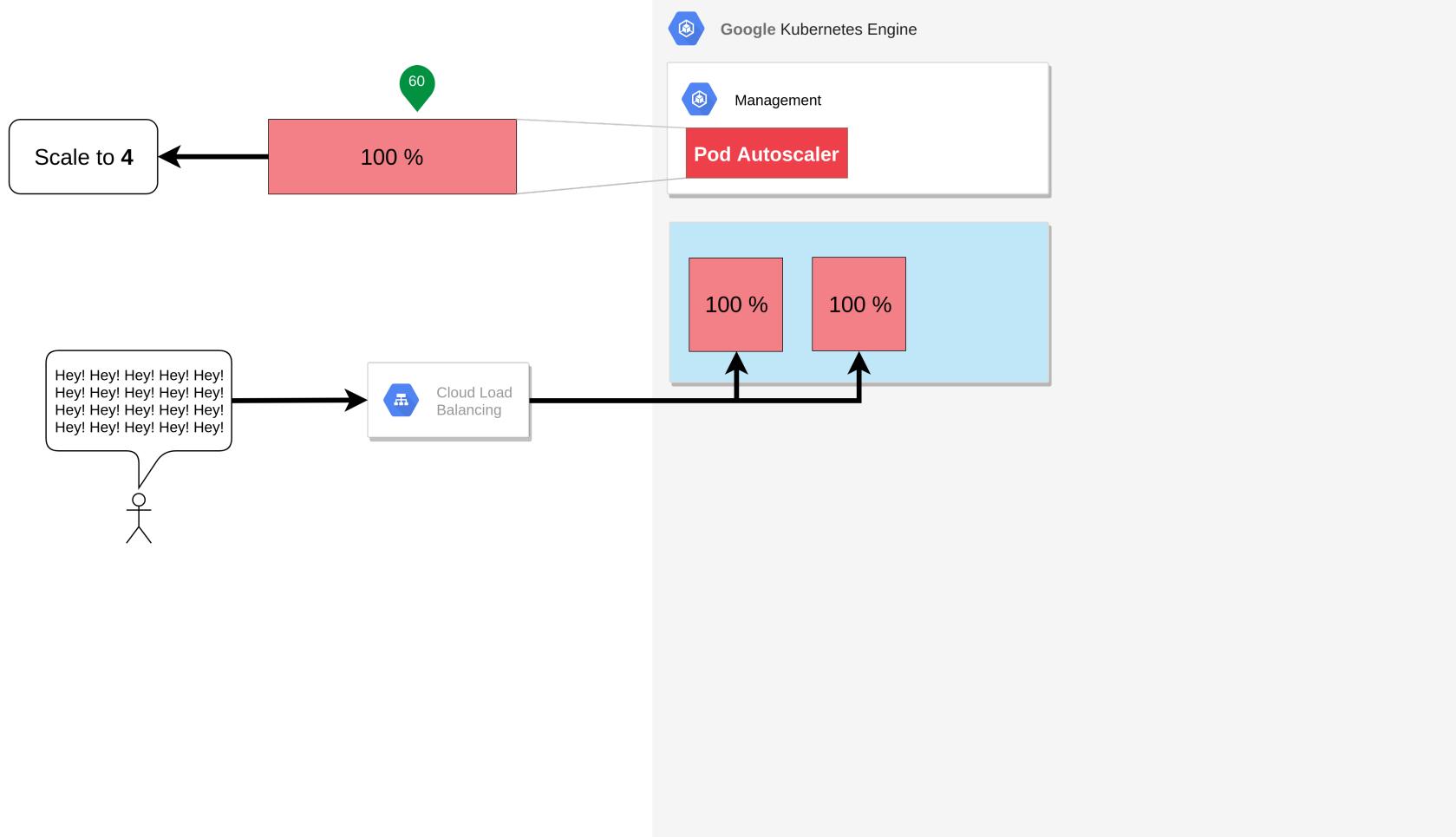


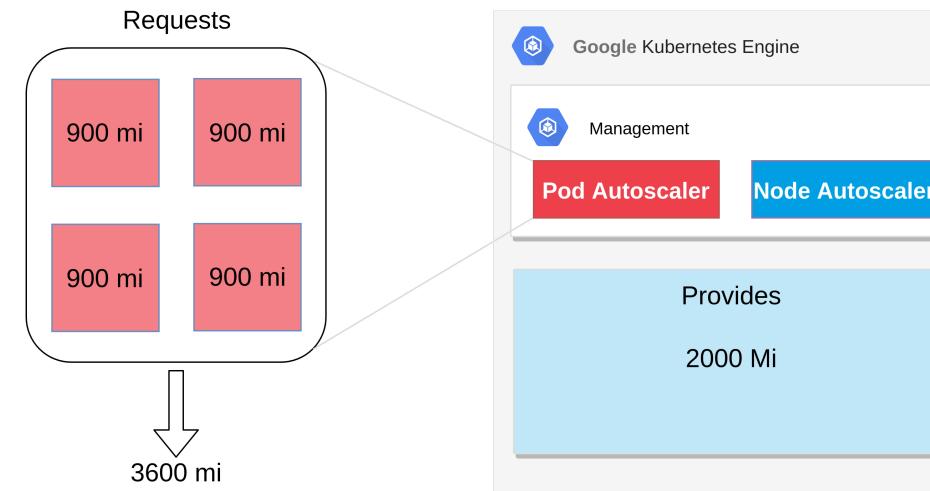
Set to **target 60 % CPU utilization**

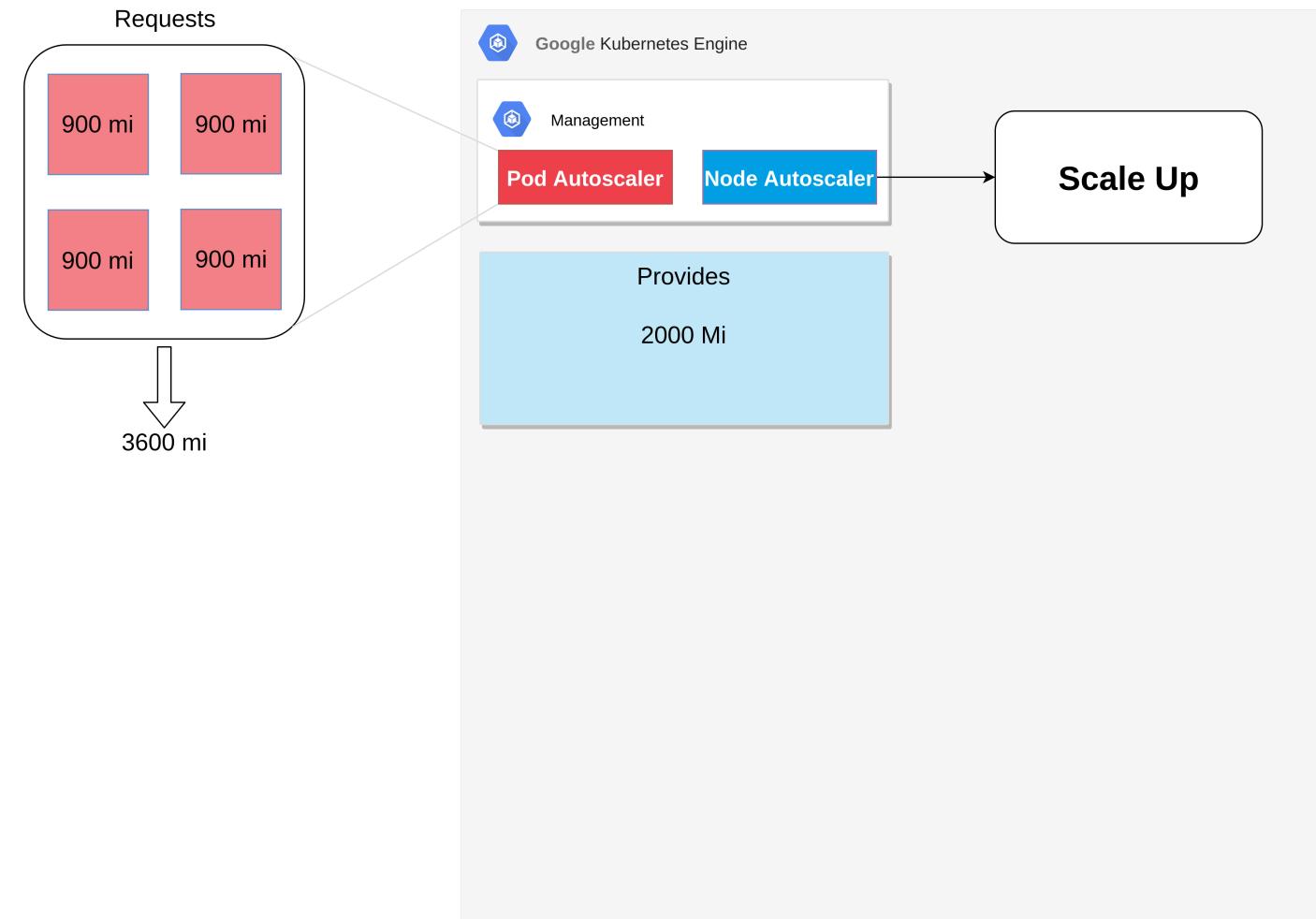


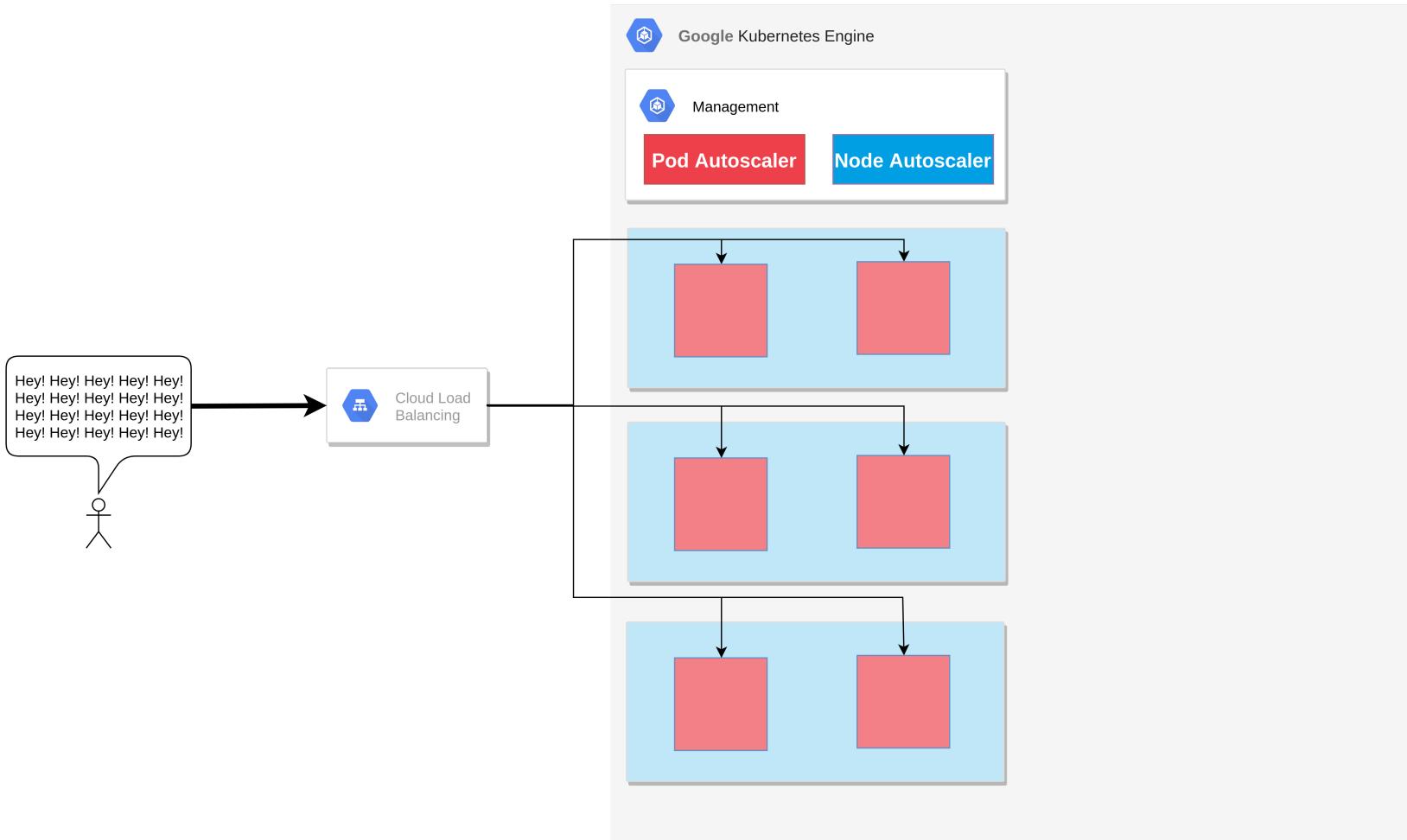












Demo Kubernetes

Part 2

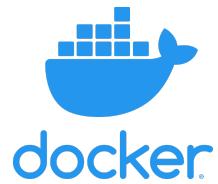




Serverless

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

Example Serverless



Container Image



Deployment

Demo Serverless





Takeaways

- Don't do lift and shift
- Cloud providers make scaling easy