



# CloudStore - towards scalability benchmarking in Cloud computing

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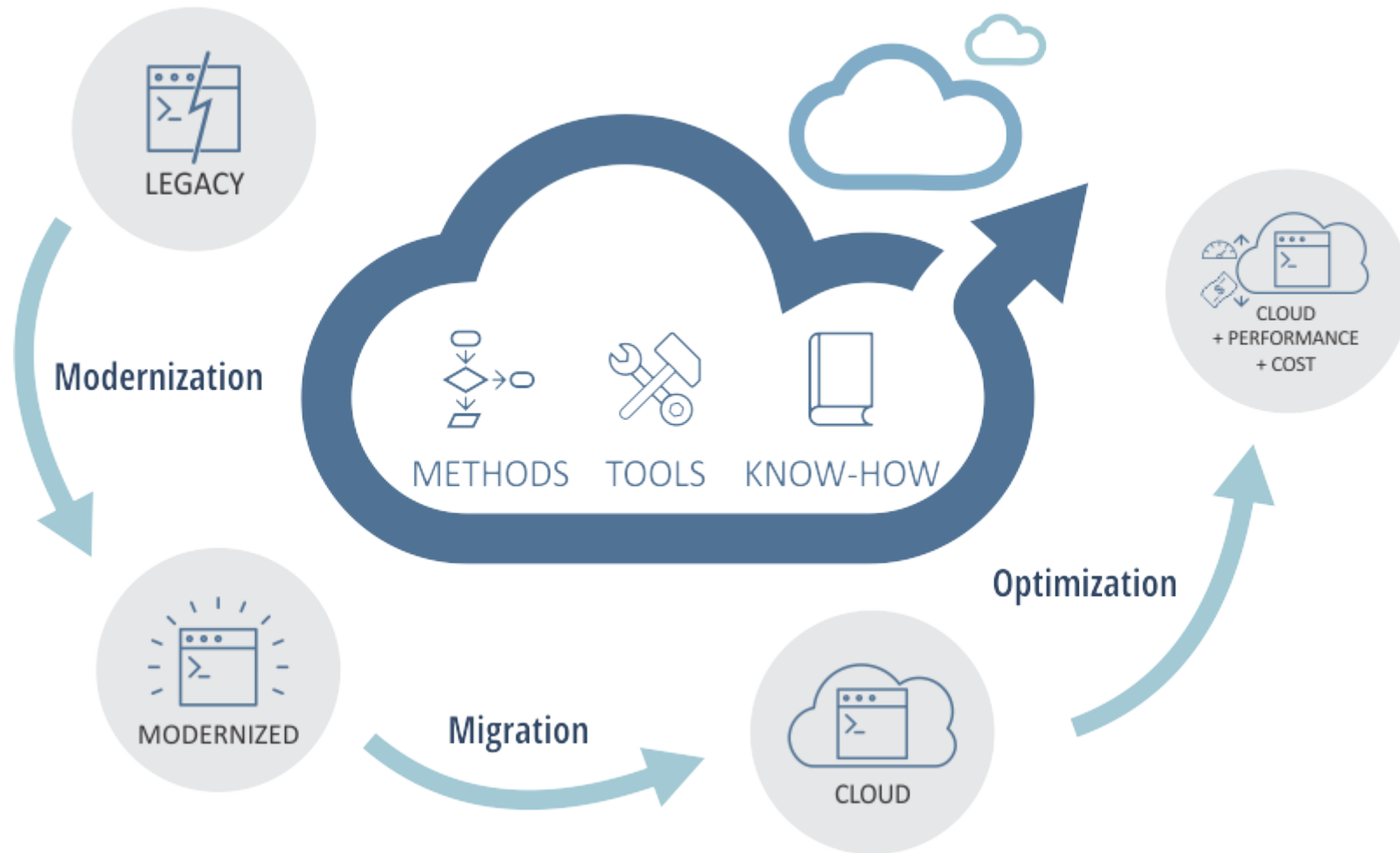
Mariano Cecowski  XLAB  
NOTABLE



Funded by the European Commission's  
7<sup>th</sup> Framework Programme (FP7).



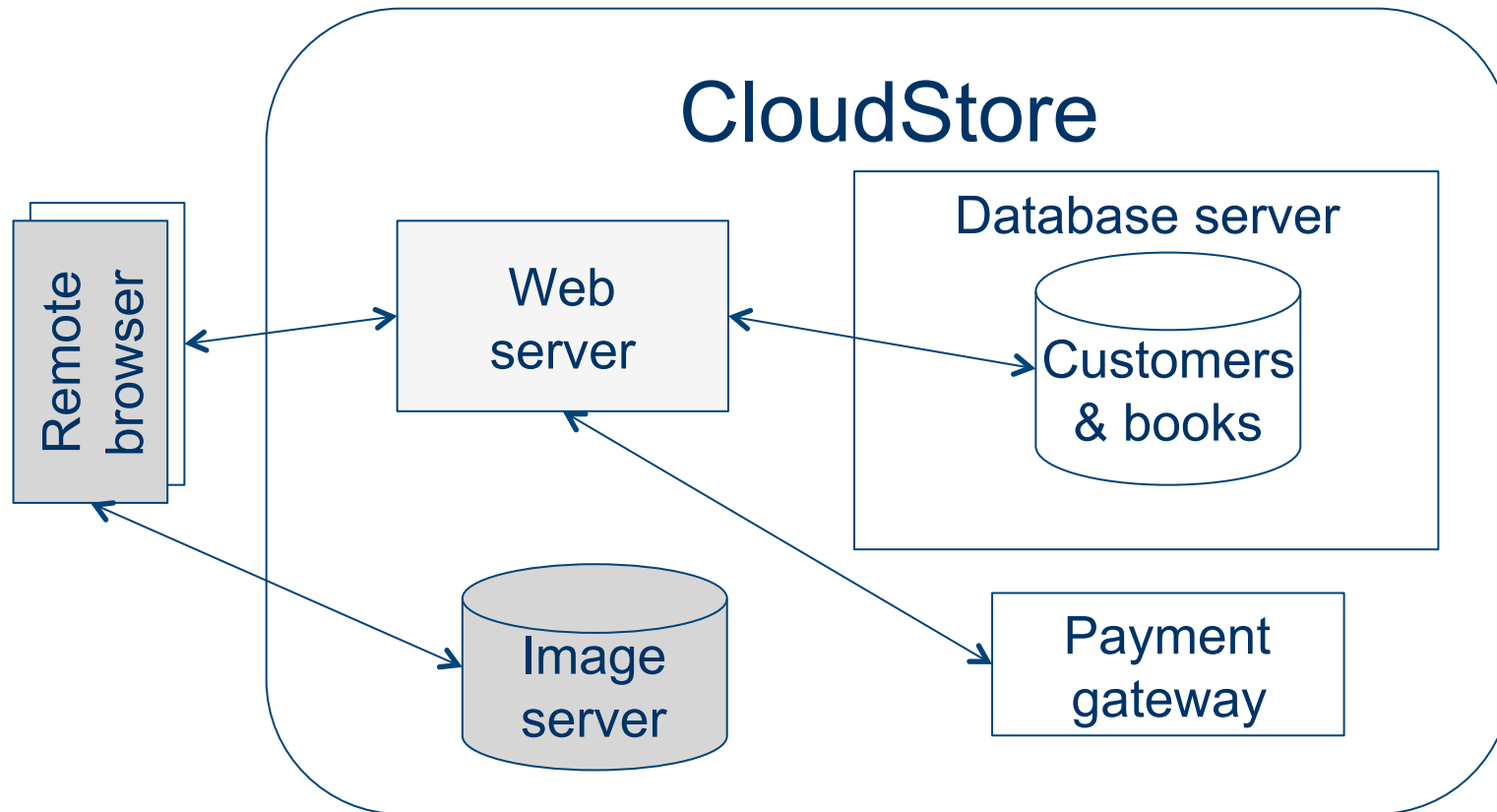
# Showcase: CloudStore



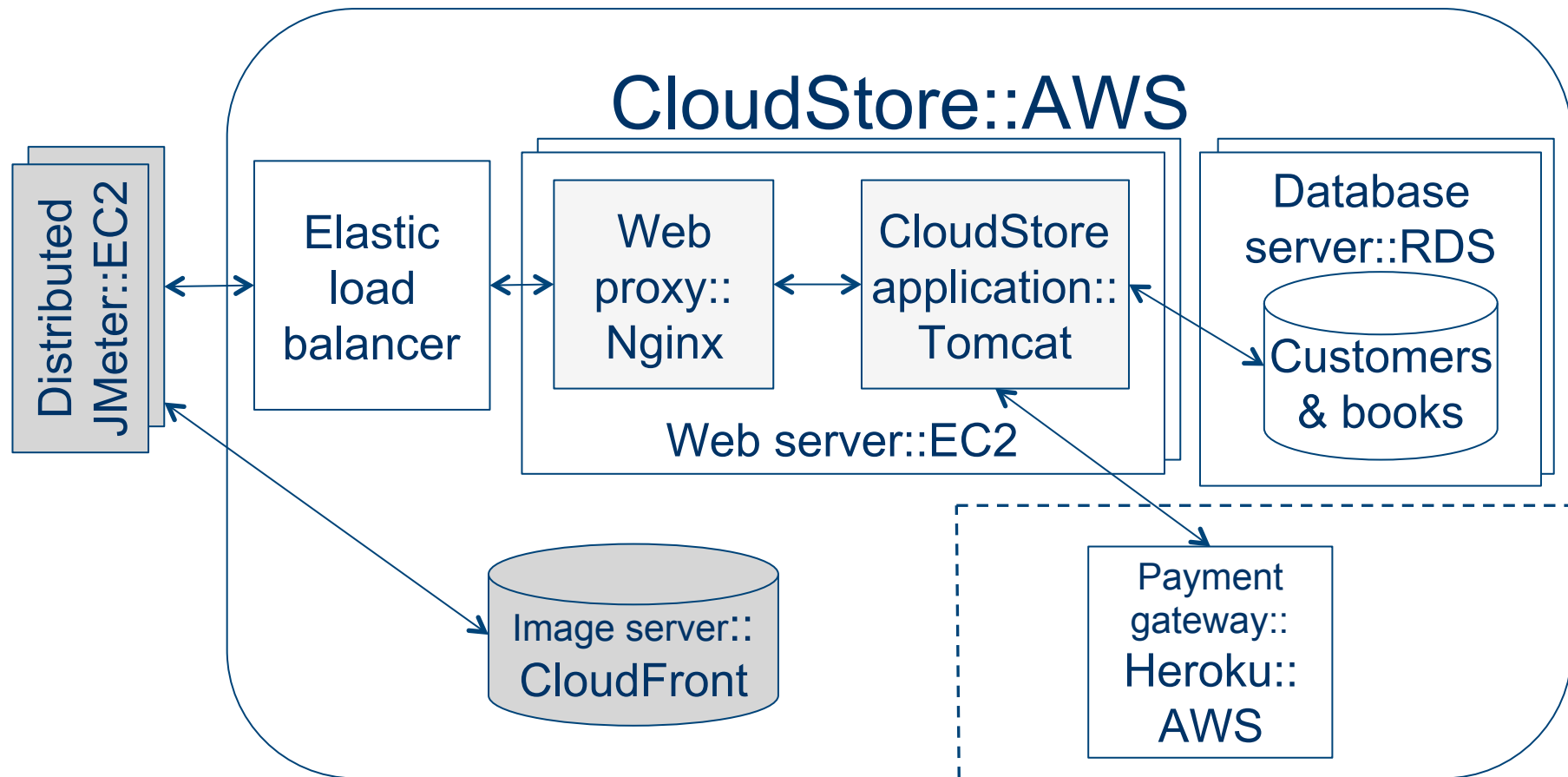
# CloudStore: comparing and measuring

- Original motivation
  - Demonstrate our tools for ensuring scalability
- Spin-off : elements of a benchmark
  - Compare cloud and platform providers

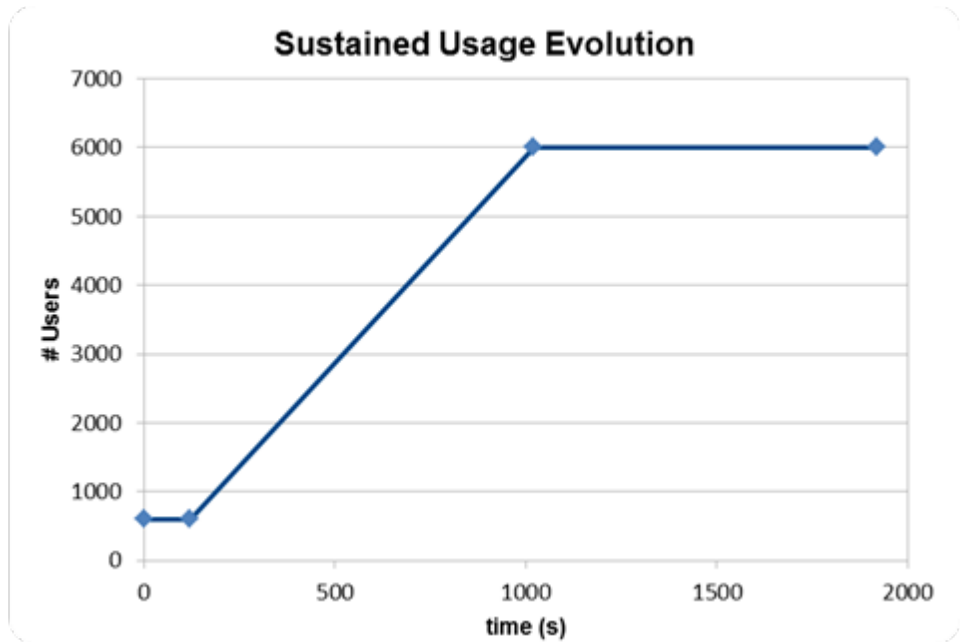
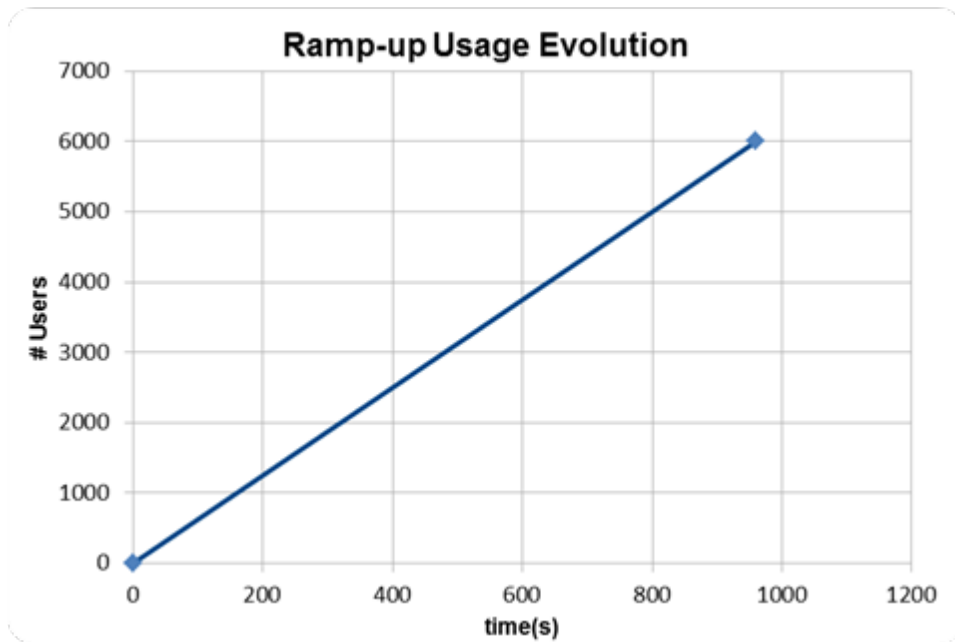
# Conceptual CloudStore architecture



# CloudStore deployment example on AWS and Heroku



# Generating load with Distributed JMeter



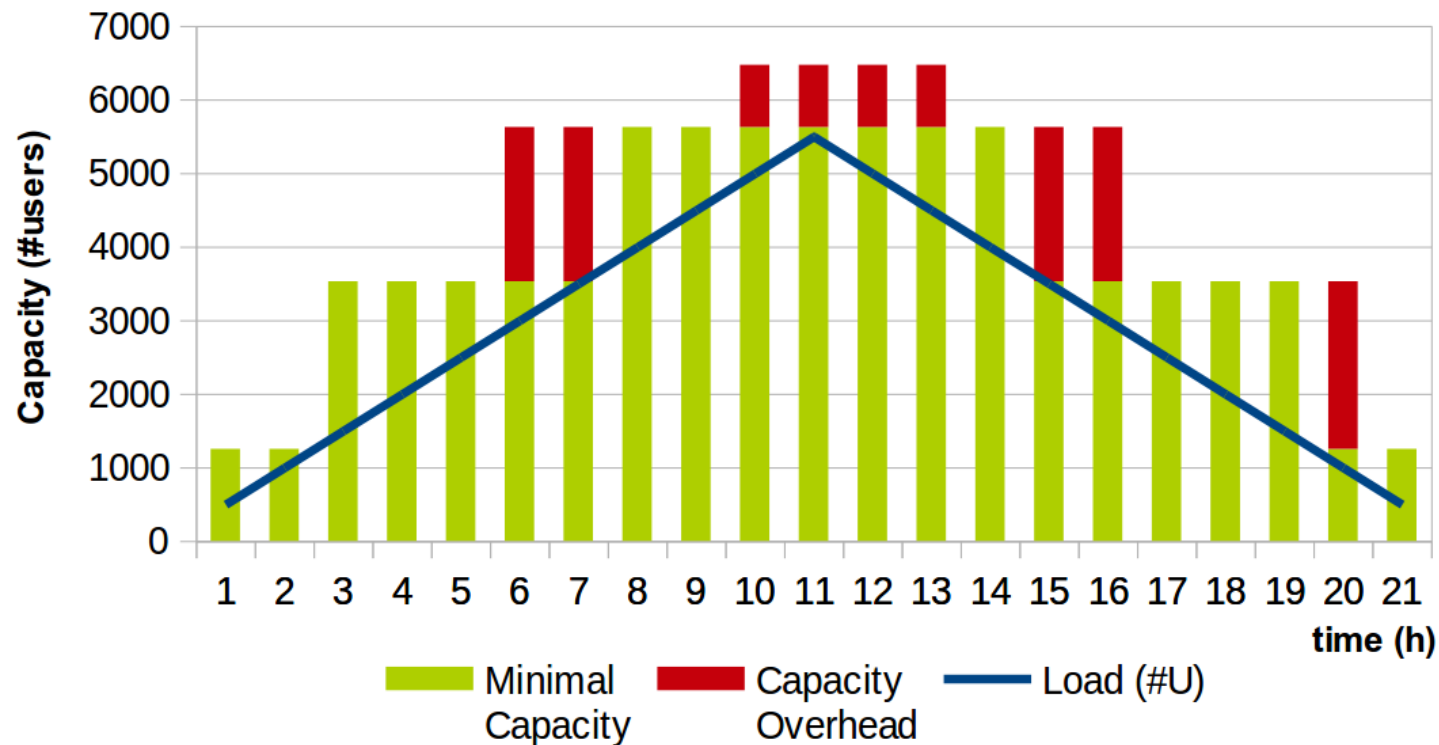
# Example 1: Cost and capacities of different configurations

Web proxy and CloudStore application server			Database server			Capacity	Cost/h
#EC2 instances	EC2 Size	CPU use (%)	# RDS size	# RDS	Database use (%)		
1	t2.small	100	db.m3.large	1	17	1250	0.21 €
2	t2.small	100	db.m3.large	1	37	3529	0.24 €
3	t2.small	100	db.m3.large	1	55	5625	0.26 €
4	t2.small	100	db.m3.large	1	75	6471	0.29 €
5	t2.small	90	db.m3.large	1	90	6471	0.32 €
6	t2.small	100	db.m3.large	1	90	6471	0.34 €

# Example 2: Efficiency metric

## Resource Provisioning Efficiency

Minimal vs. Measured Capacity





# Compare cloud and platform providers

- Which architecture makes efficient use of resources?
- Which cloud provider is cheapest for our usage?
- Which implementation/deployment is most scalable?

# Today: CloudScale tool demo

## 1 Extracting Model

```
0101111000011
01000111010101
01000101010101
11111000101010
01010100011110
```



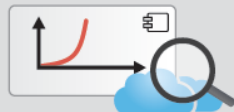
CloudScale's Extractor provides an automated transformation from existing code to a system model

## 2 Predicting Scalability

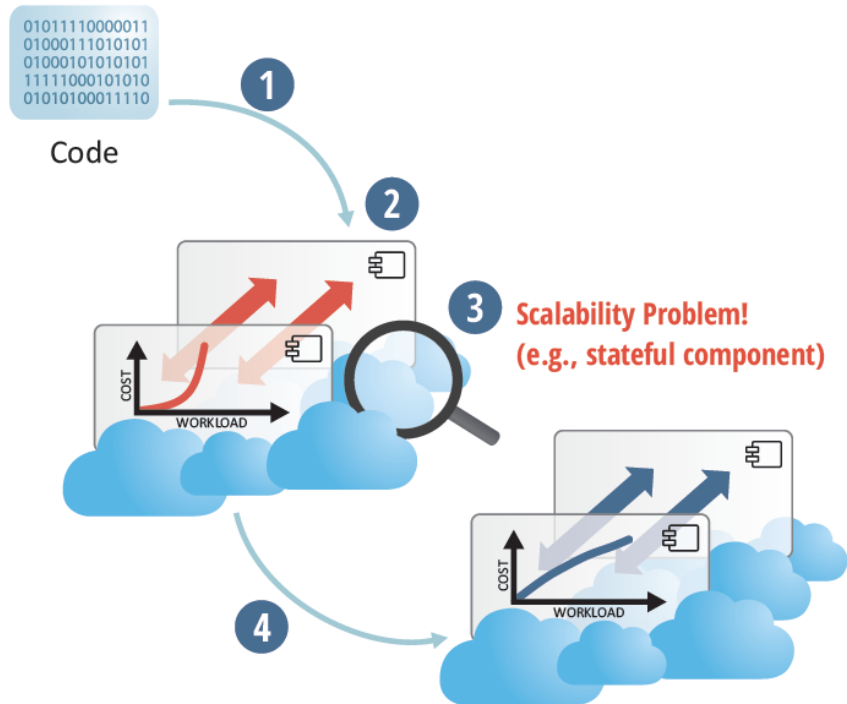


CloudScale's Analyser predicts scalability at design time (e.g., costs for serving an increasing number of customers)

## 3 Detecting Scalability Problems



CloudScale's Spotter detects scalability problems (CloudScale Scalability Anti-Patterns) and their root causes






## 4 Resolving Problems



CloudScale's HowTos provide guidelines for solving scalability issues

# Thank you

Contact us:

- [www.cloudscale-project.eu](http://www.cloudscale-project.eu)
  - [wiki.cloudscale-project.eu/index.php/Wiki/](http://wiki.cloudscale-project.eu/index.php/Wiki/)
  -  [github.com/CloudScale-Project](https://github.com/CloudScale-Project)
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