Systematically Deriving Quality Metrics for Cloud Computing Systems

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Engineering Cloud Systems: Analysis

Elasticity:
Achieve RT < 3 sec. as fast as possible

Is scale up or scale out faster?

Problem: metrics only considering a steady state are not enough!
Idea: Systematically Deriving New Metrics

Example Scenario

Goal → Question → Metric → New Metrics
Comparison of Alternative Adaptation Layers

Strategy A

Time To Quality Repair (TTQR)

Response Time [s]

0 10 20 30 40 50 60 70 80 90 100

0 5 10 15

Response Time [s]

Strategy B

TTQR

Response Time [s]

0 10 20 30 40 50 60 70 80 90 100

0 5 10 15

Time [s]
Derived General Metric

$TTQR$: Time To Quality Repair. The time between the occurrence of a (quality) SLO violation and the time the SLO is fulfilled again.
Short Paper Summary

- Initial set of 6 metrics
- Re-usable GQM plan
- Classification of related metrics

Future Work

- Derive more metrics
- Implement analysis tools
- Case study
Example Scenario

Goal → Question → Metric → New Metrics

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