



Performance Testing at the Edge

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3,000,000,000

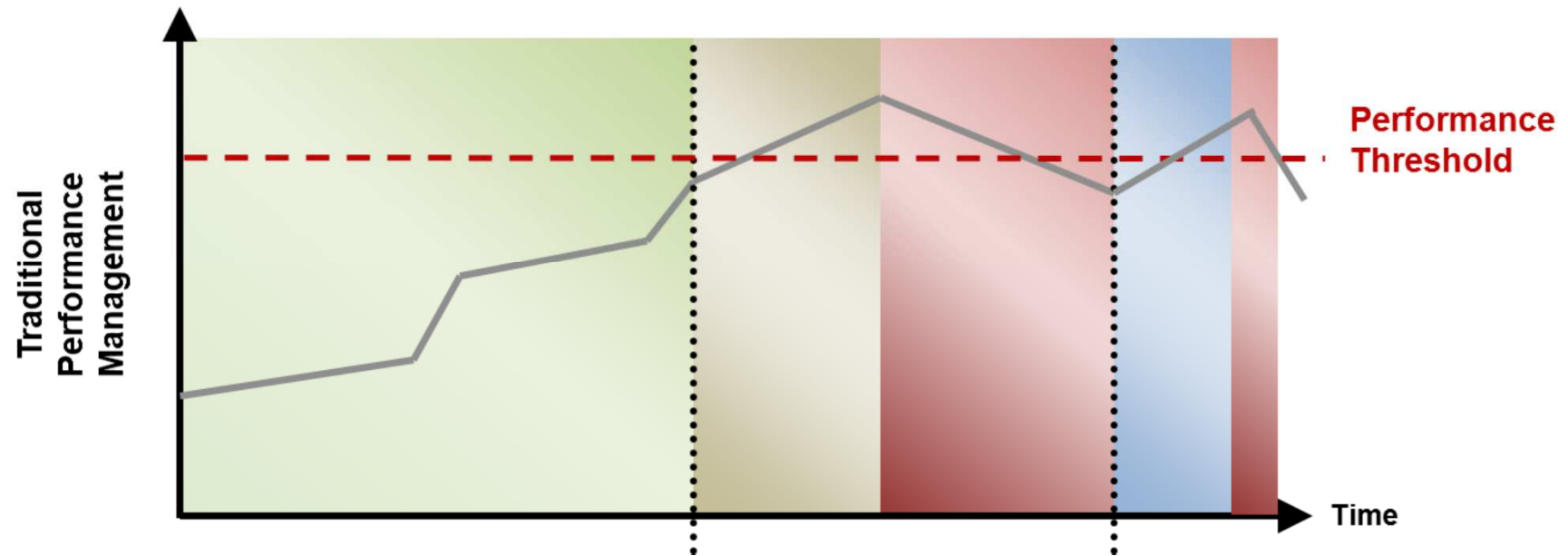
3'000'000'000



10,500,000,000

10'200'000'000

The Classical Approach



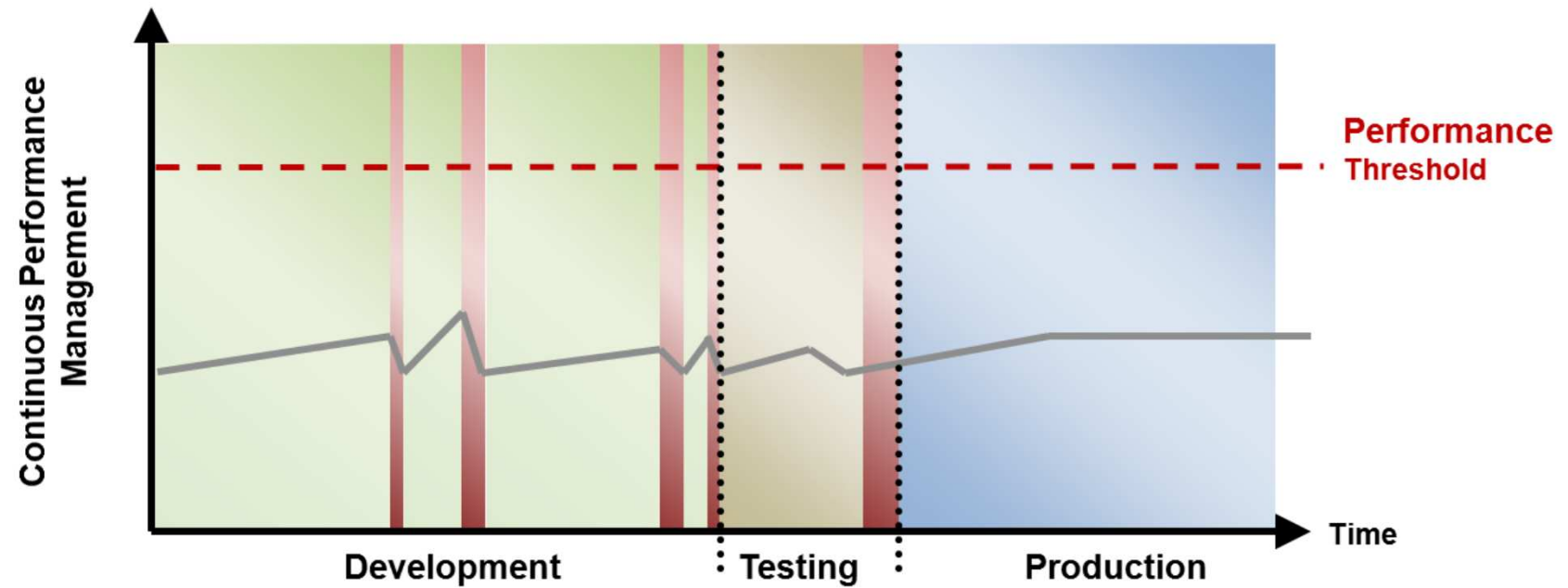


Waterfalls are pretty

But might get scary



The dynaTrace Approach



Many platforms

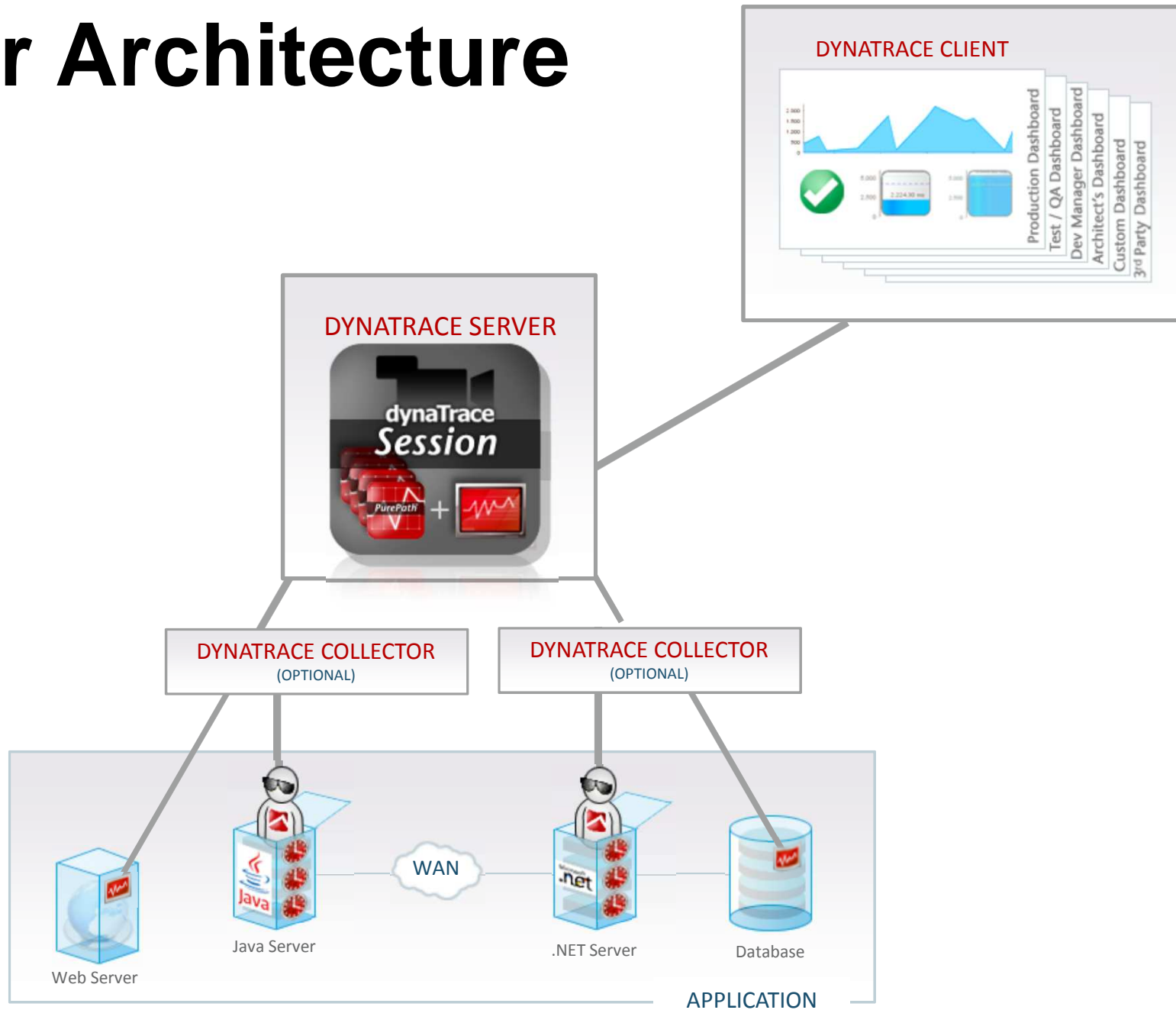
Different usage scenarios

High number of configurations

No easy way to patch software



Our Architecture





Lessons learned

Profiling was not enough

Good for finding problems

Result comparison hard

Only valid until next check-in

Too much work



The Life of a Log Statement

Enter the code

```
public void foo (){  
    ... // do something  
    bar ();  
}  
  
public void bar (){  
    ... // do something else  
    Logger.log ("execution took" + time);  
}
```

The Life of a Log Statement

Somebody changes something

```
public void foo (){  
    ... // do something  
    if (condition)  
        bar ();  
    else  
        otherBar ();  
}  
  
public void bar (){  
    ... // do something else  
    Logger.log ("execution took" + time);  
}
```

The Life of a Log Statement

Your code gets deprecated

```
public void foo (){  
    ... // do something  
    newBar ();  
}  
  
public void bar (){  
    ... // do something else  
    Logger.log ("execution took" + time);  
}
```



Methodology

The MAMBO
City of Seattle Engineering Urban Services Project
Incorporation with the Seattle Arts Commission
Jack Mical, Chuck Greeno - Artists © 79
1 - slow - quick - slow - quick - slow
2 - quick - slow - quick - slow
3 - quick - slow - quick - slow
4 - quick - slow - quick - slow
5 - quick - slow - quick - slow
6 - quick - slow - quick - slow

Defining our strategy

$$\frac{1}{n} \sin x = ?$$

Start early

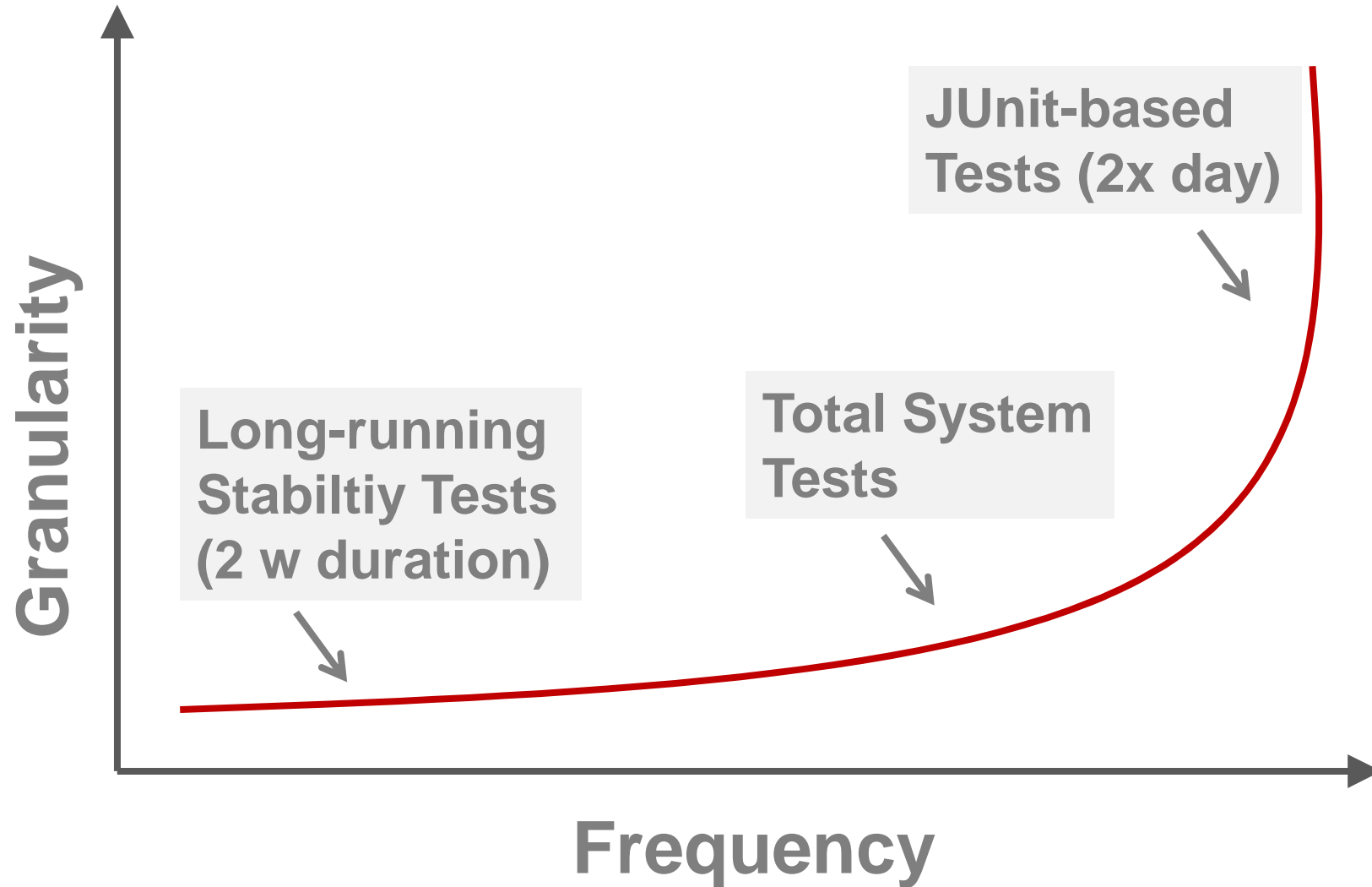
$$\frac{1}{n} \cancel{\sin} x =$$

Break in pieces

$$six = 6$$

Test Continuously

Frequency vs. Granularity



Granularity



Comparability

Complexity

Quality

A photograph of five young girls in school uniforms running on a red running track. They are running from left to right, with the girl in the foreground being the most prominent. The track is surrounded by green grass. The text 'Avoid Re-Runs' is overlaid in the top right corner.

Avoid Re-Runs

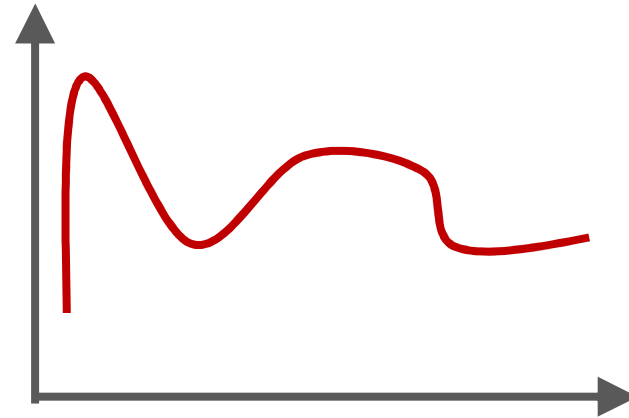
- What could happen?
- Which information do you want?
- What describes your system?
- What is different from the last run?

A young child with light skin and hair is standing in a bathroom, looking towards a white toilet with its lid up. The child is positioned on the left side of the frame. The background is a plain wall. The image has a slightly grainy, low-resolution appearance.

Aim high ...

... test 50% more

Create Instability



.. adding some volatility increases the likeliness to discover problems ...“

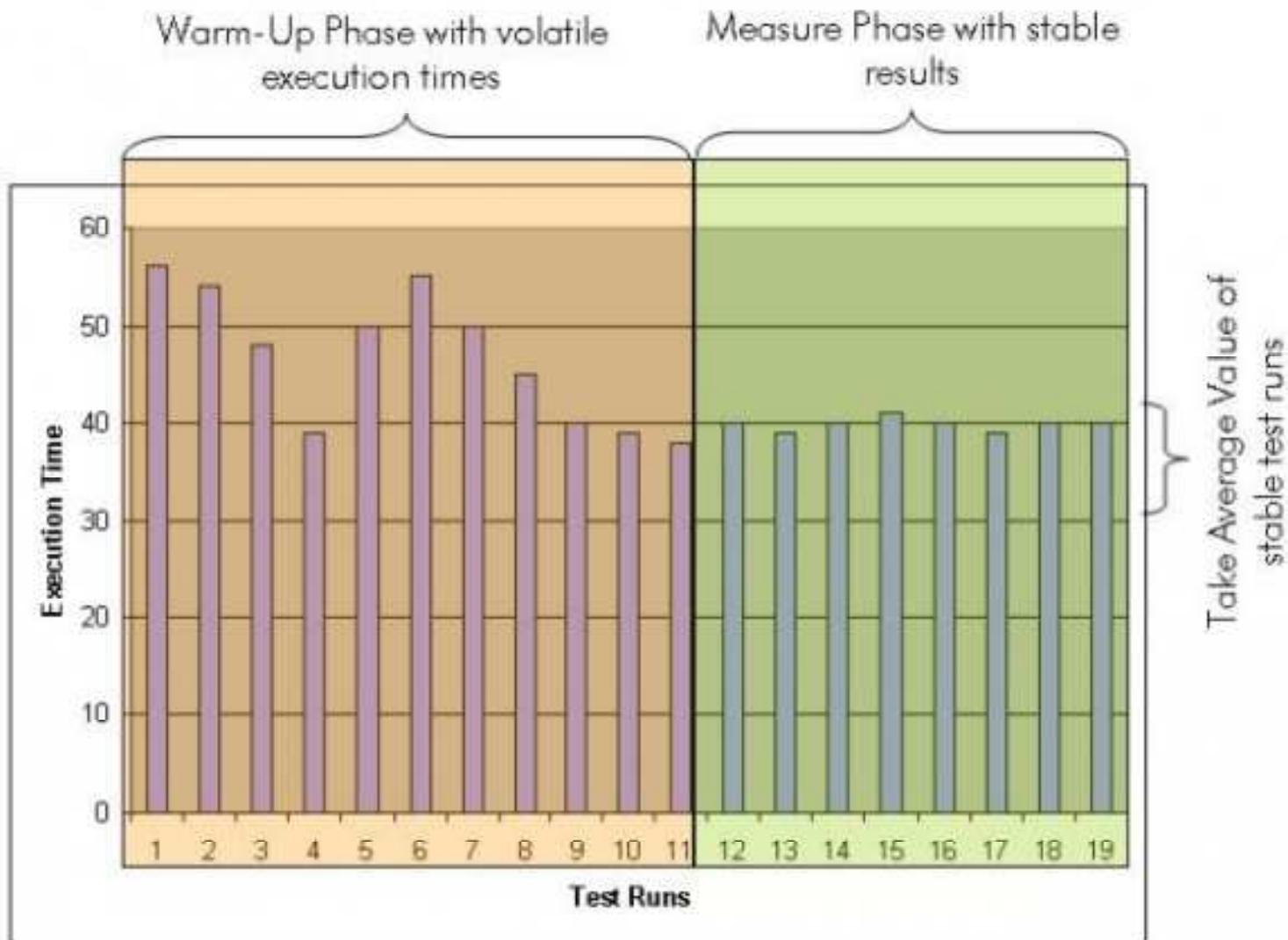
„Last Mile Testing“






Measurements

Stability of Tests



A photograph of a server rack with a semi-transparent grey overlay containing text. The server rack is dark with some blue and green lights visible inside. The text is arranged in a list format on the right side of the overlay.

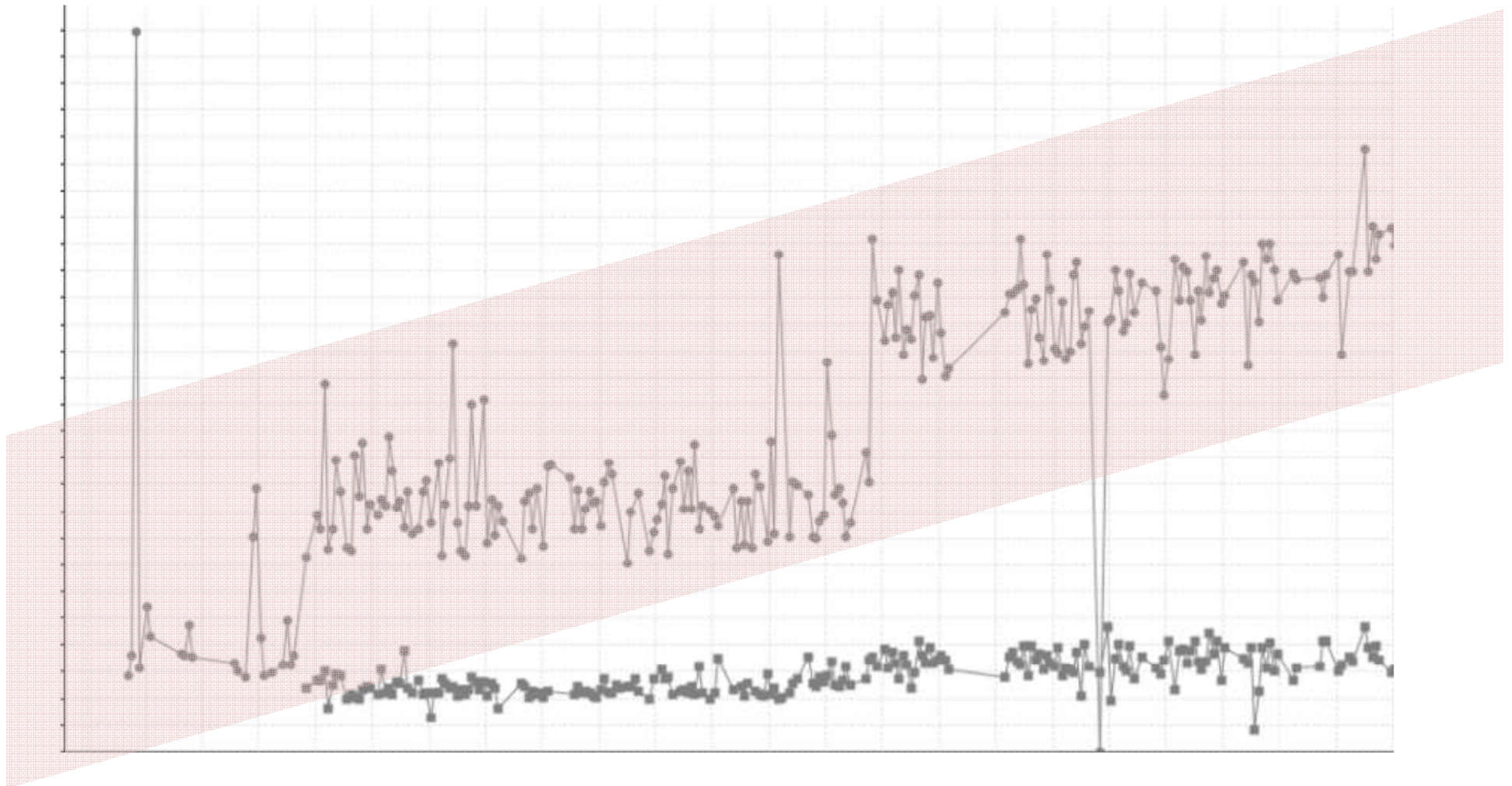
Use Dedicated Hardware

Comparability

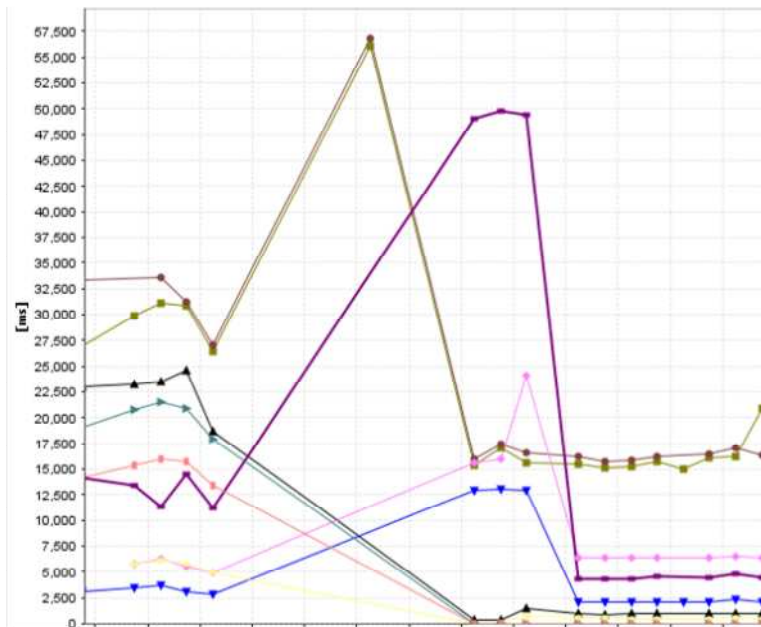
Stability

Efficiency

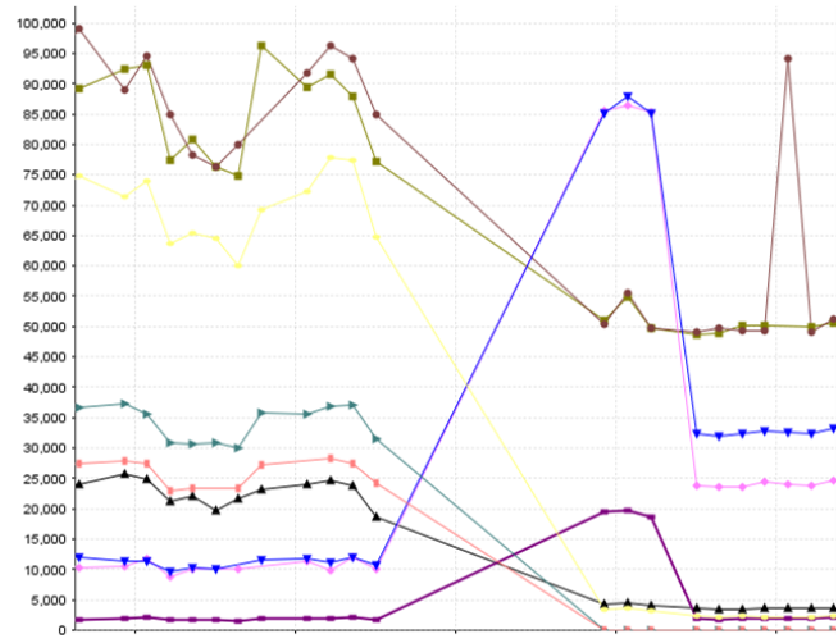
Trends in Unstable Tests



Testing scalability

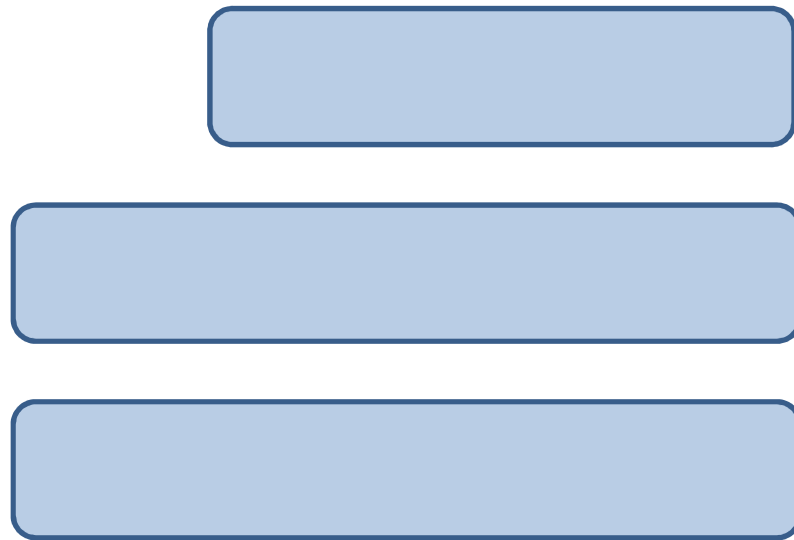


Small Dump Operations

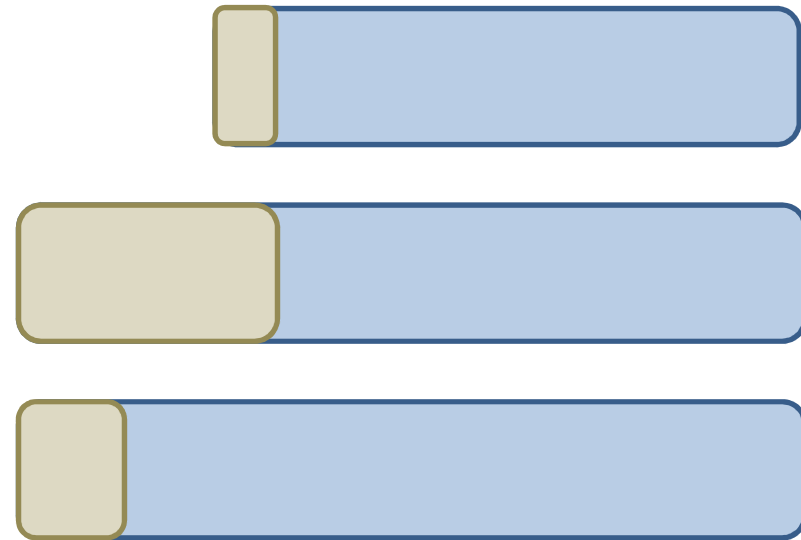


Big Dump Operations

Understand your measurements



Response Time only



Response Time and GC

Be Specific on what to test

Throughput

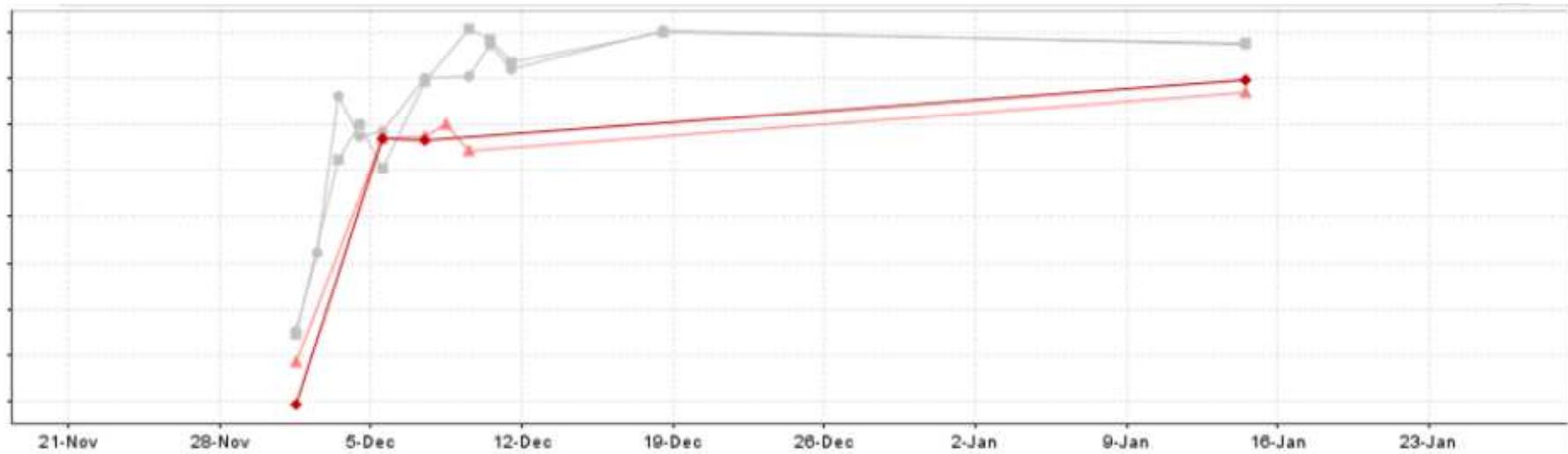
Response Time

Memory Consumption

Other KPI ...



Beyond Response Time



KPI Chart: Server Throughput Over Time



Motivate your team

How to make developers write tests



- #1 Heroism
- #2 Boomerang
- #3 The other guy
- #4 Bug me not
- #5 Feedback
- #6 Code vs. Wine
- #7 Newb vs. Noob

Test Case Complexity

First

Start dynaTrace infrastructure

When ready

Start n WebSphere instances on servers ...

When ready

Start Loadtest against WebSphere servers

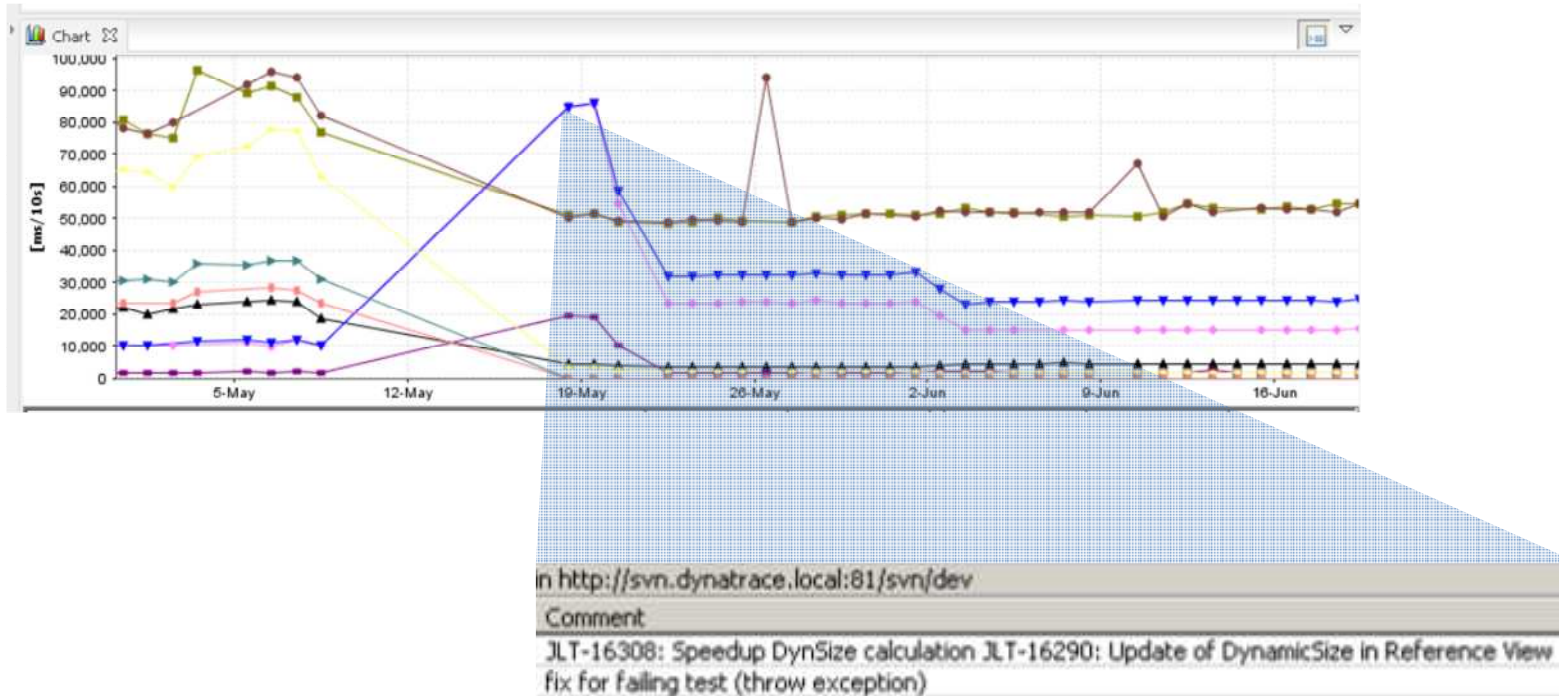
After loadtest start

Execute test case

Making complex things easy

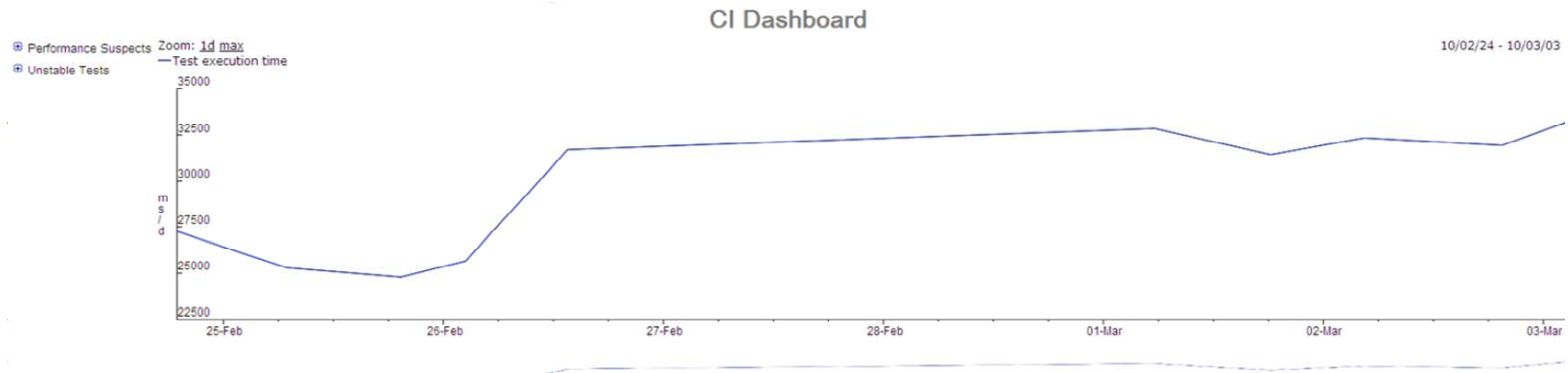
```
@DtdRemoteSud(  
    host = "lab2",  
    name = "WAS7.0",  
    startupPriority = 1,  
    postStartClosure = WaitForWebSphereSudIsUp.class  
)  
private SudInterface webSphereSud;
```

Finding the responsible code



Version Control History Lookup

Always available



Continuous Integration Reports

E-Mail Notification



Status: Open

System Profile: JUnitRealtimeAnalyzer32

+ Incident Rule

Name: INCIDENT_35_RT_STORED: Jdbc

Description: auto generated incident rule

Sensitivity: Per Violation (Each threshold violation begins an incident.)

Conditions: PerfTest: JdbcAnalyzerStoredRealtimePerformance_LongRun

+ Violations

* PerfTest: JdbcAnalyzerStoredRealtimePerformance_LongRun

Description: -

Source: <all-agents>

Upper Severe: 330000.00ms

Upper Warning: -

Lower Warning: -

Lower Severe: -

Trigger Values:

<all-agents>: 333157.20ms (3157.20ms above threshold)



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