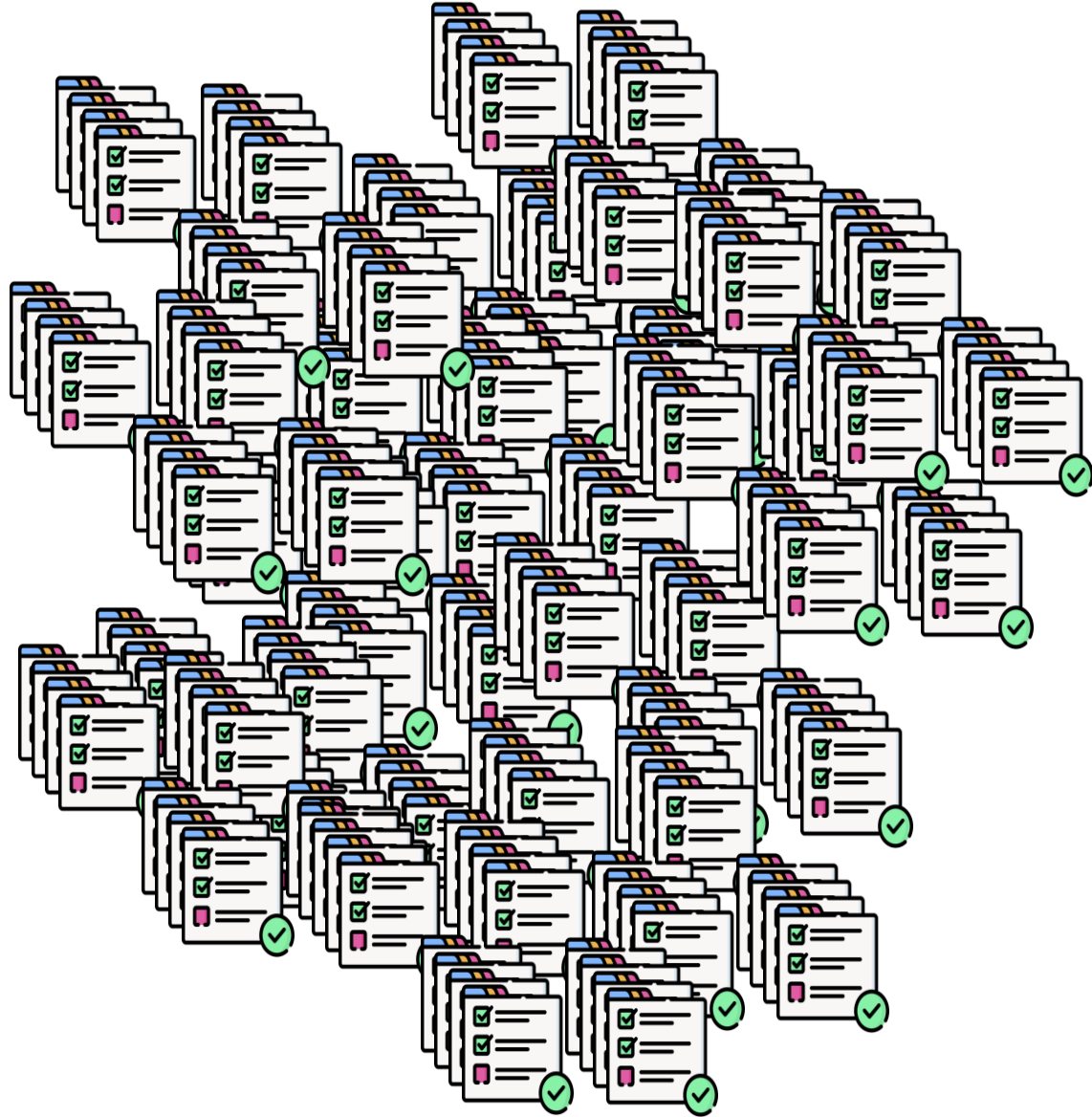


**Schatz ich habe die Test Suite geschrumpft:
KI-basierte Test-Minimierungsverfahren als
Umzugshelfer**



Test $\neq$ Test



Test-Suite-Minimierung



Migration des Testframeworks

Hunderte oder Tausende



Altes Testframework

Nur 20%



Neues Testframework

Minimieren



Automatisierung der manuellen Tests

Hunderte oder Tausende



Manuelle Tests

Minimieren



Nur 20%

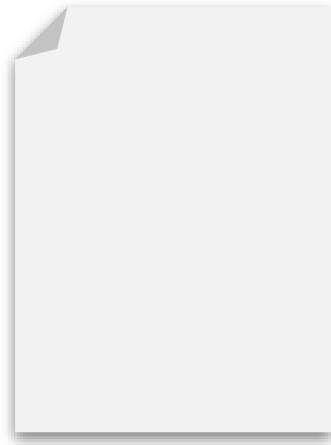


Automatisierte Tests

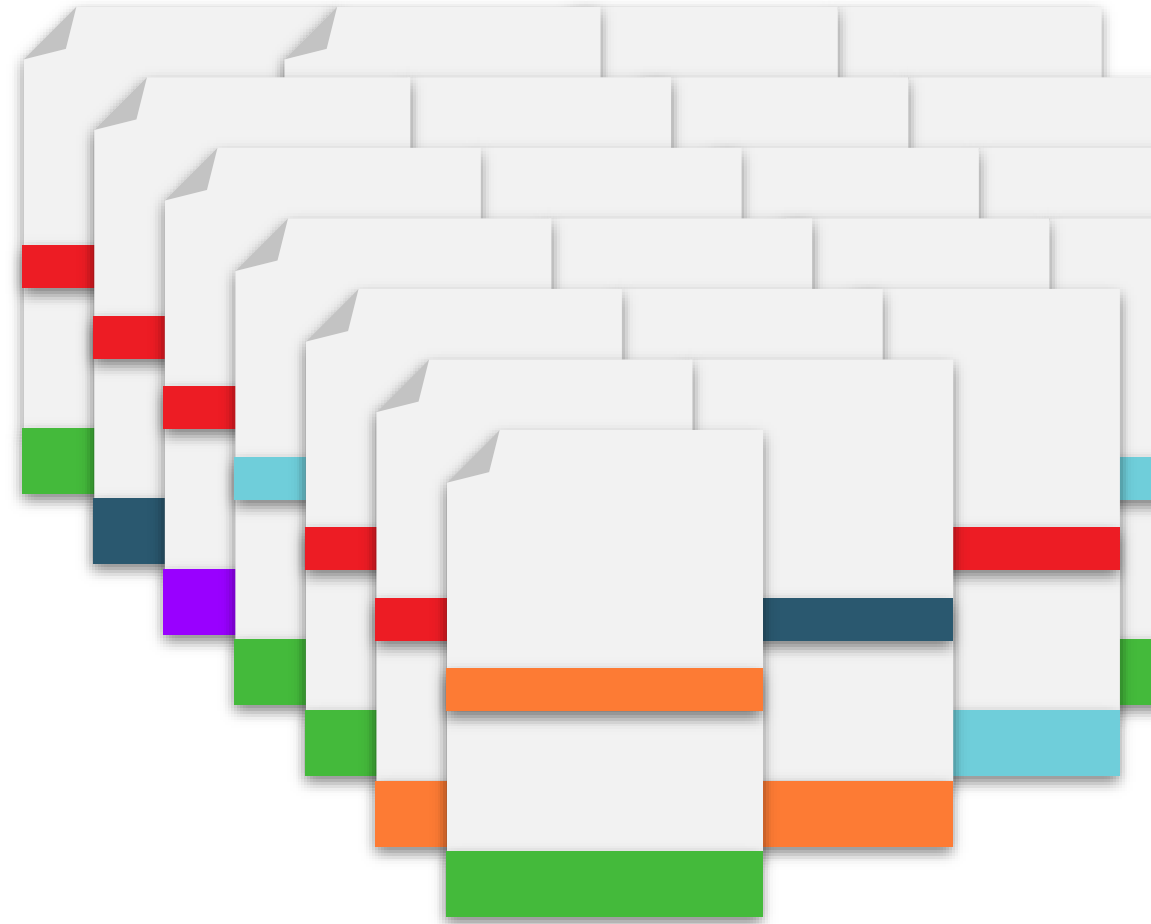
Wer hilft uns also beim Umzug?



Redundanz



copy & paste



☐ Sample Only the Active Layer/Mask

Untitled1 x Picture1.png x

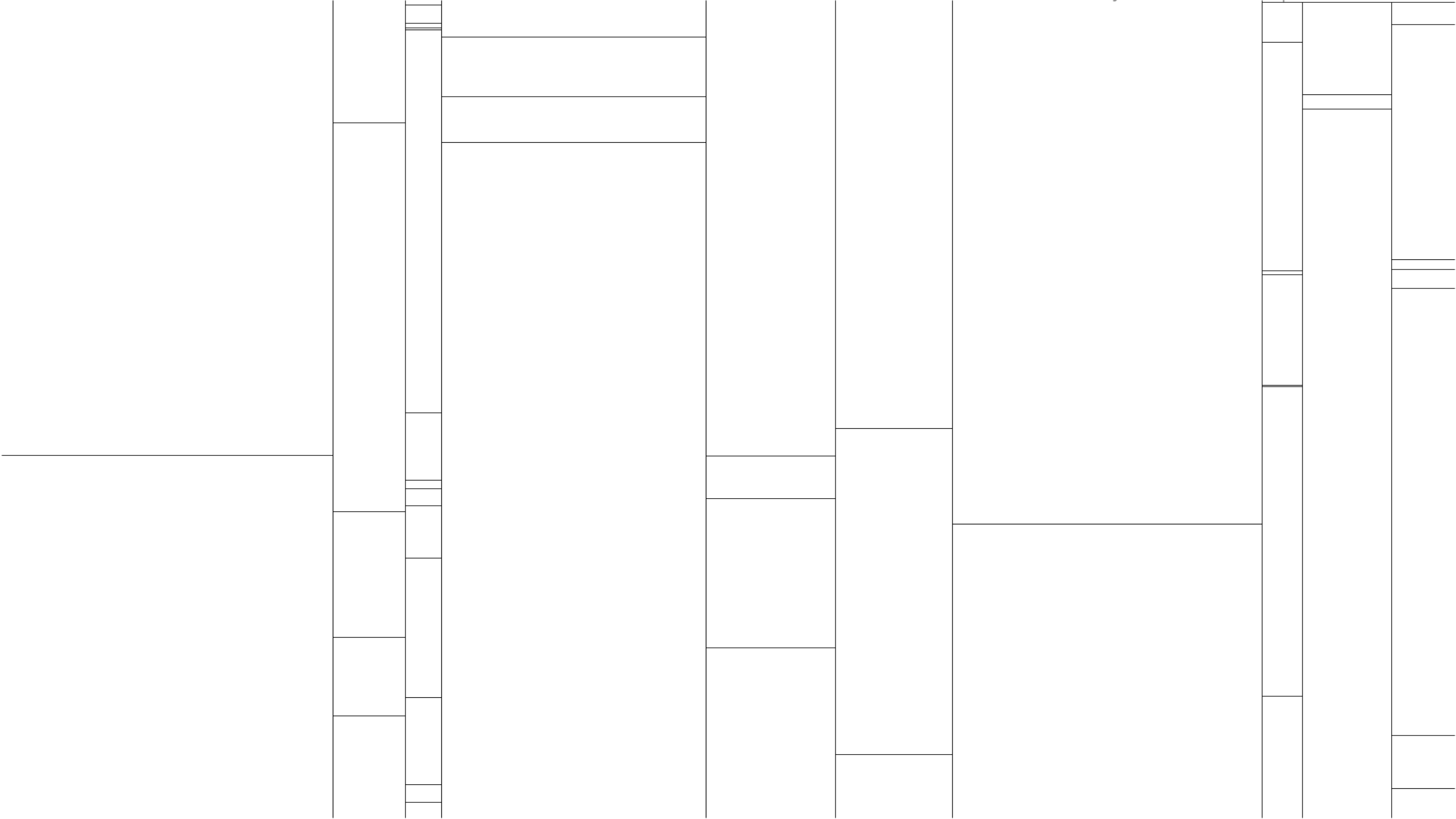


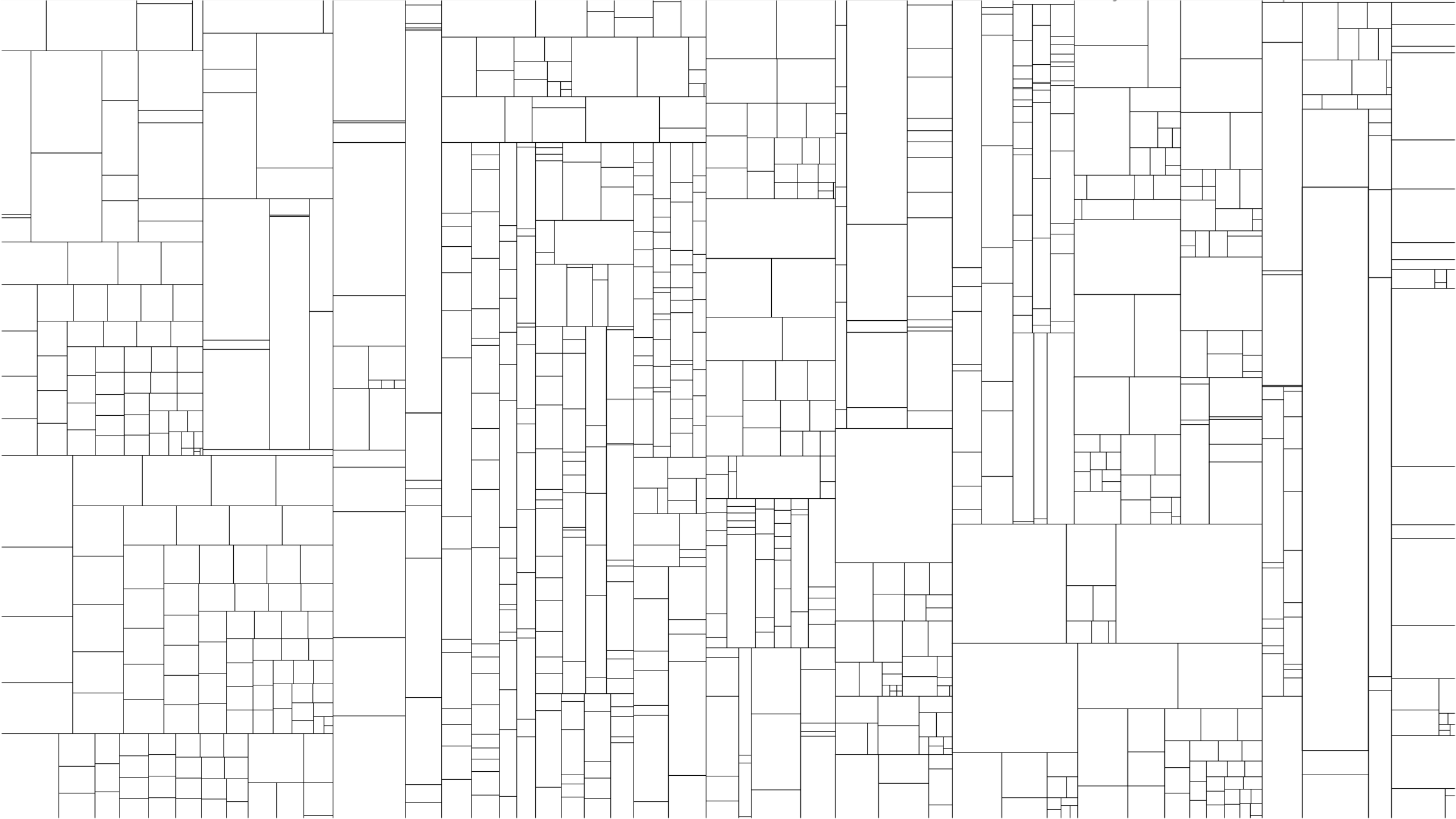
Layers

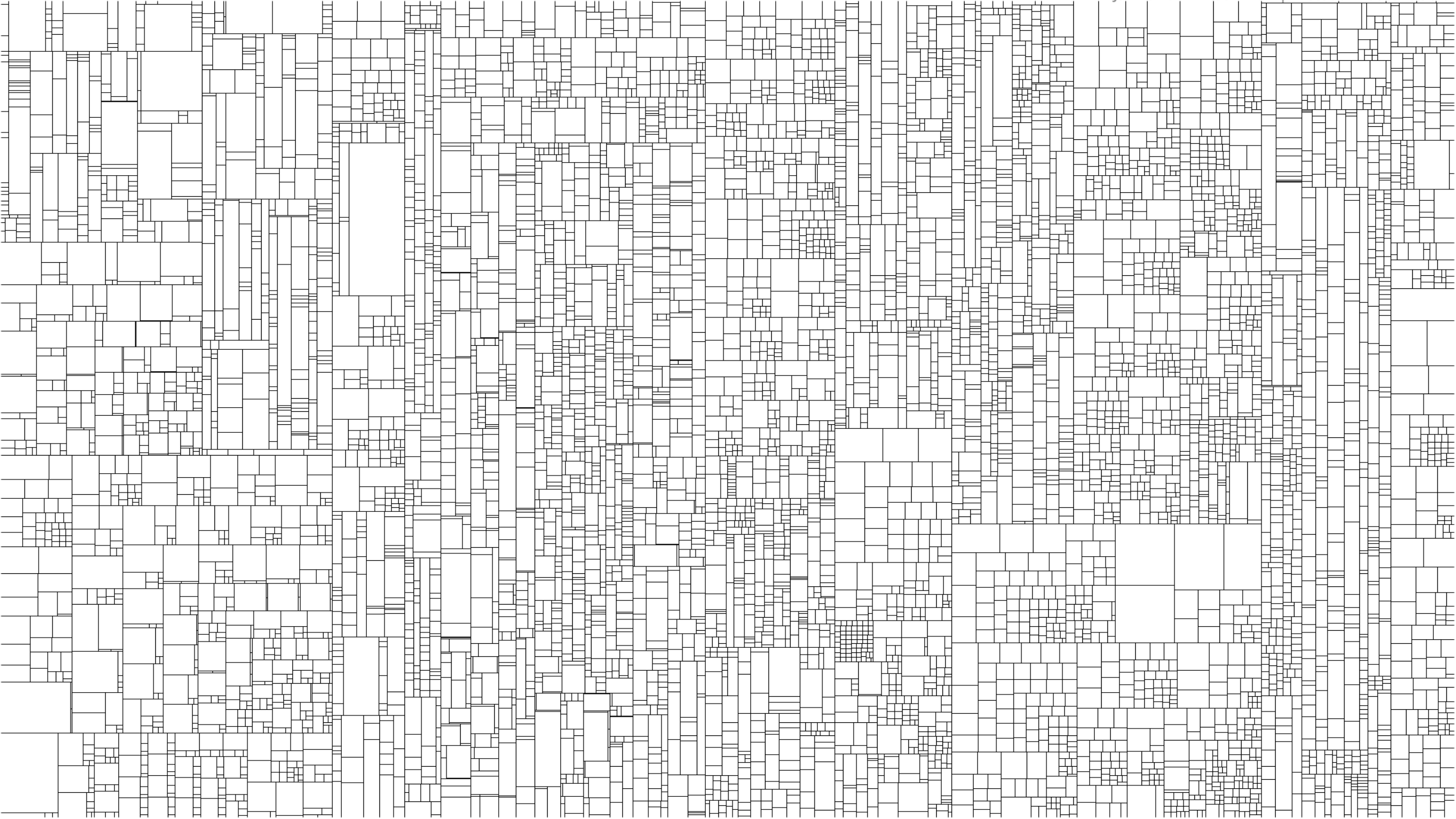
Opacity: 100 % Normal

layer 1

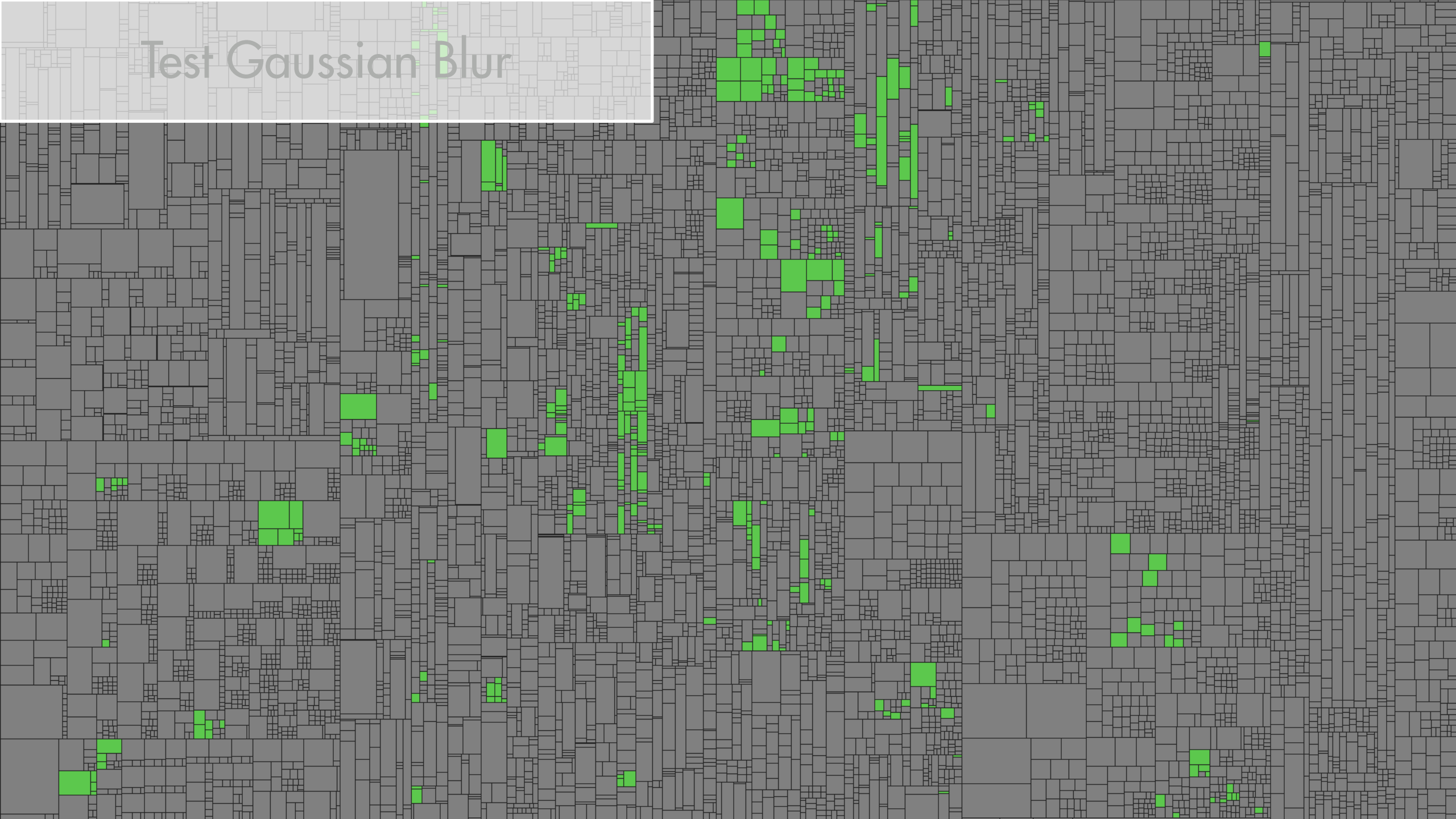
+ - [icon] [icon] T



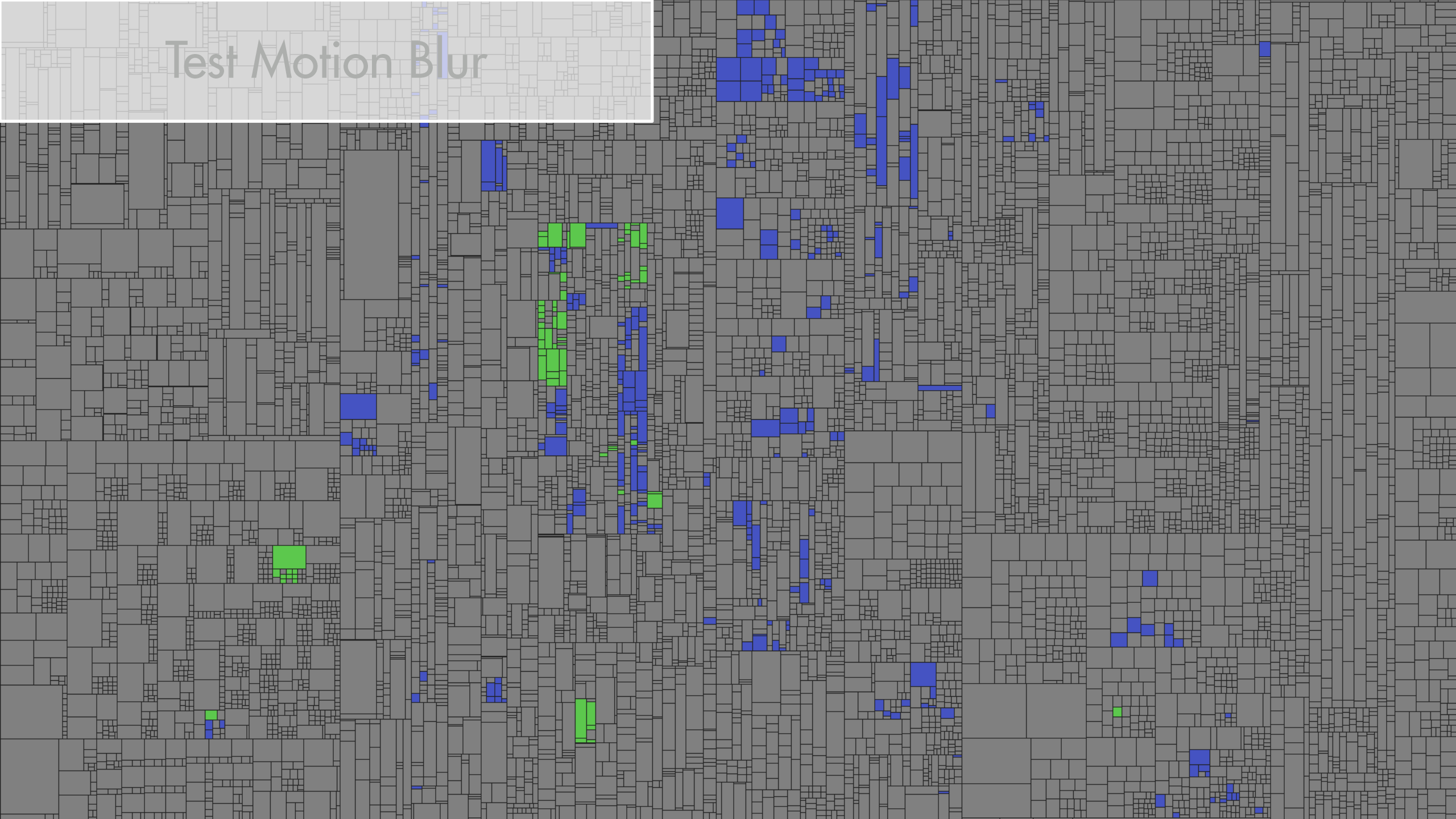




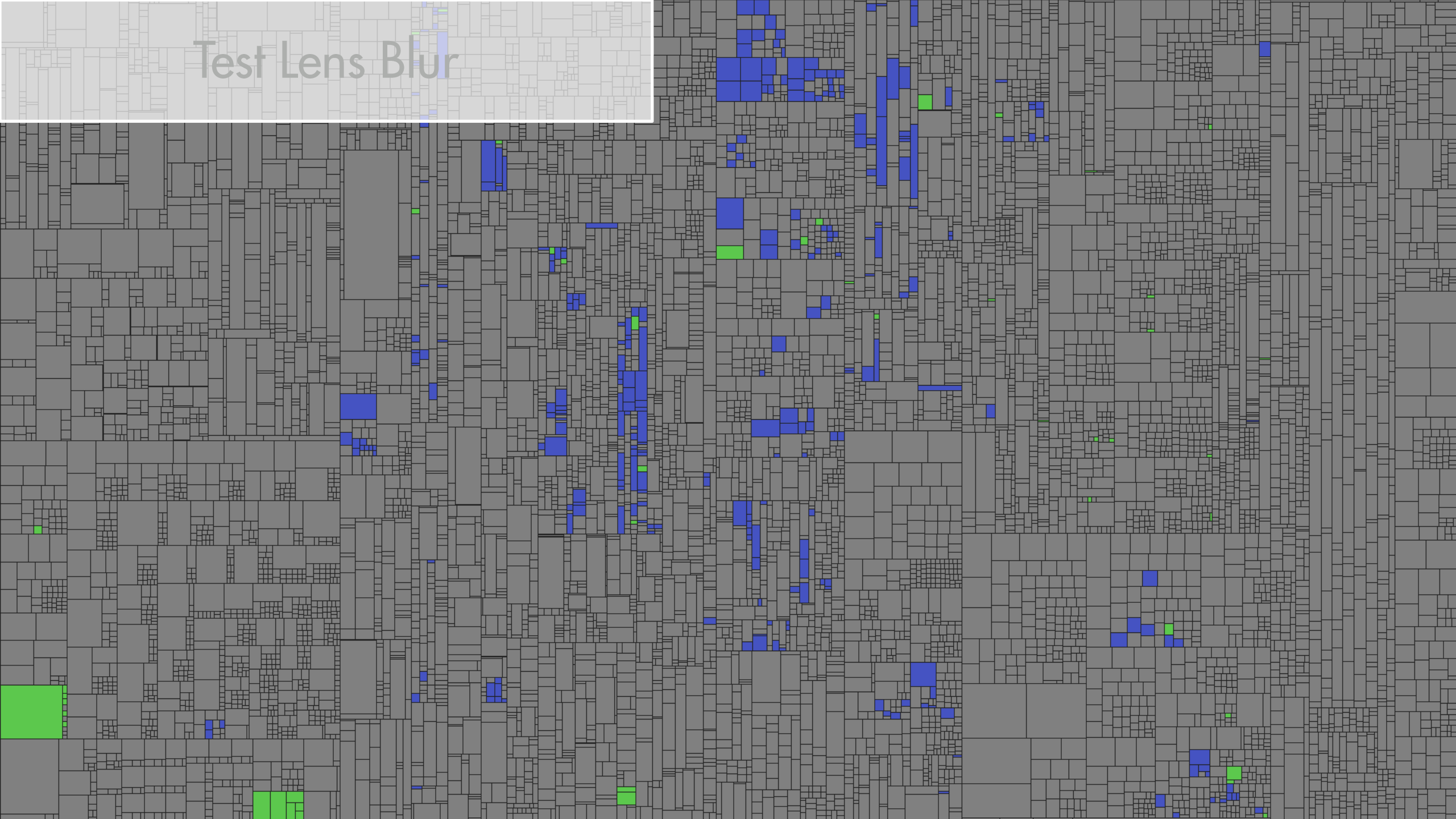
Test Gaussian Blur



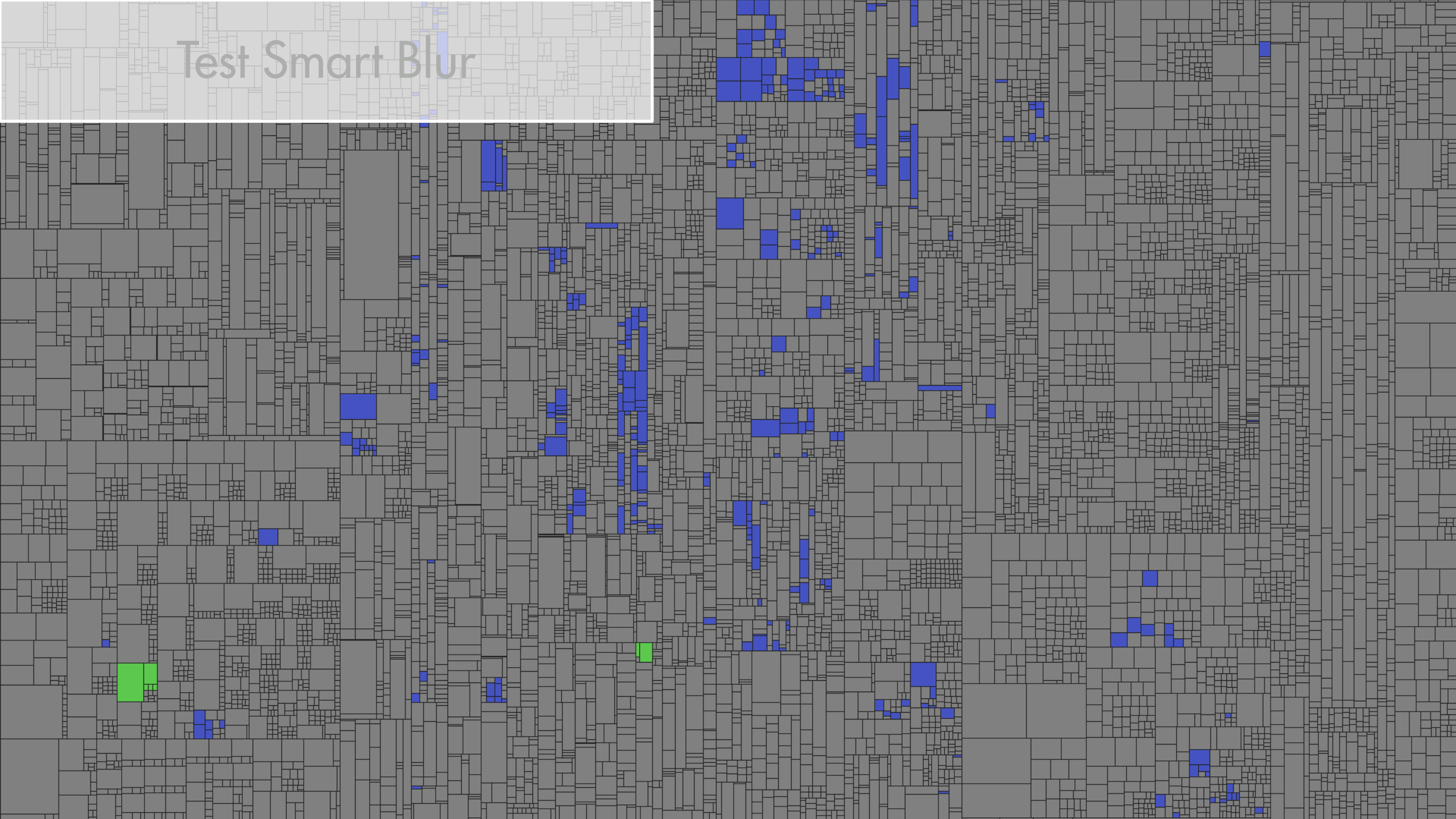
Test Motion Blur

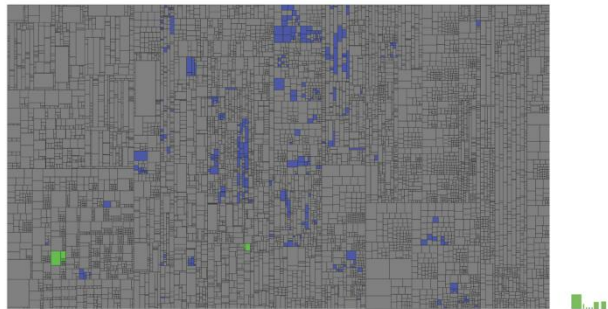
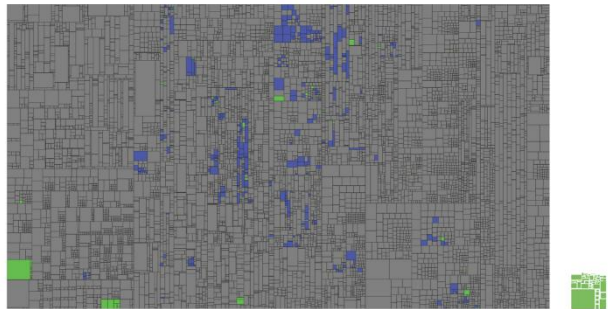
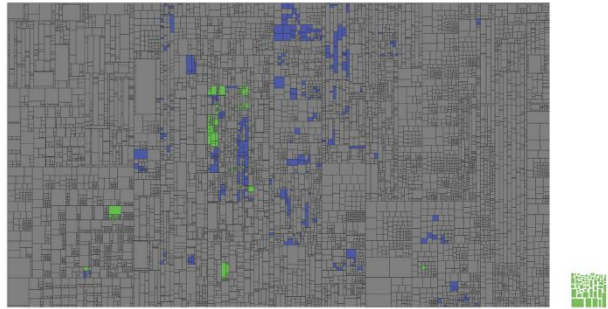
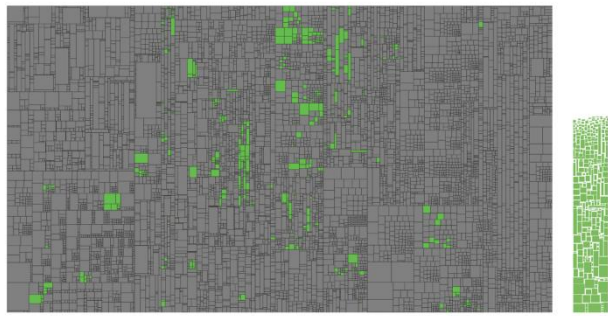


Test Lens Blur

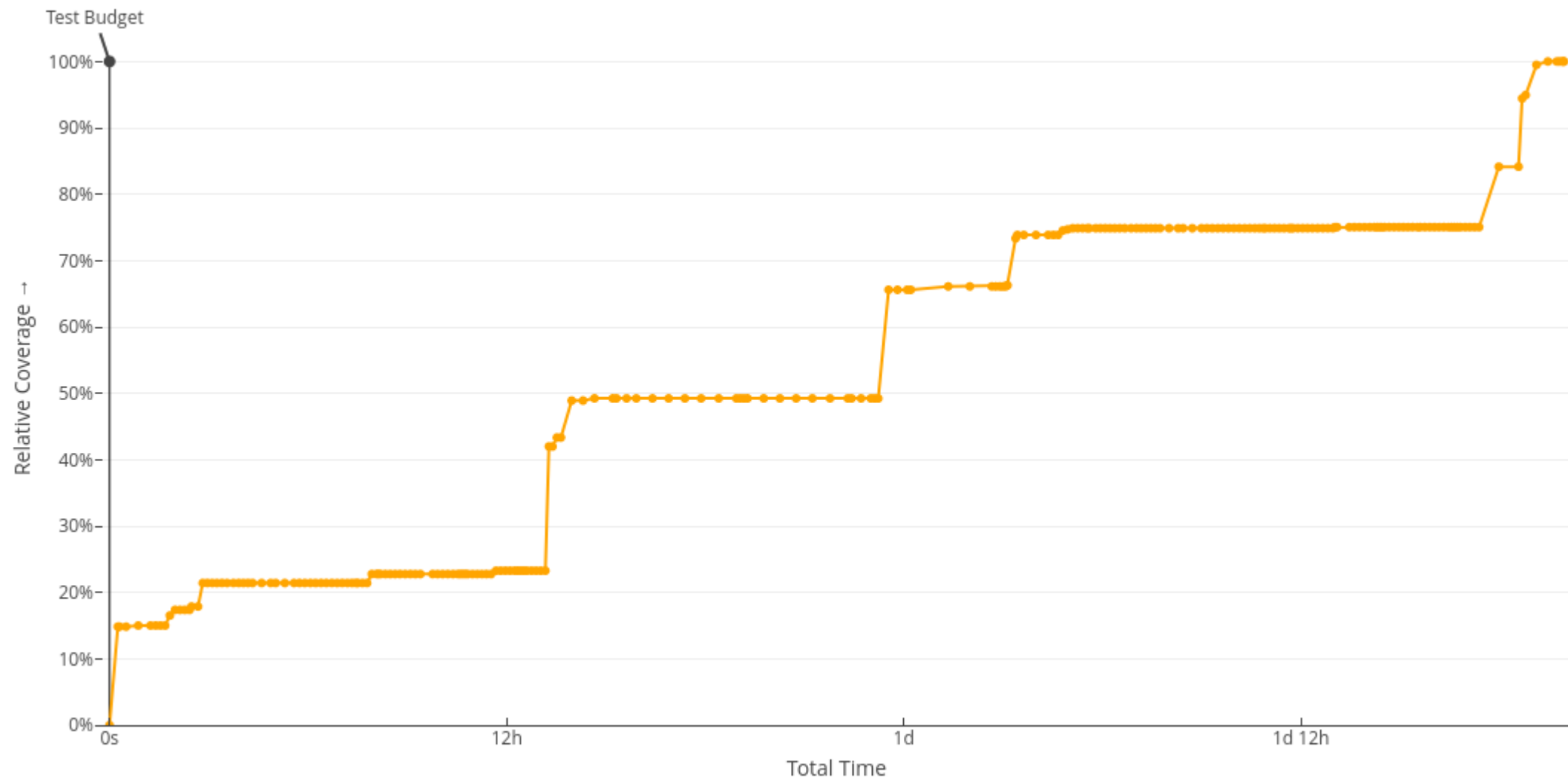


Test Smart Blur





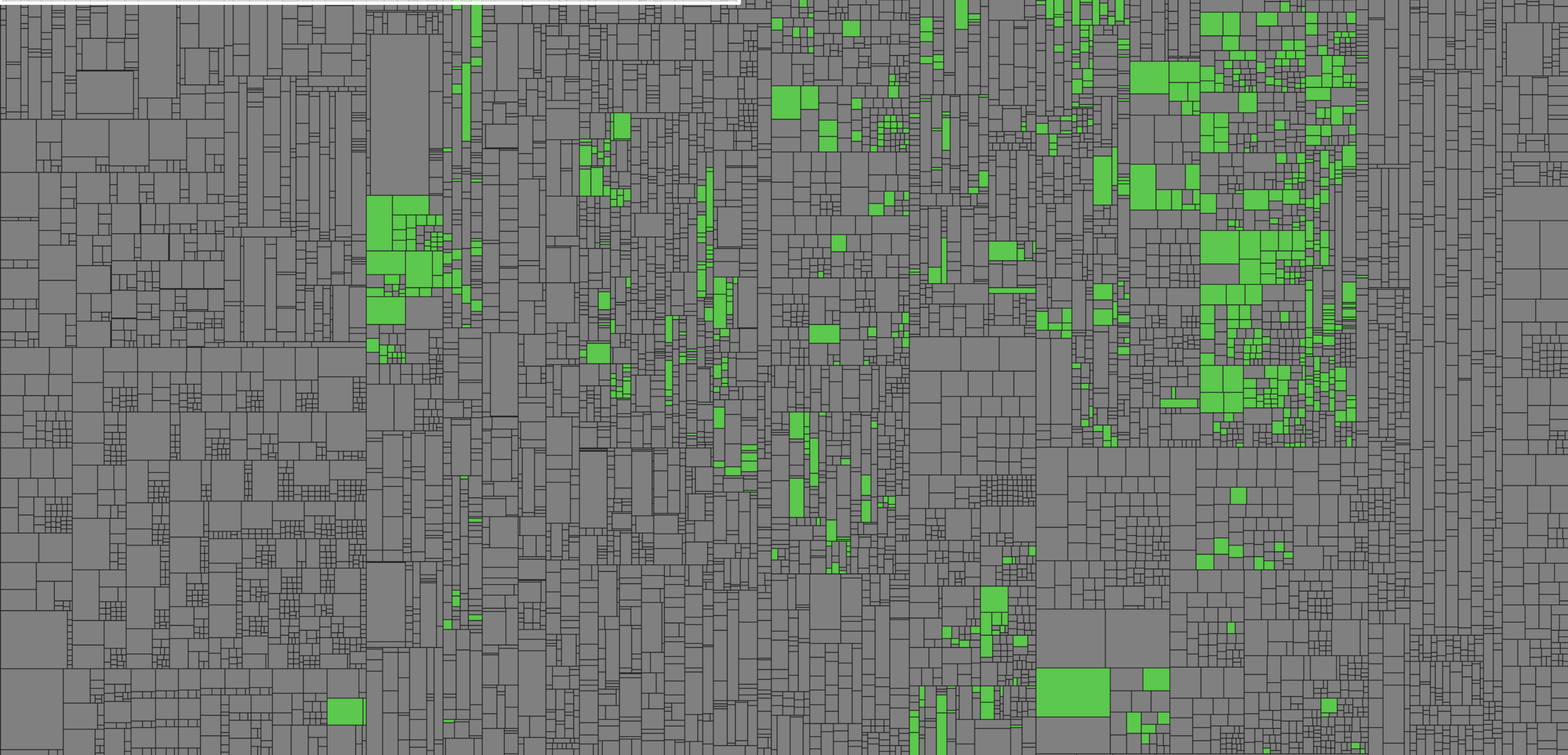
Coverage over Time ?



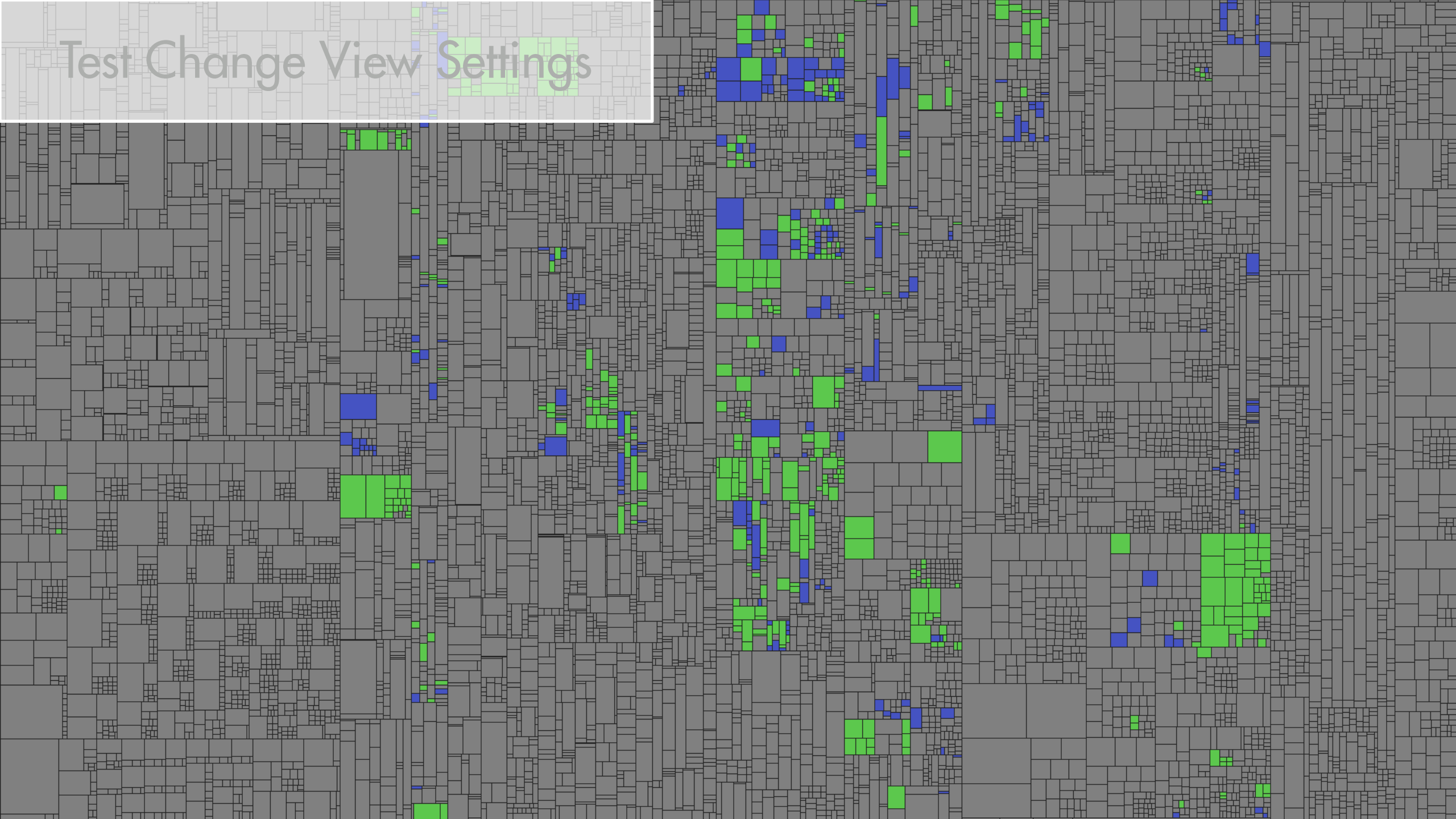
Results for Test Query & Budget Restriction

Relative Coverage: 0%, Selected Tests: 0 out of 236 (0%)

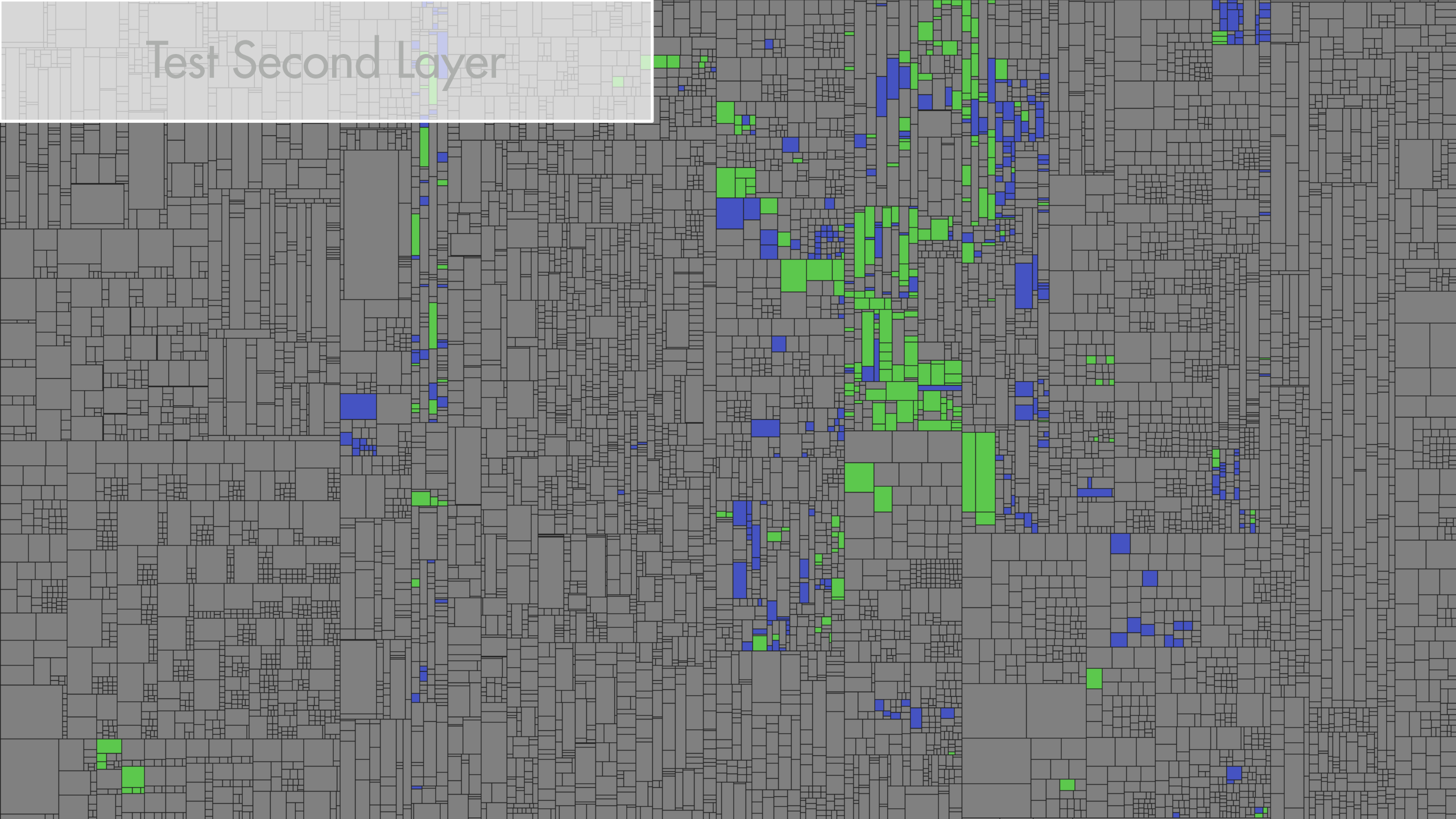
Test Create and Modify Selection



Test Change View Settings

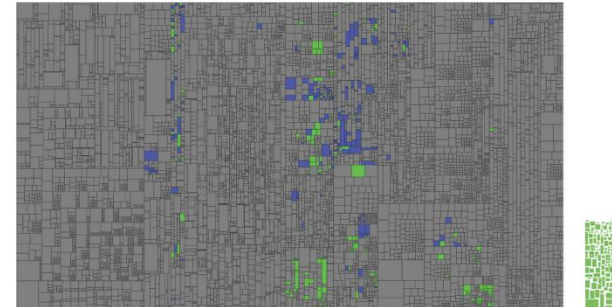
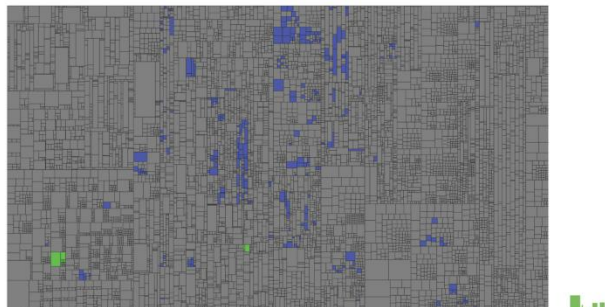
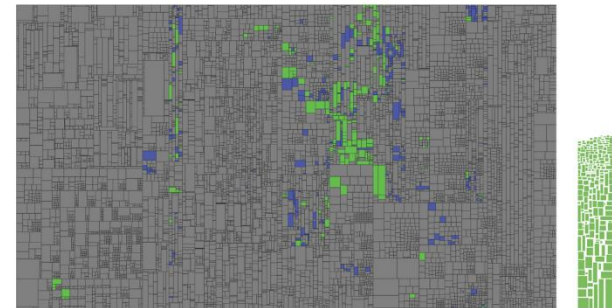
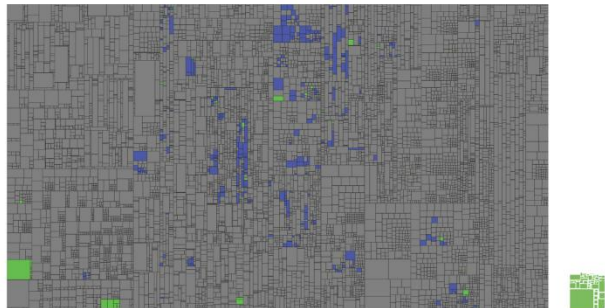
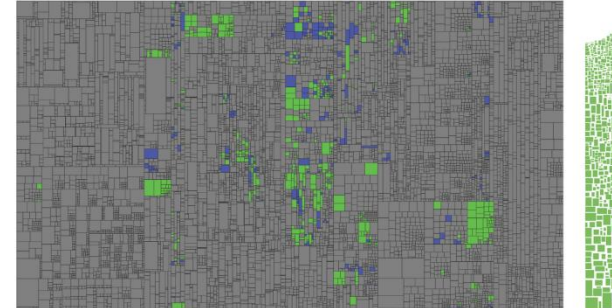
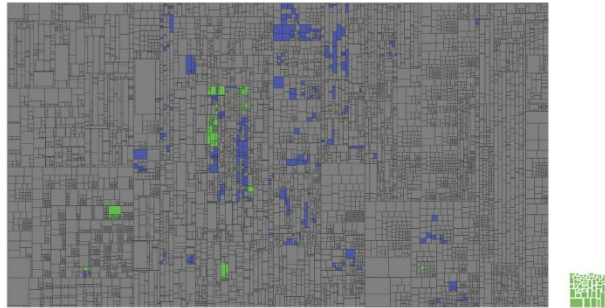
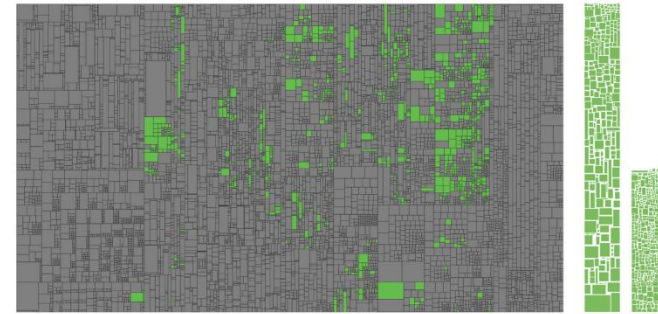
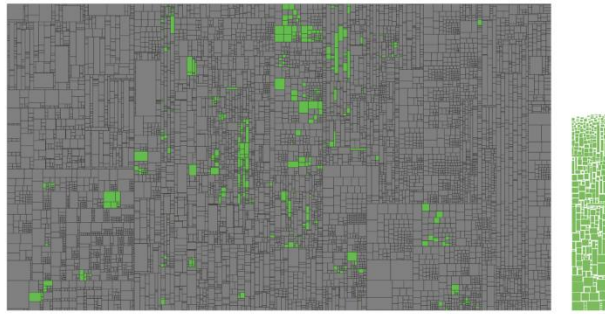


Test Second Layer

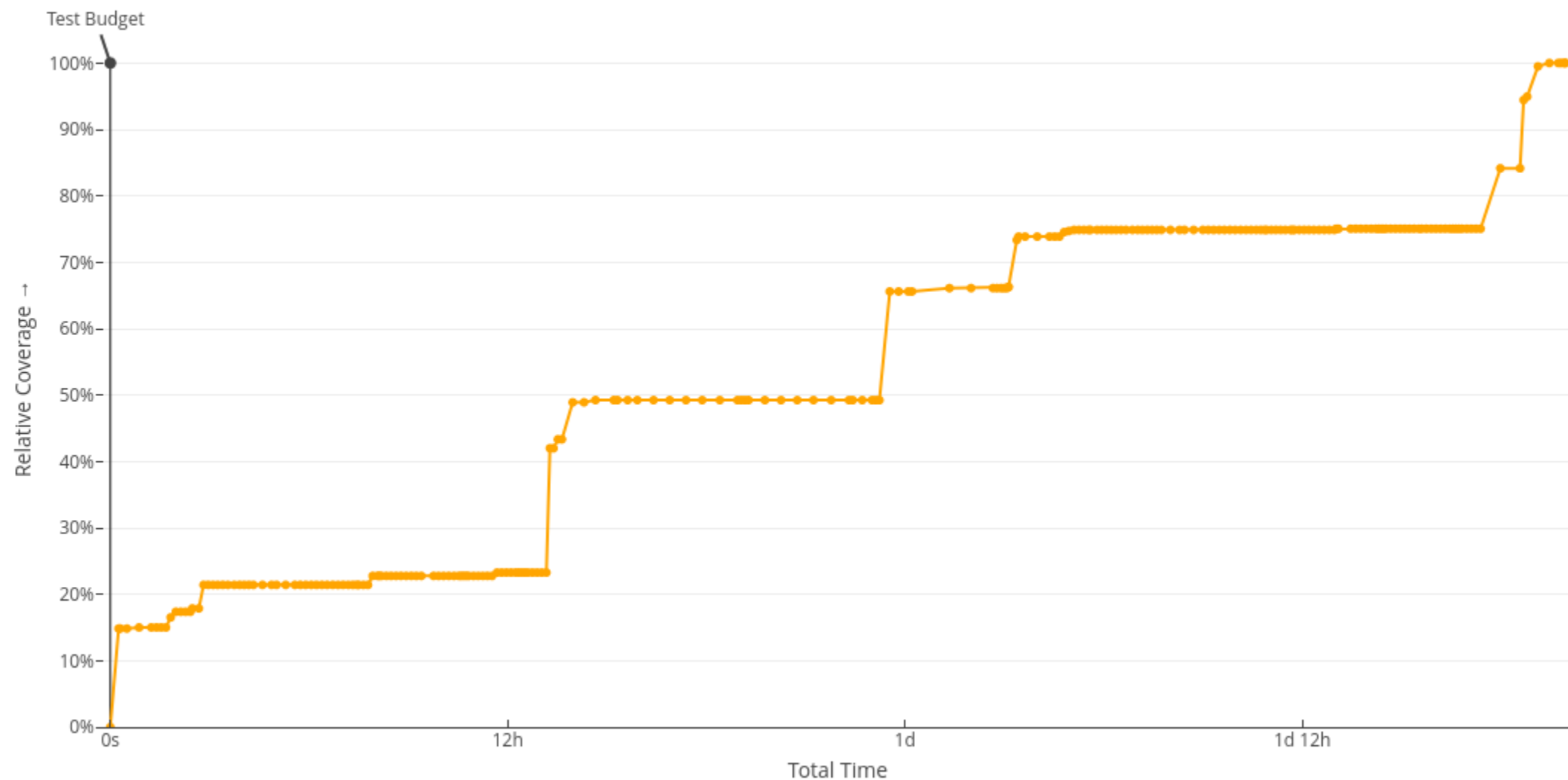


Test Save Image





Coverage over Time ?

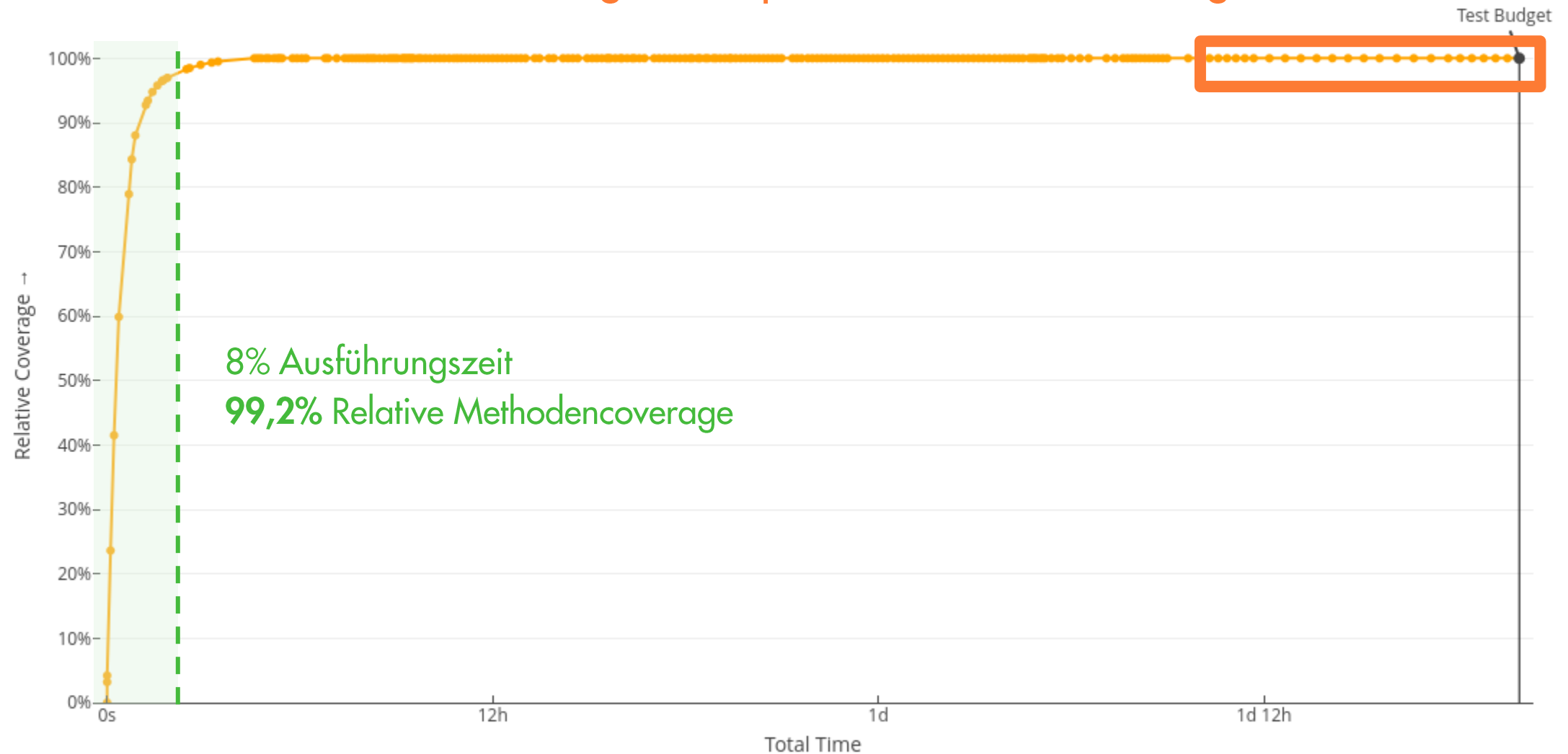


Results for Test Query & Budget Restriction

Relative Coverage: 0%, Selected Tests: 0 out of 236 (0%)

Coverage der optimierten Testreihenfolge

Coverage over Time ?



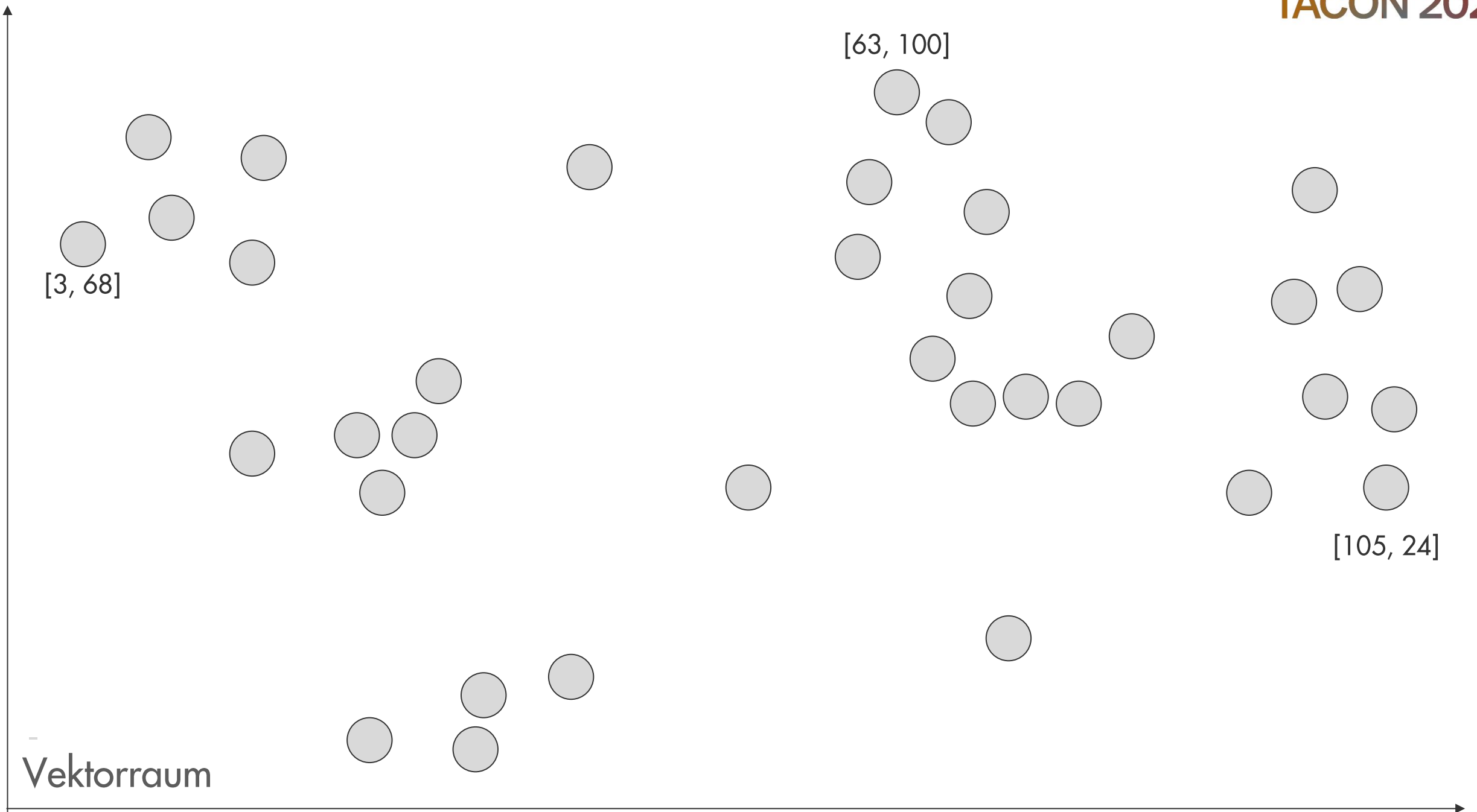
8% Ausführungszeit

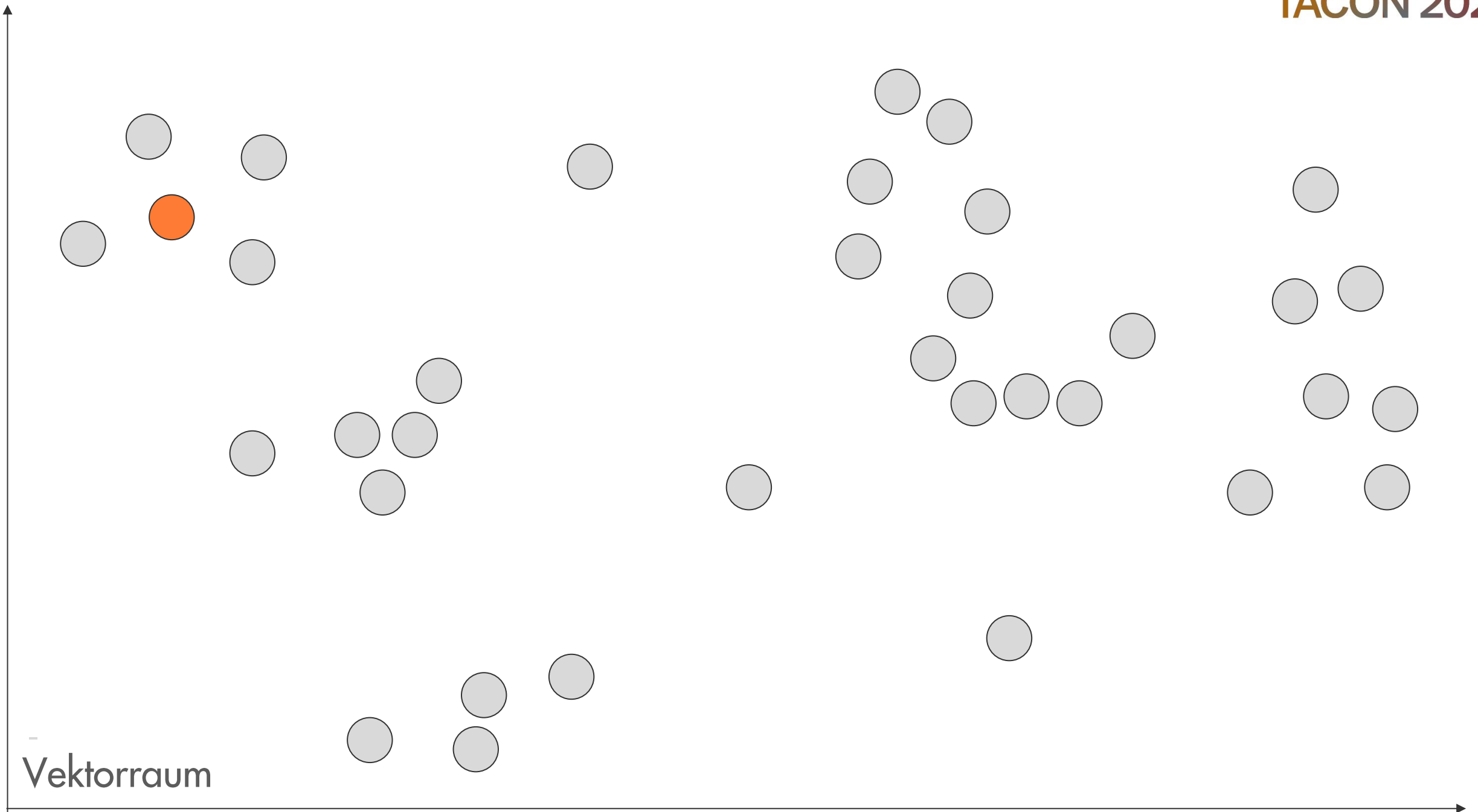
99,2% Relative Methodencoverage

Results for Test Query & Budget Restriction

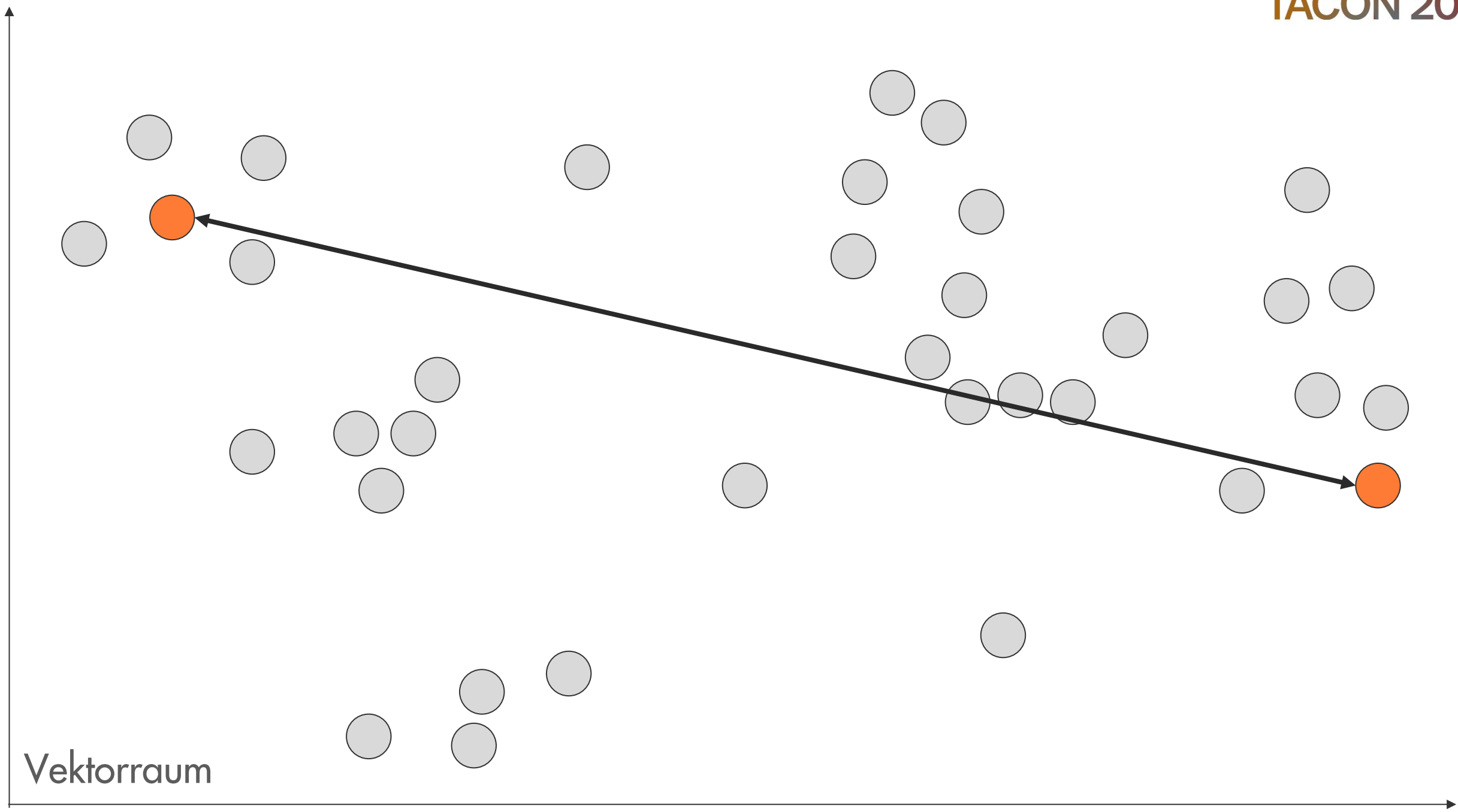
Relative Coverage: 100%, Selected Tests: 236 out of 236 (100%)

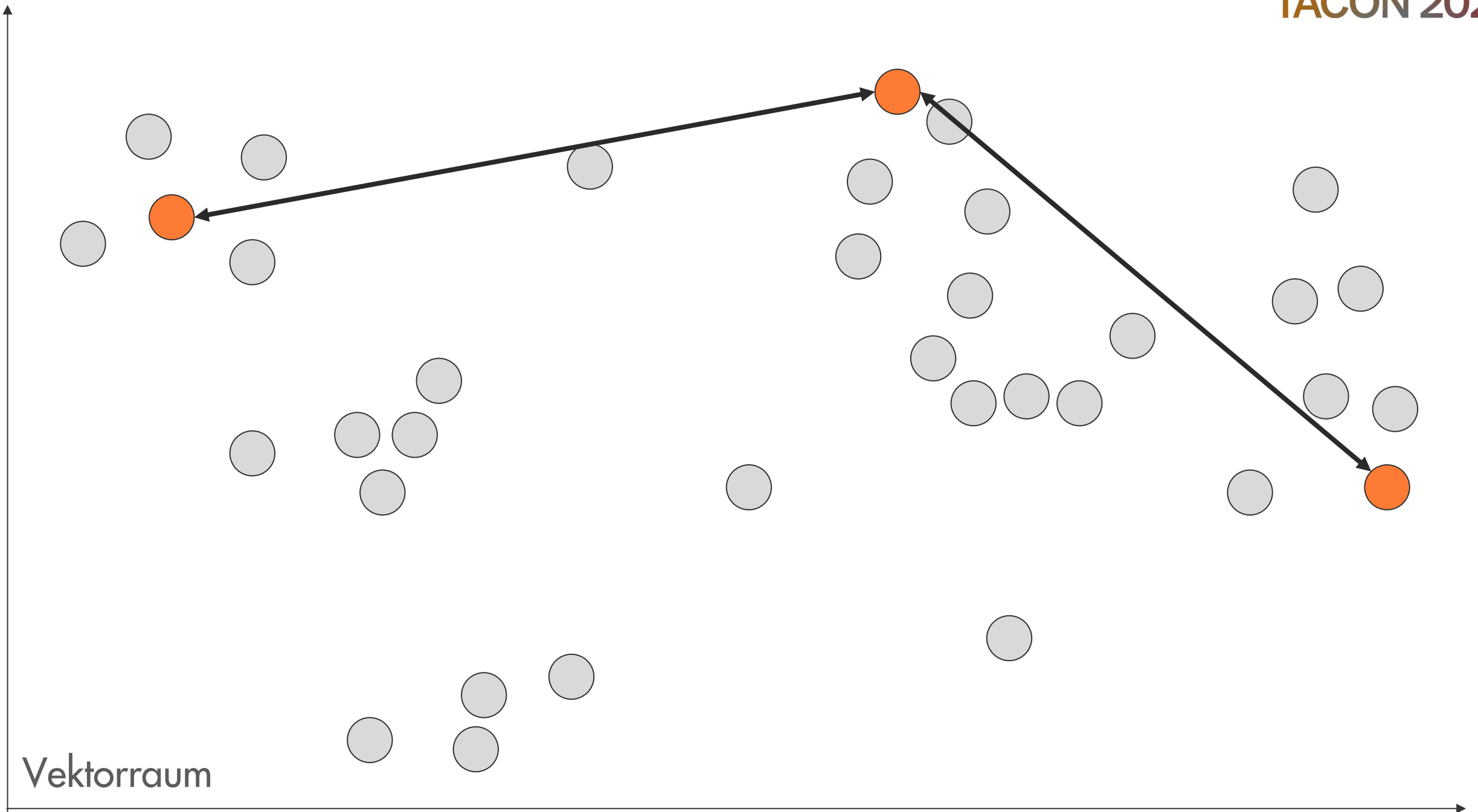
Wie können wir diese Tests
einfach identifizieren?

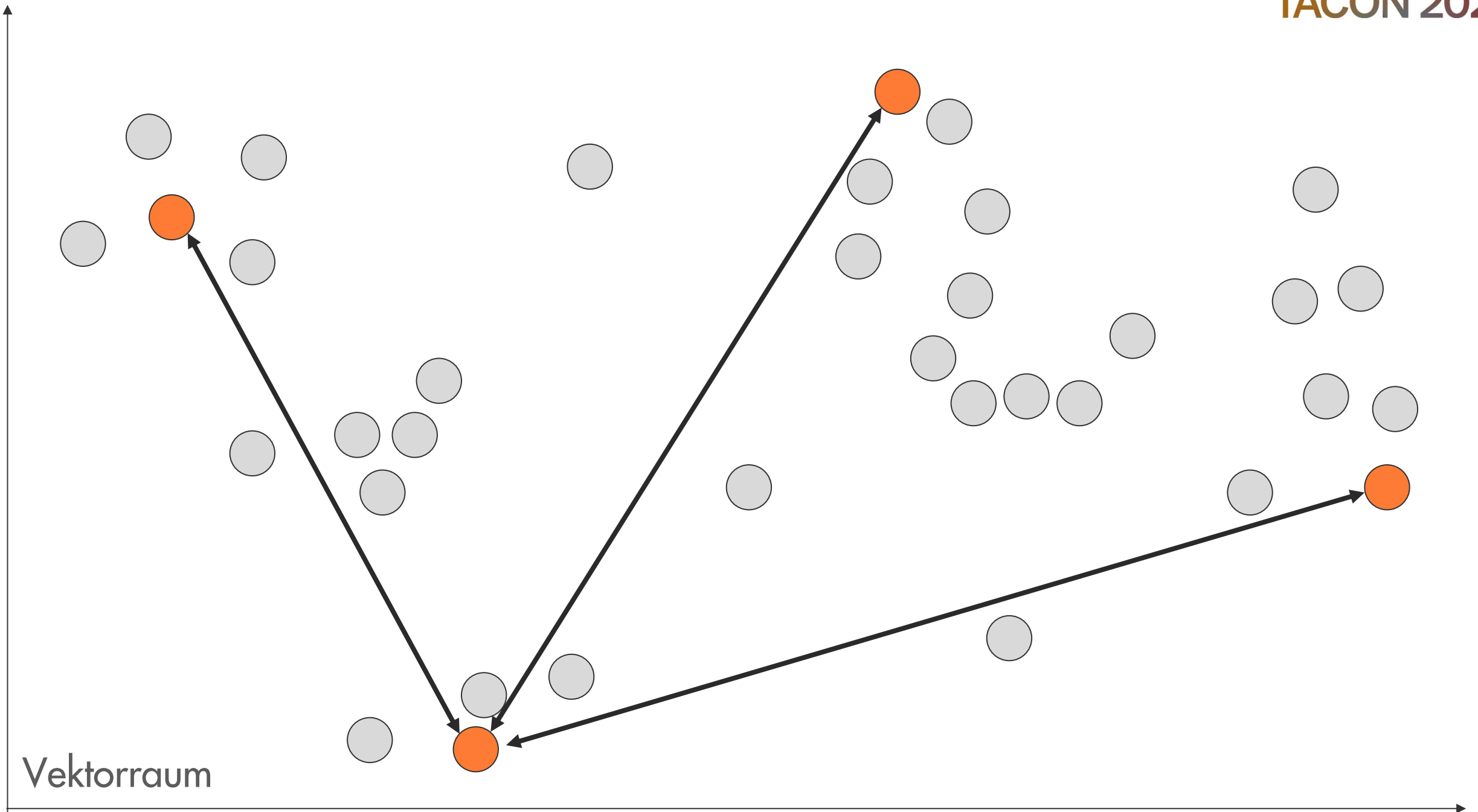




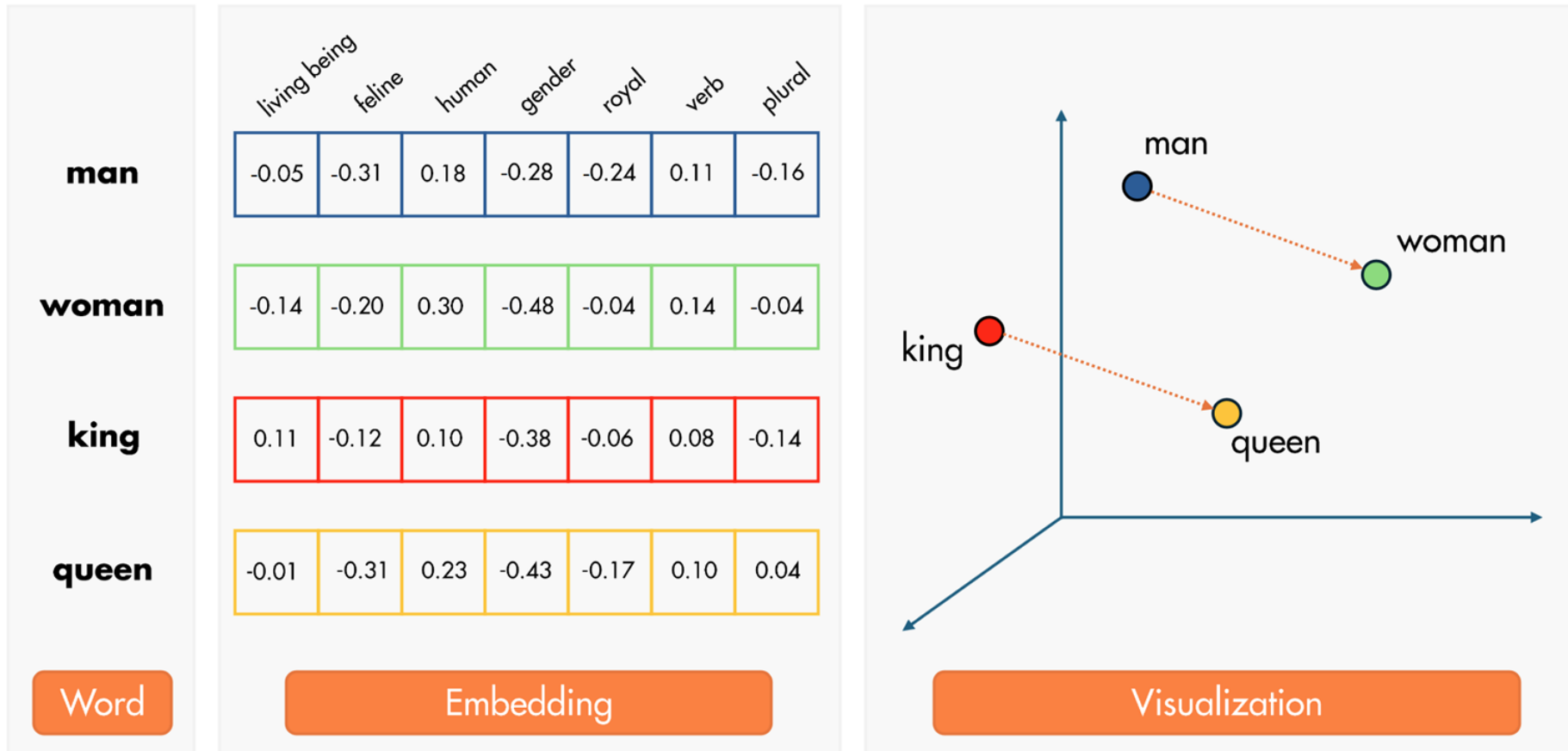
Vektorraum

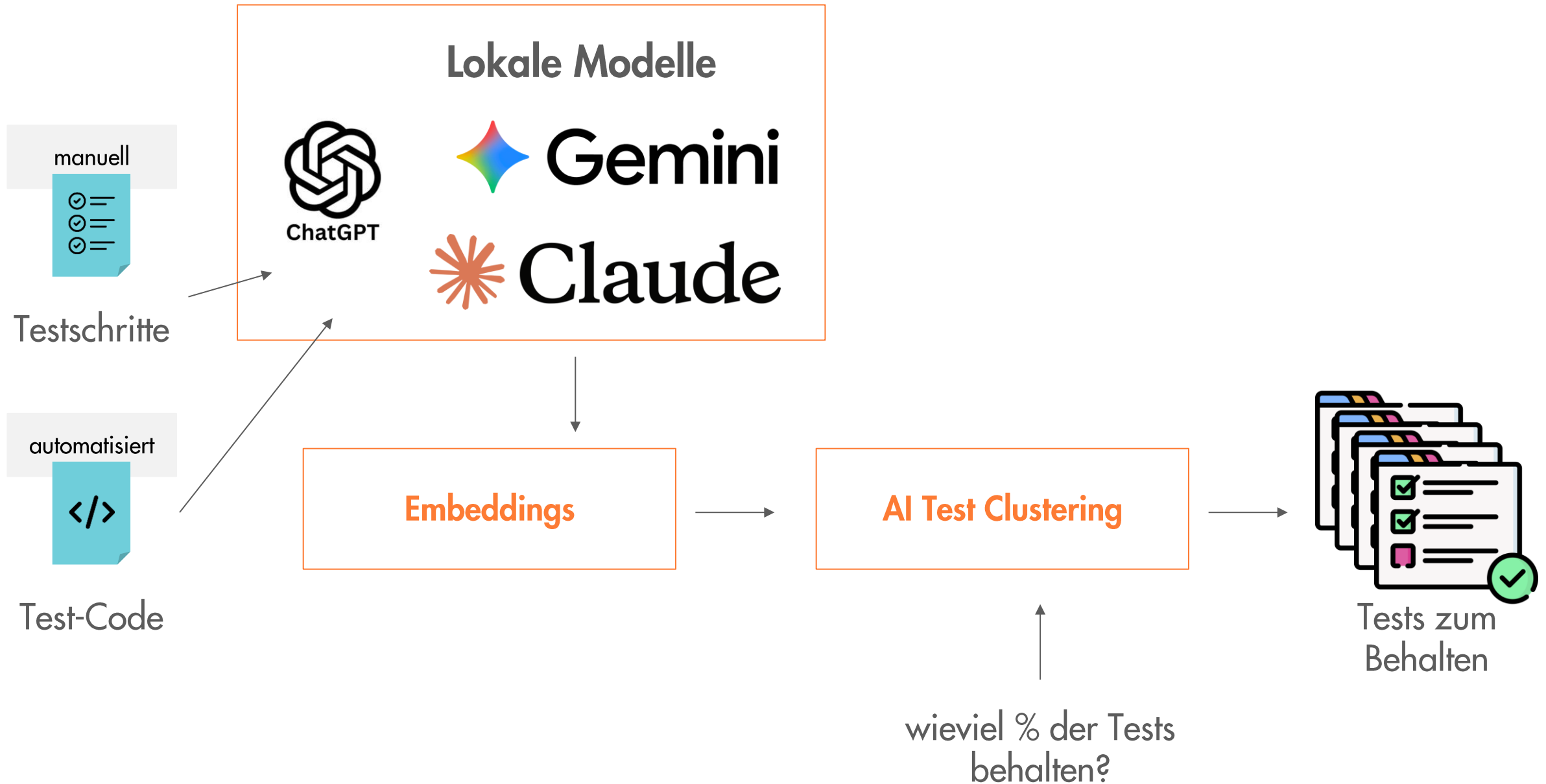






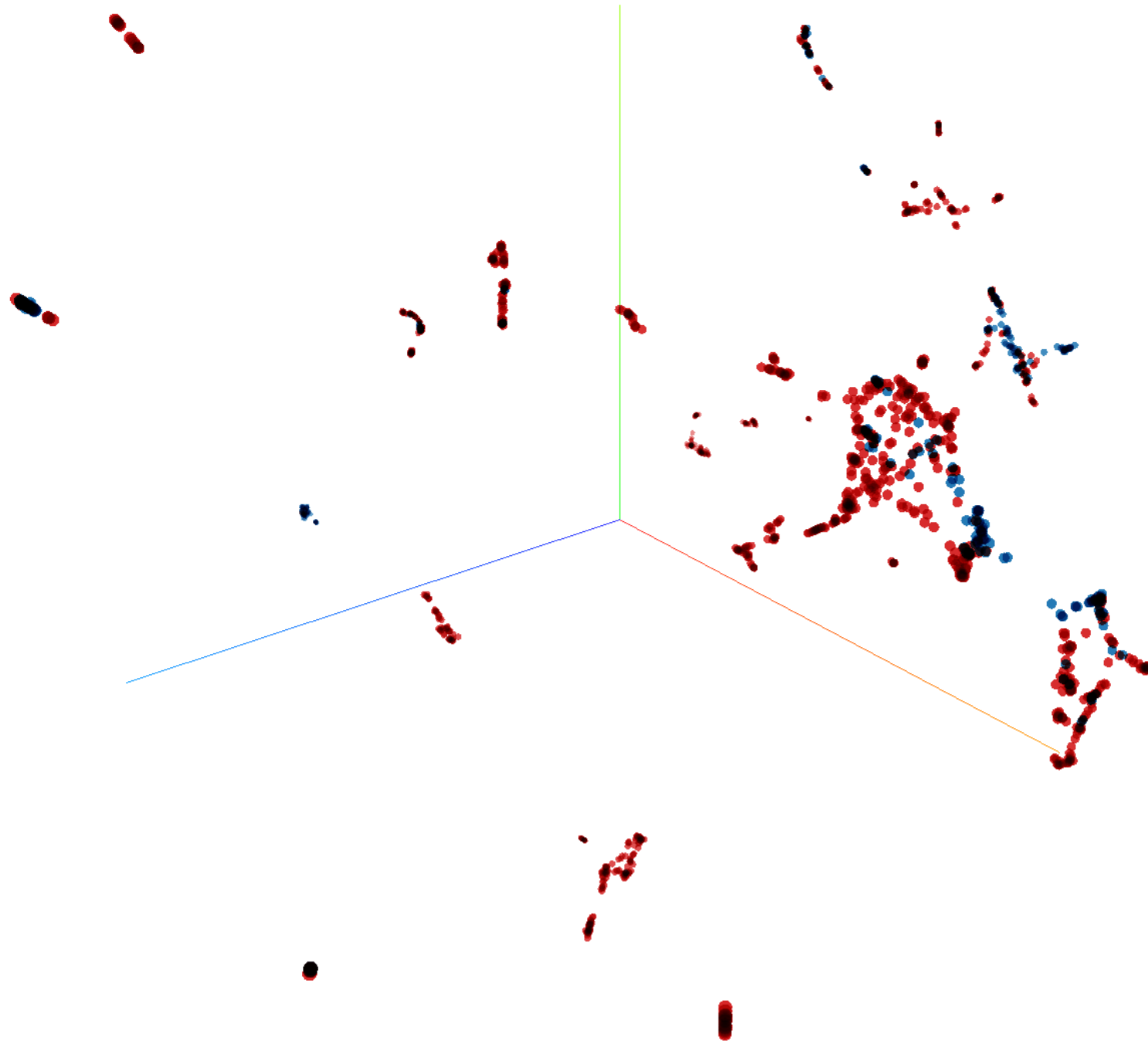
Large Language ("AI") Modelle



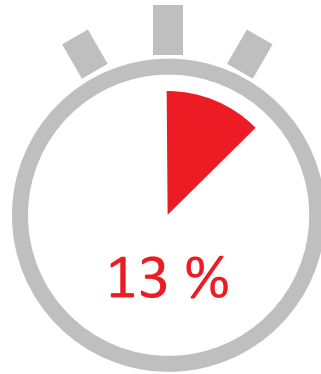


1700 Tests

20% Selektion



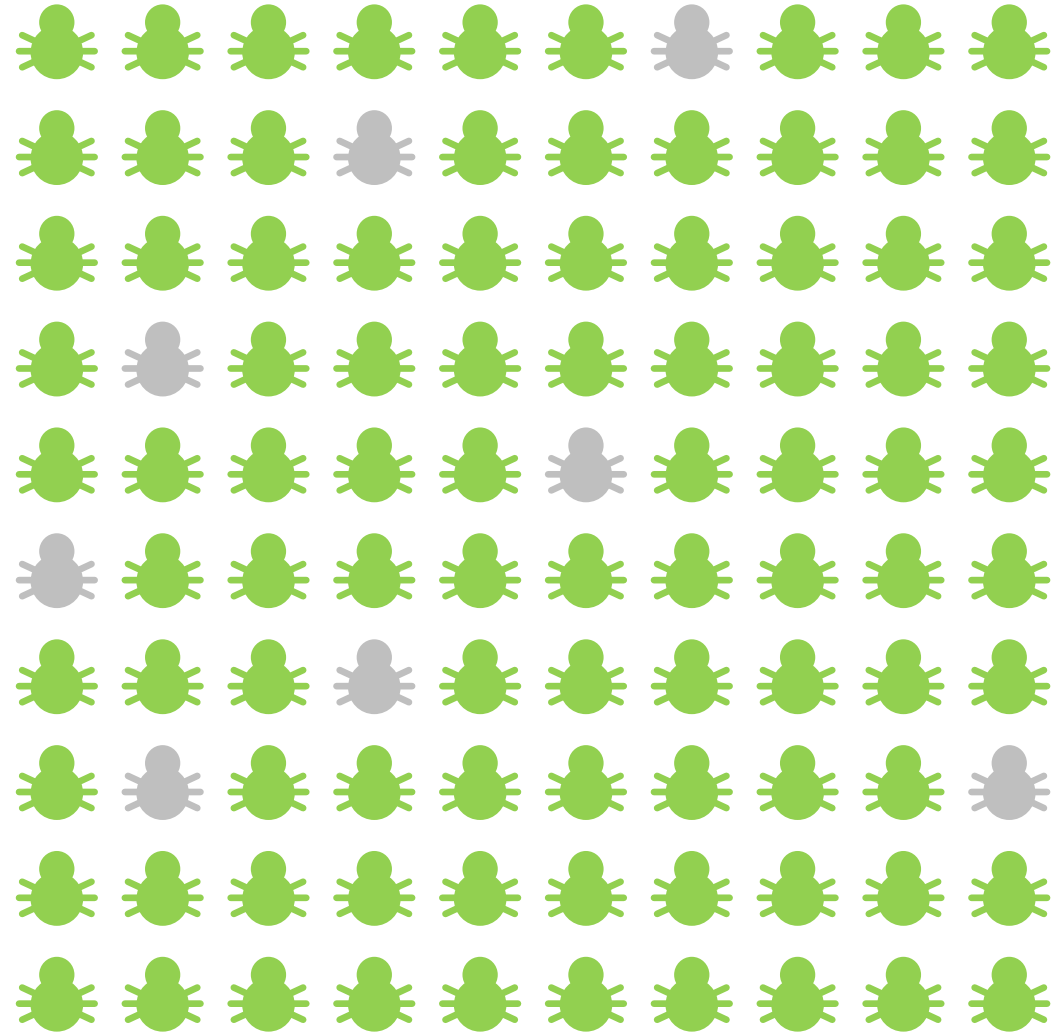
AI Test Clustering



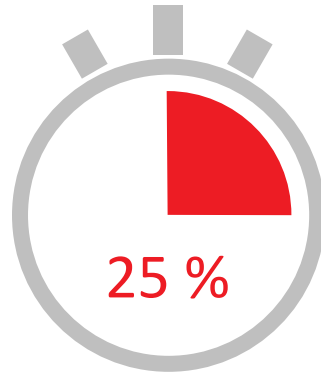
13 %



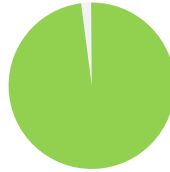
90 %

Wartungsaufwand**Migrationskosten****Automatisierungskosten**

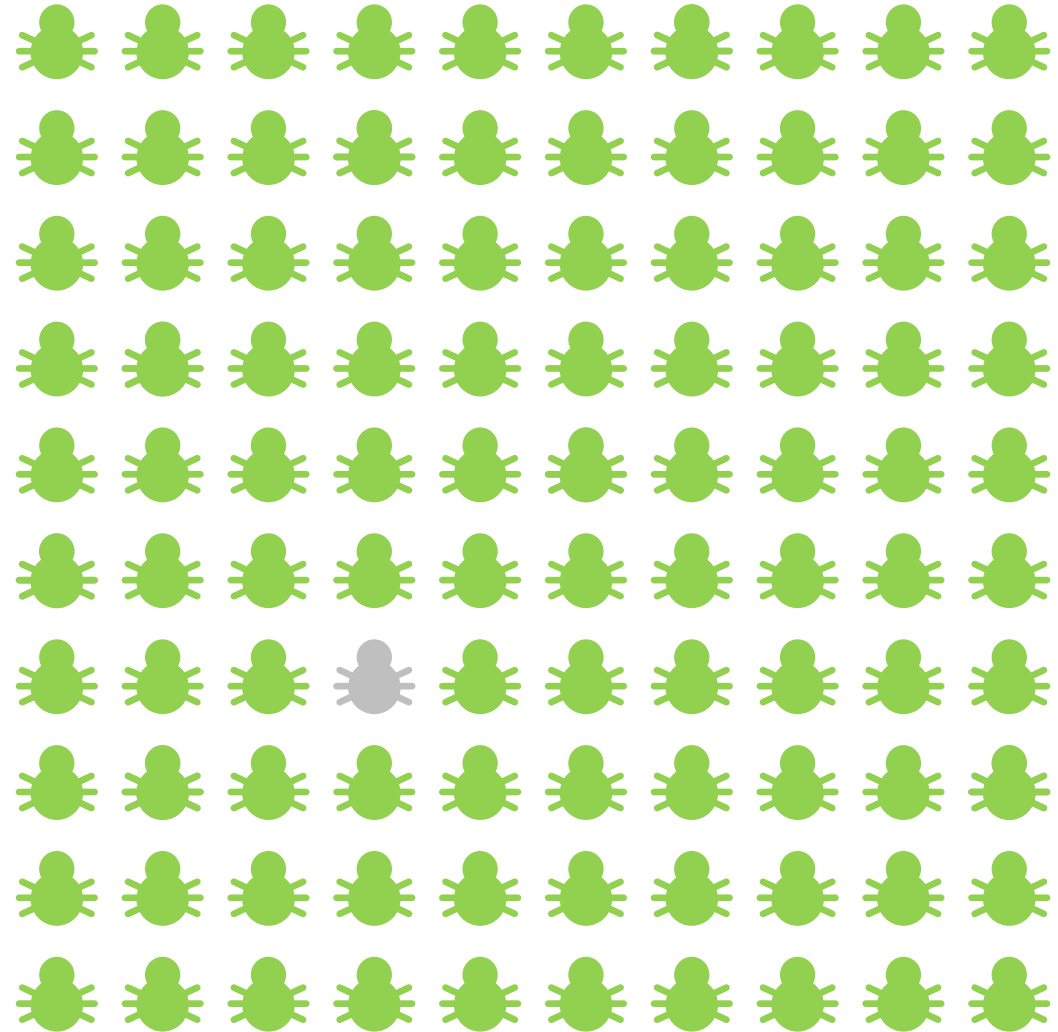
AI Test Clustering

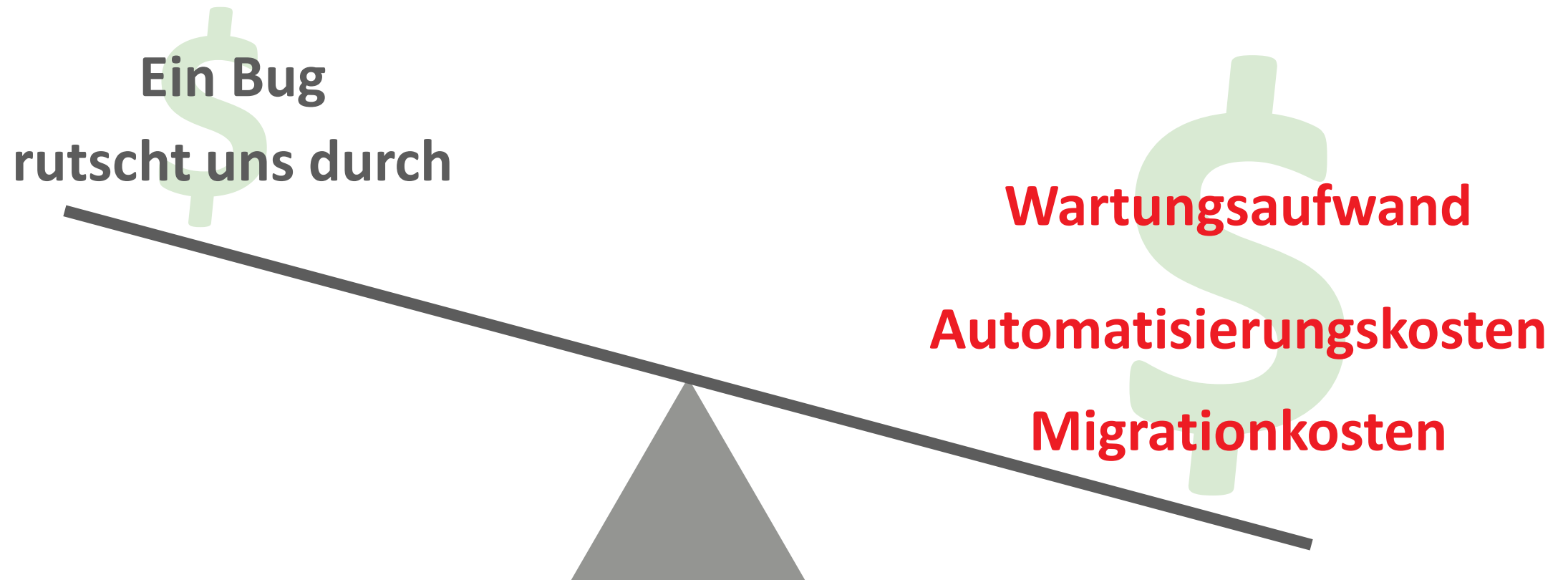


25 %



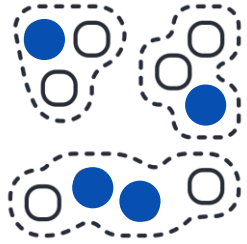
99 %

Wartungsaufwand**Migrationskosten****Automatisierungskosten**

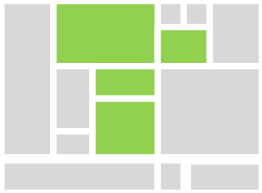


Wie sieht das **in der Praxis** aus?

**Finanzdienstleister:
Business-Informationssystem
Test-Suite Migration**



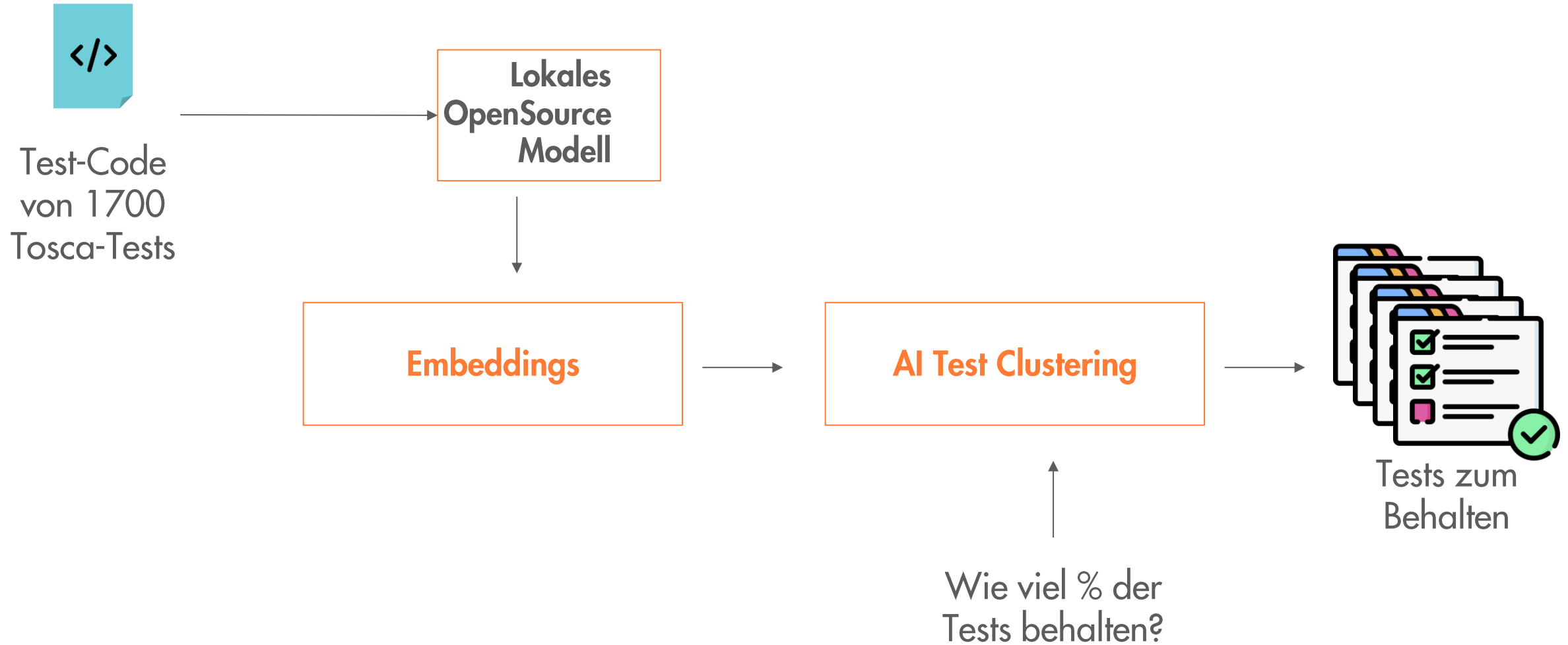
Cluster & Auswahl

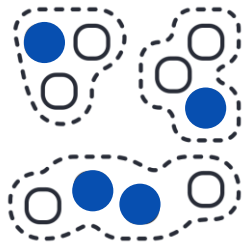


Coverage

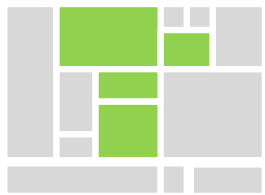


Bugs





Cluster & Auswahl



Coverage

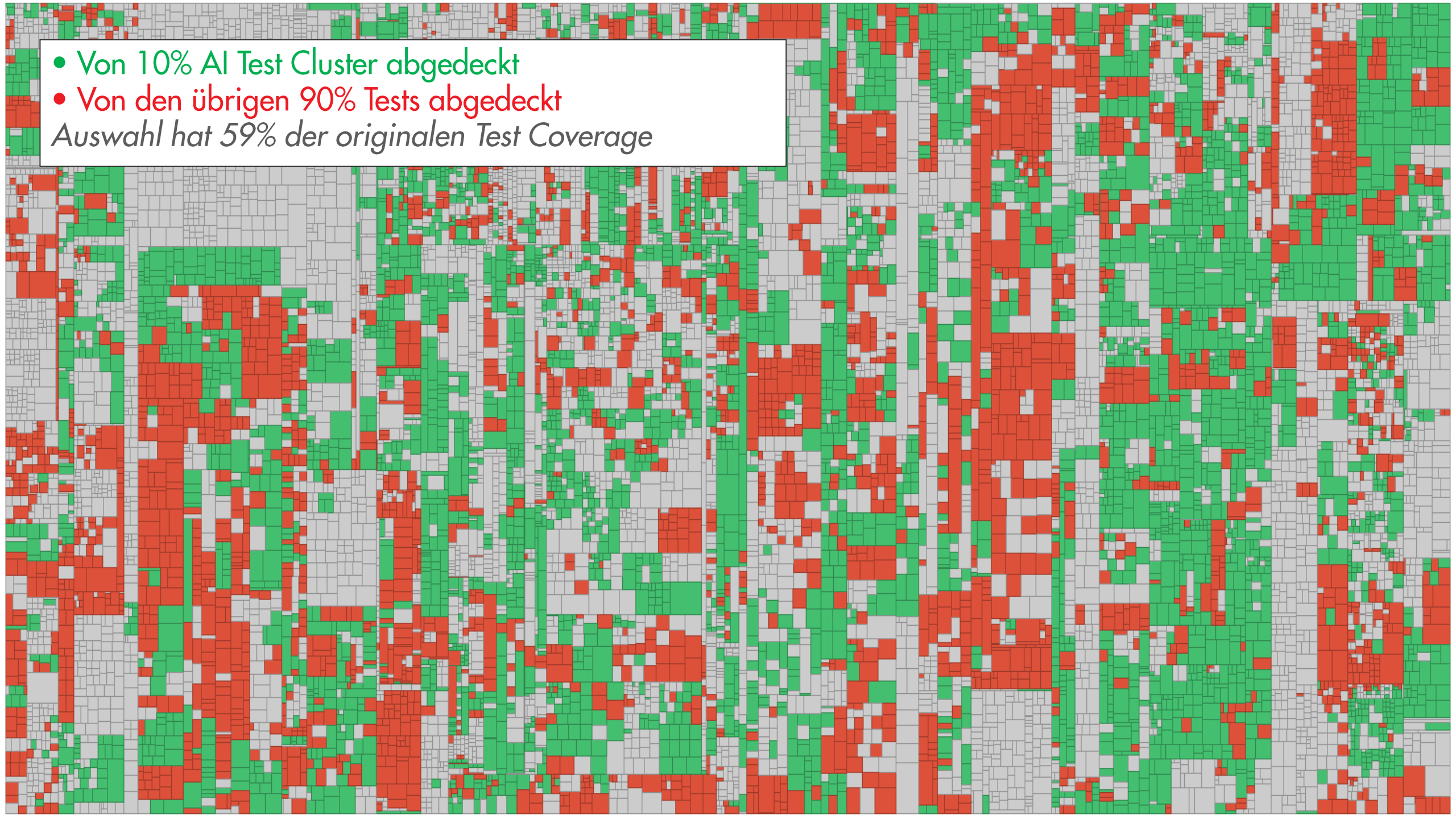


Bugs

- Von 10% AI Test Cluster abgedeckt

- Von den übrigen 90% Tests abgedeckt

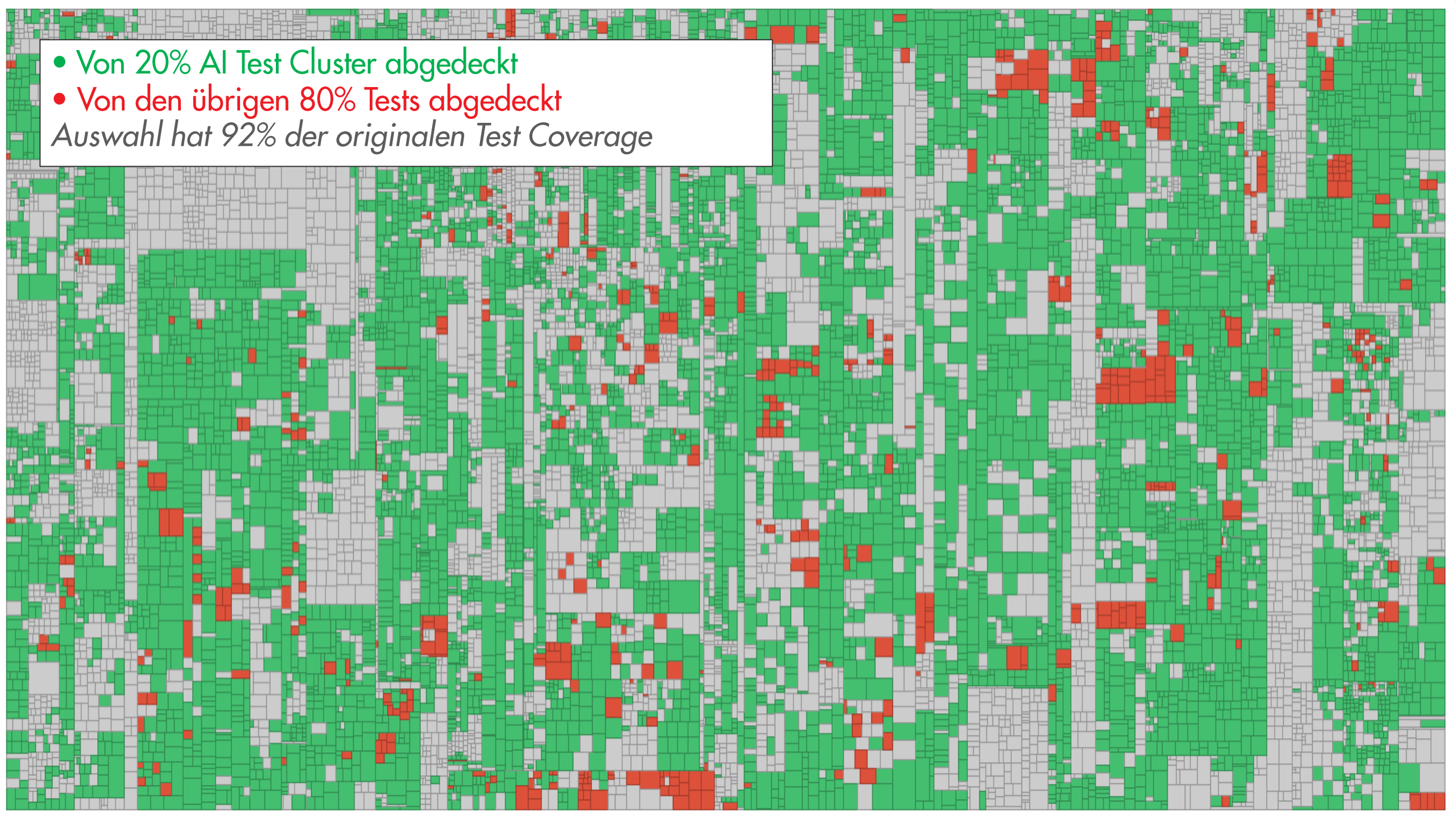
Auswahl hat 59% der originalen Test Coverage

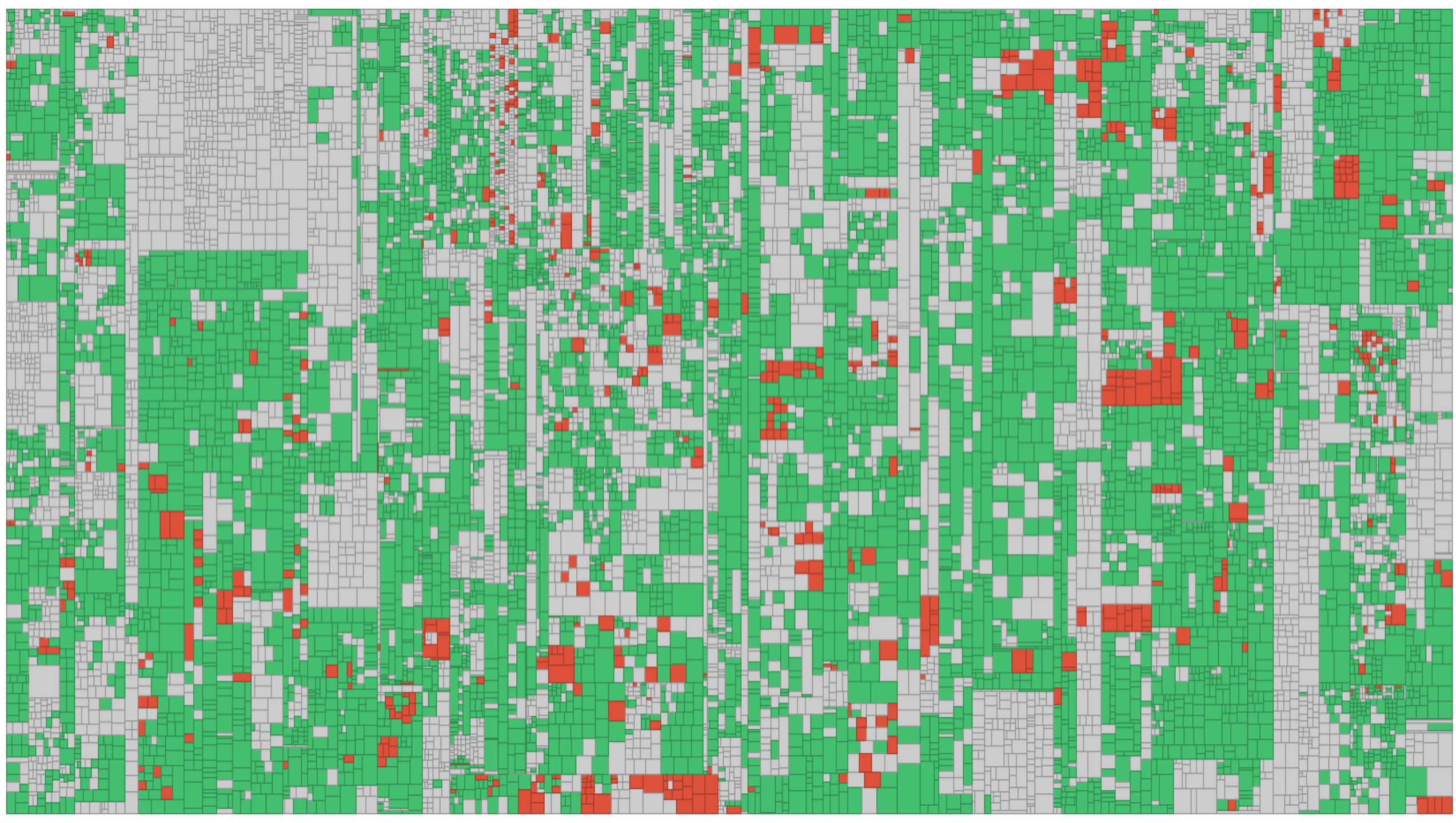


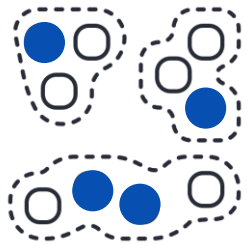
- Von 20% AI Test Cluster abgedeckt

- Von den übrigen 80% Tests abgedeckt

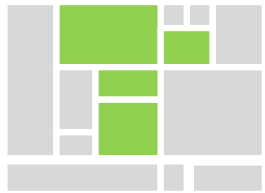
Auswahl hat 92% der originalen Test Coverage







Cluster & Auswahl



Coverage



Bugs



Quarantäne & Evaluierung

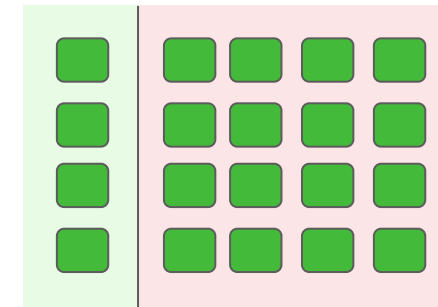
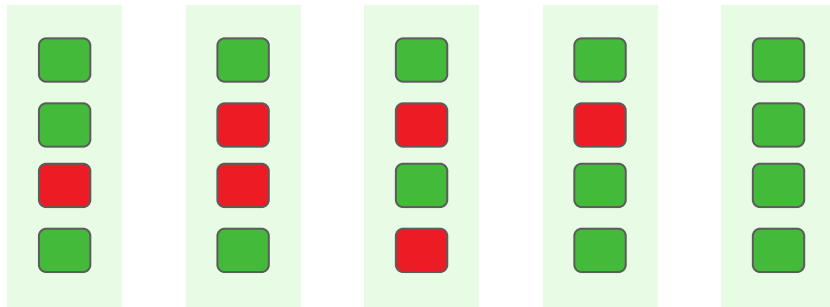


AI Test Clustering Mo - Fr

Wochenende

20%

Alle Tests



Ergebnis

37

Personentage / Jahr

weniger Aufwand für Release-
Tests

> 400

Personentage

Einsparung beim
Migrationsaufwand

The Smart Migration Playbook

Kostenloser Zugang hier:



Business-Information-System II

Shift Left

Industriebeispiel

Vorher: **nächtlich „Re-run all“**

Feedback spät am nächsten Tag



Mit nur 5% Test-Zeit-
Budget finden wir
**70% der fehlerhaften
Commits**



Untertags: **1h Test-Budget mit minimierter Testsuite**



Nächtlich: **„Re-run all“**



Zusammenfassung

Historisch gewachsene Test-Suites sind hoch redundant.

AI Test Clustering kann den wertvollen Kern an Tests identifizieren, der in kurzer Zeit die meisten Fehler findet.

In vielen Fällen ist es besser, die bestehenden Lücken mit neuen Tests zu schließen, als blind alle Tests zu migrieren.

12:40 - 13:00 | STAGE 2 | PITCH

Tschüss, Altlasten: So schrumpfen wir mit wenig Aufwand unsere Testsuite auf das Wesentliche!



Ramona Kühn

Beraterin für Software- und Systems-Engineering | CQSE GmbH



Stefan Brand

Berater für Softwarequalität | CQSE GmbH

Danke fürs Zuhören

Hier gibt's die Folien und Updates

