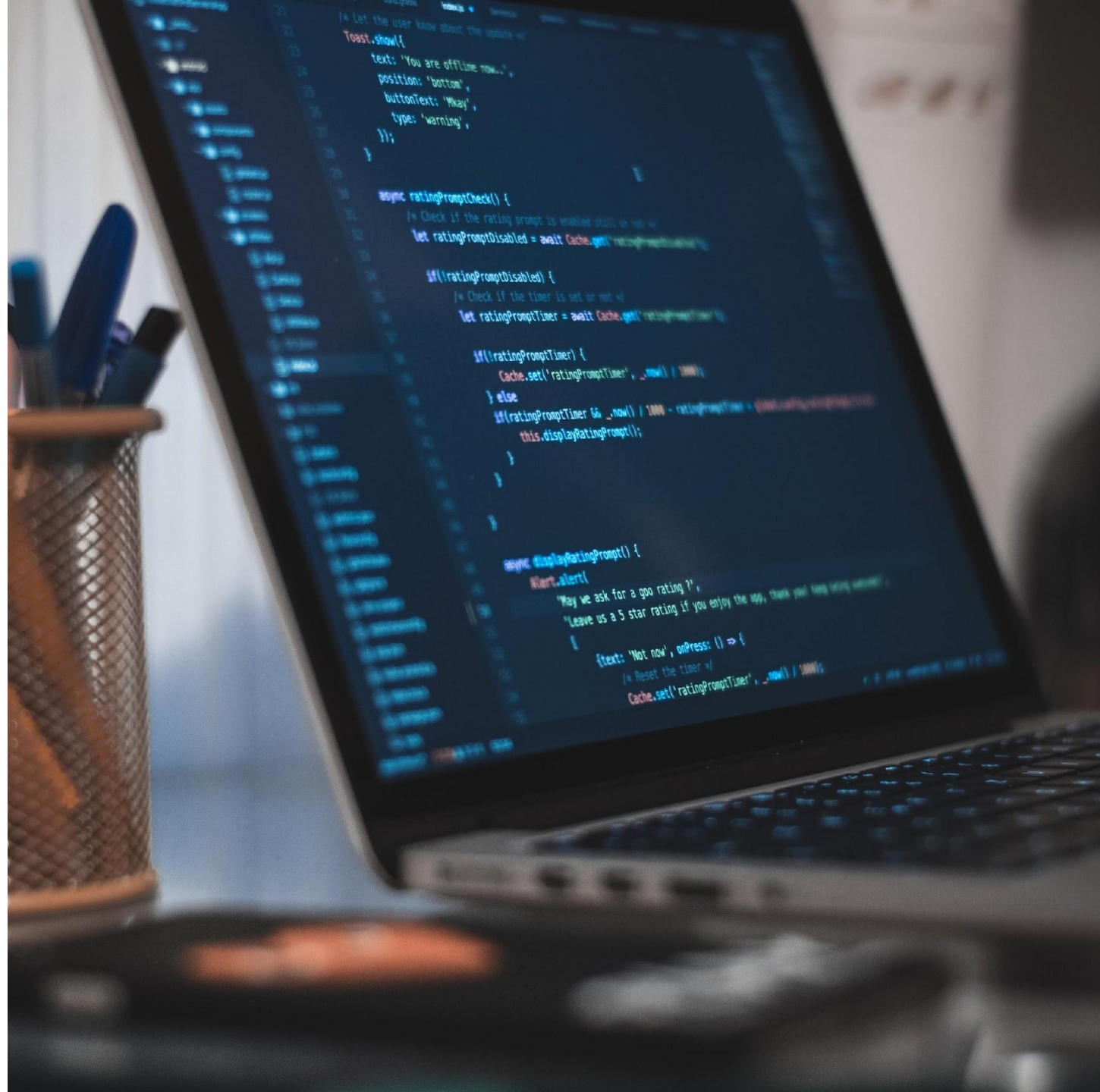




Transparenz für die gesamte Testpyramide

Allianz Technology

Wien,
April 23, 2024



Agenda

1 Testen wir das richtige? Testen wir zu wenig? Zu viel?

2 Test-Gap-Analyse: wie funktioniert das?

3 Ergebnisse und Verbesserungen durch die Analyse

Wie entwickeln und testen wir Software?

Globales Unternehmen & Delivery Centers

Globale Teams mit E2E Verantwortung

Harmonisierter Toolstack

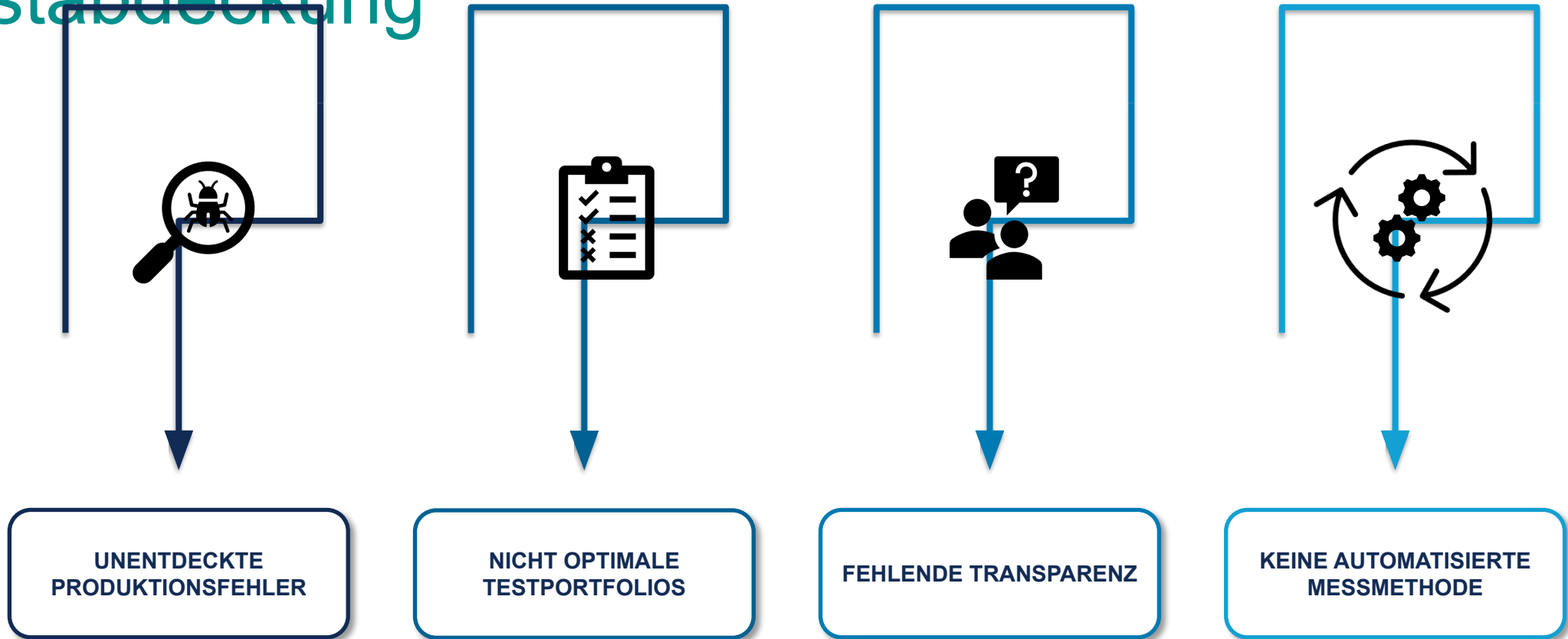
Automatisierung von Prozessen

Qualitätssicherung

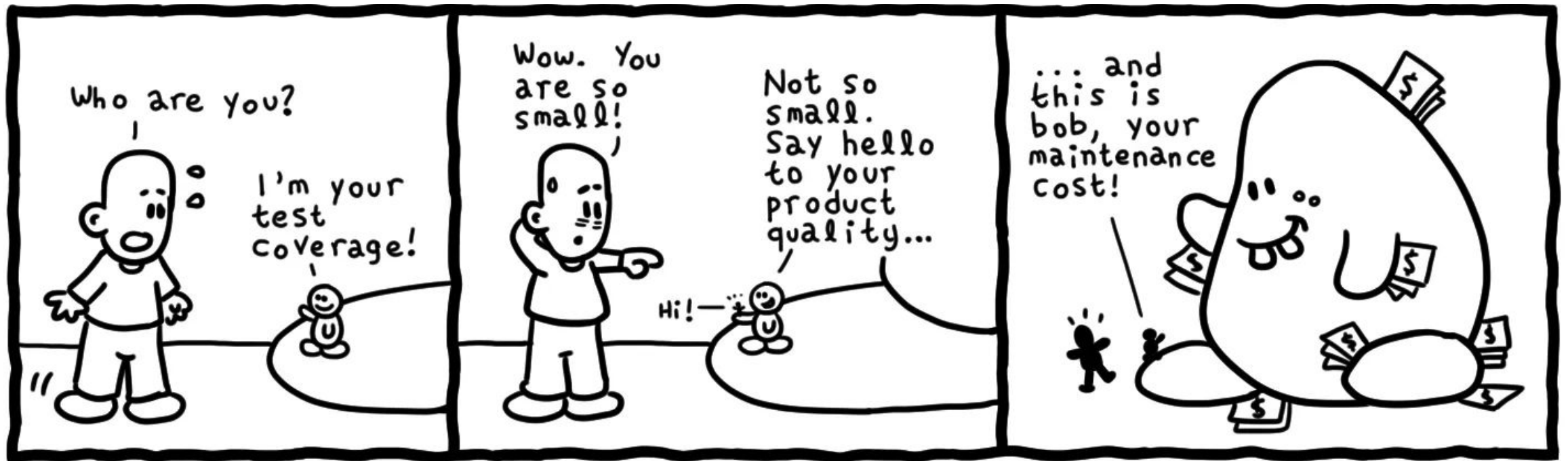
Fünf führende Testprinzipien



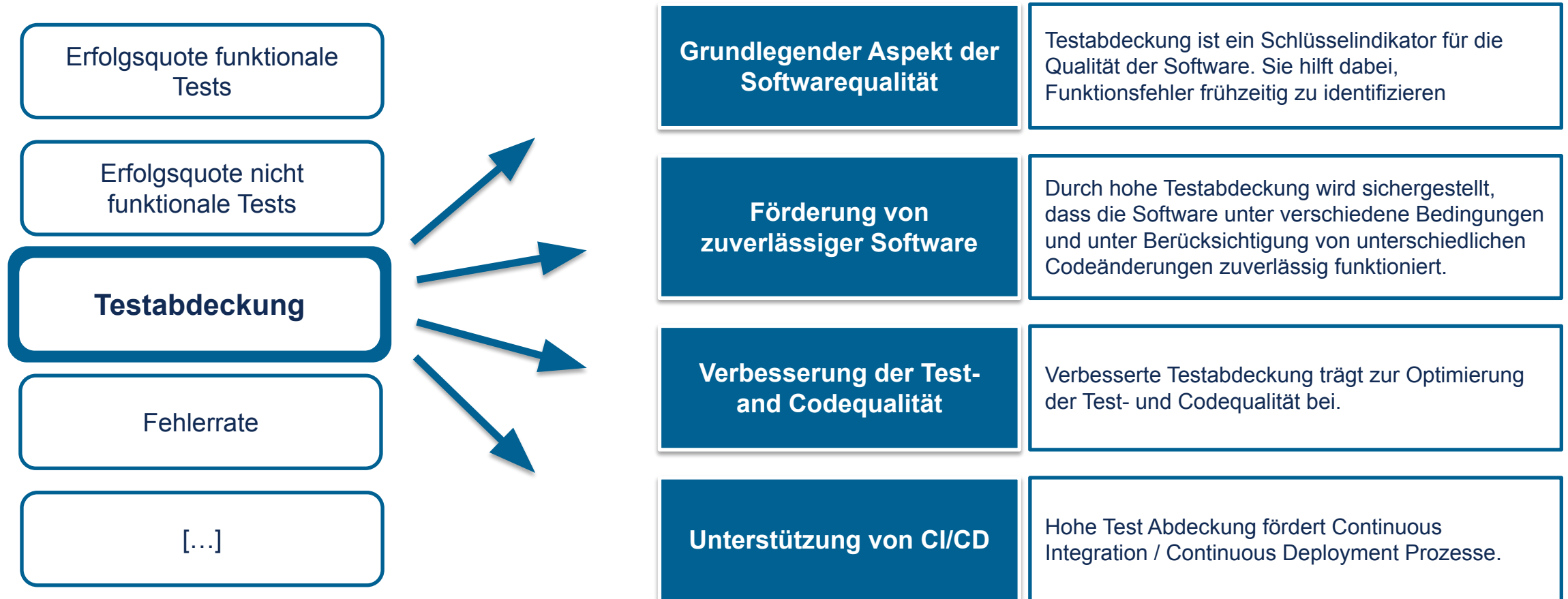
Herausforderungen vor Messung der Testabdeckung



Wozu führt eine geringe Testabdeckung?



Testabdeckung als entscheidende Testmetrik



Jira Software Dashboards Projects Issues Boards Create Search

CQSE Additions are active Open Issue in Teamscale

Denali Next Board ↕

Backlog

QUICK FILTERS: Only My Issues Recently Updated

Denali Sprint 4 20 issues ACTIVE 10 7 3

+2 ... 30/Jul/20 3:49 PM · 13/Aug/20 3:49 PM [View linked pages](#)

2 weeks until 14.08.

	TS-21509 TGA Trend numbers do not match TGA treemap and Test perspective	Teamscale 6.1.3
	TS-23631 C/C++: False-positive with "Null pointer dereference" check when variables have the same names as struct members	Teamscale 6.1.3
	TS-23630 C/C++: False-positive with Unused parameter (dataflow) check when using __unused	Teamscale 6.1.3
	TS-23597 C/C++: False-positive with "Unused variable or parameter" check (dataflow) when writing	Teamscale 6.1.3
	TS-22861 Multi-selection pre-commit analysis (all projects in same SVN checkout) sometimes misses files	Teamscale 6.0.9
	TS-23711 Performance of the process-based clang-tidy integration is low	Teamscale 6.1.3
	TS-23768 IndexOutOfBoundsException in check 'Don't assign to wider essential type'	Teamscale 6.1.3
	TS-23852 C++: Teamscale preprocessor confuses macro call with constructor call	Teamscale 6.1.3
	TS-23866 StructuringAnalysis: Expecting metric value for edited path	Teamscale 6.1.3
	TS-23367 Code Coverage for Go (implement report parser)	Teamscale 6.2
	TS-19211 Coverage upload not integrated when backup is downloaded during running analysis and before upload is processed	
	TS-22210 Error in ExternalAnalysisResultsPersister: Predecessor commits [...] can't come after commit ...	Teamscale 6.0.9
	TS-21687 TGA: Merge Commits should show method changes	merge-request-tga
	TS-23137 Some tests fail with "Global Role Assignments" tab not clickable	Teamscale 6.0.9
	TS-23949 PL/SQL parser: define not parsed correctly	Teamscale 6.1.3
	TS-23584 [Seidenader EPS] Arch Editor Implement "Focus on transitive dependencies"	

**Weg von Anzahl Testfälle pro Anforderung
Hin zu Test Coverage pro Anforderung**

Änderungen



Test-Gap-Analyse

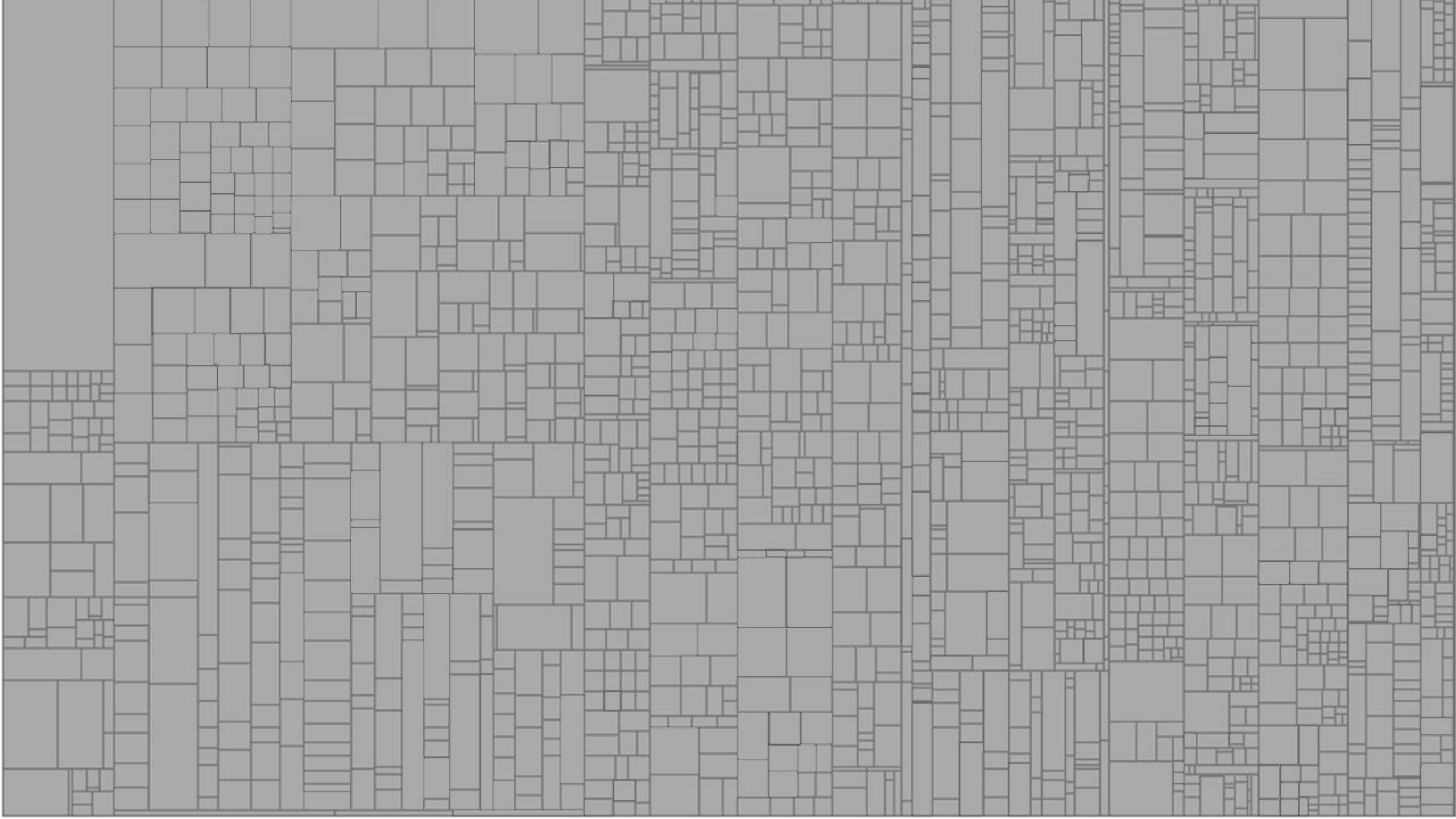


Ungetestete
Änderungen

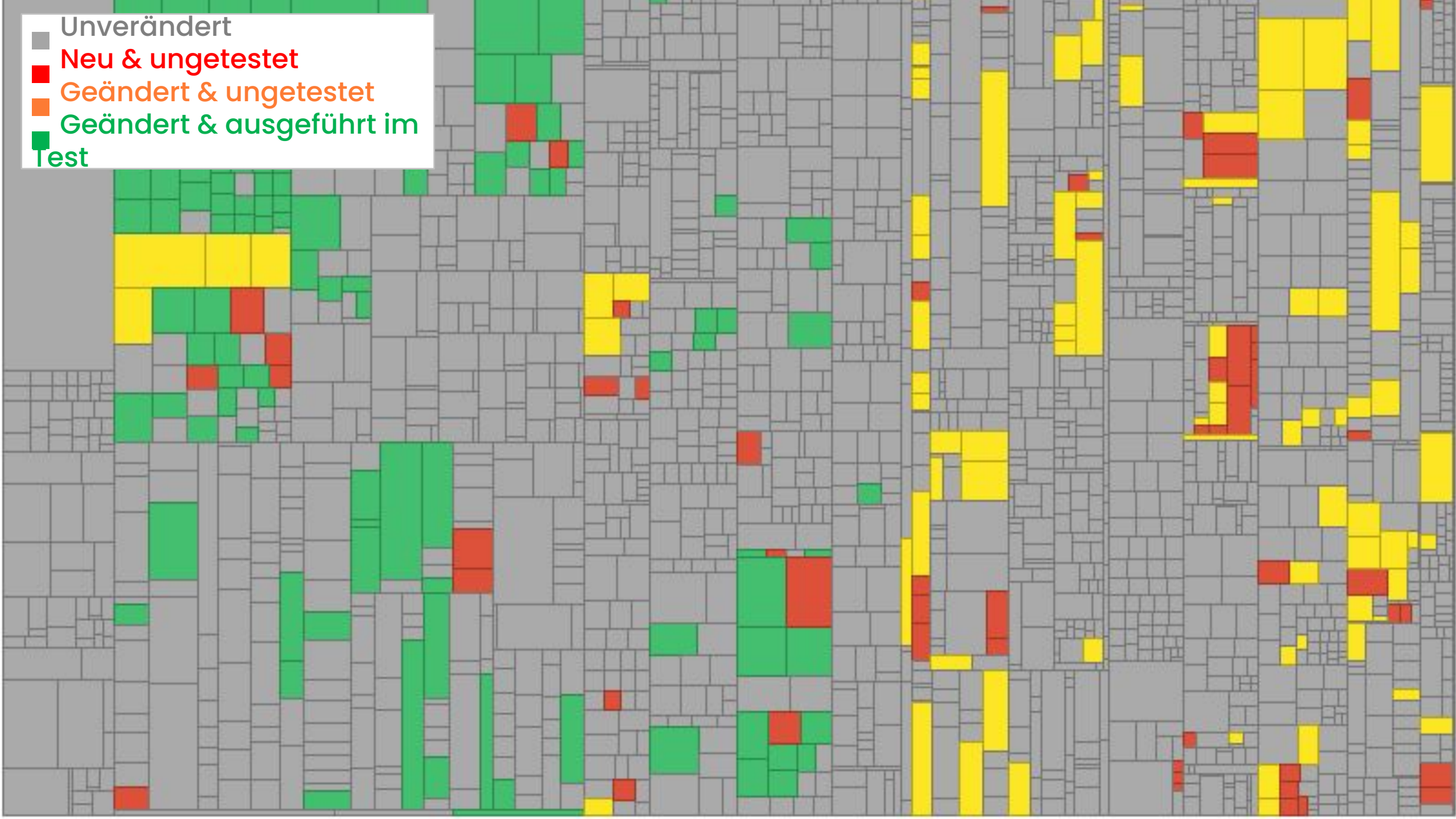
Ausführung



Manuelle & automatisierte Tests



- Unverändert
- Neu & ungetestet
- Geändert & ungetestet
- Geändert & ausgeführt im Test



Änderung



Test-Gap-Analyse

Ausführung



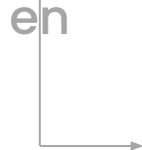
Ungetestete
Änderungen



Testfälle


















Entwickler, Tester,
Testmanager









100% Change Coverage

100% Change Coverage → 0 Fehler

Issue # ▾	Subject	Done		Test Gap
TS-10549	Undo/Redo for web-based architecture editor	Done		0% 
TS-10784	Fix long method finding in TaintAnalysisRunner	Done		0% 
TS-10923	Implement metric 'Nesting Depth' for Simulink	Done		29% 
TS-11364	External findings are not registered during first upload	Done		14% 
TS-11942	Manual test coverage upload during development	Done		43% 
TS-12262	Cannot set or alter alias without reanalysis	Done		0% 
TS-13151	Fetch parent relationship of TFS work items	Done		0% 

Issue # ▾	Subject		Test Gap
TS-14421	Get rid of TestGapSynchronizer block	Done 	0% 
TS-14733	Remove Dataflow blocks	Done 	22% 

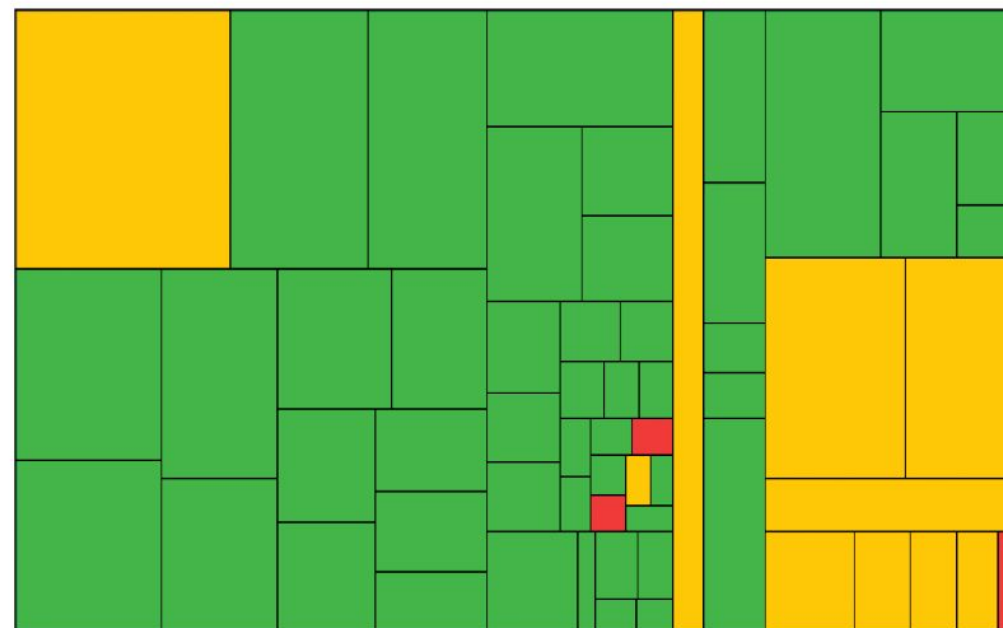
Done Issue TS-14733 - Remove Dataflow blocks

Creator:  (on Apr 06 2018 19:44) Last update: Aug 24 2018 09:32

Assignee: 

Project	Type	Priority	Resolution	Fix Version
TS	Maintenance	Normal	Green	Teamscale 4.5
Component	Labels	Affected Version	Customer	Customer Issue
Backend	Performance			
Epic Name	Freshdesk URL	Merge Request		
		https://git.cqse.eu/cqse/teamscale/3621		

Aug 15 2018 12:37–Now | Test Gap: 22%



Änderungen

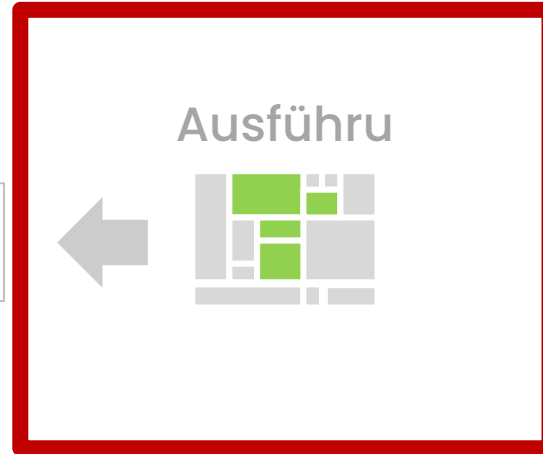


Test-Gap-Analyse

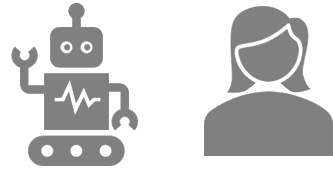


Ungetestete
Änderungen

Ausführung



Profiling des Java Backends bei der Allianz



automatisiert manuell

Testumgebung

Java Virtual Machine

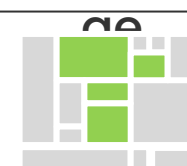
Java
Anwendung

instrumentiert

Umgebungs-
variable

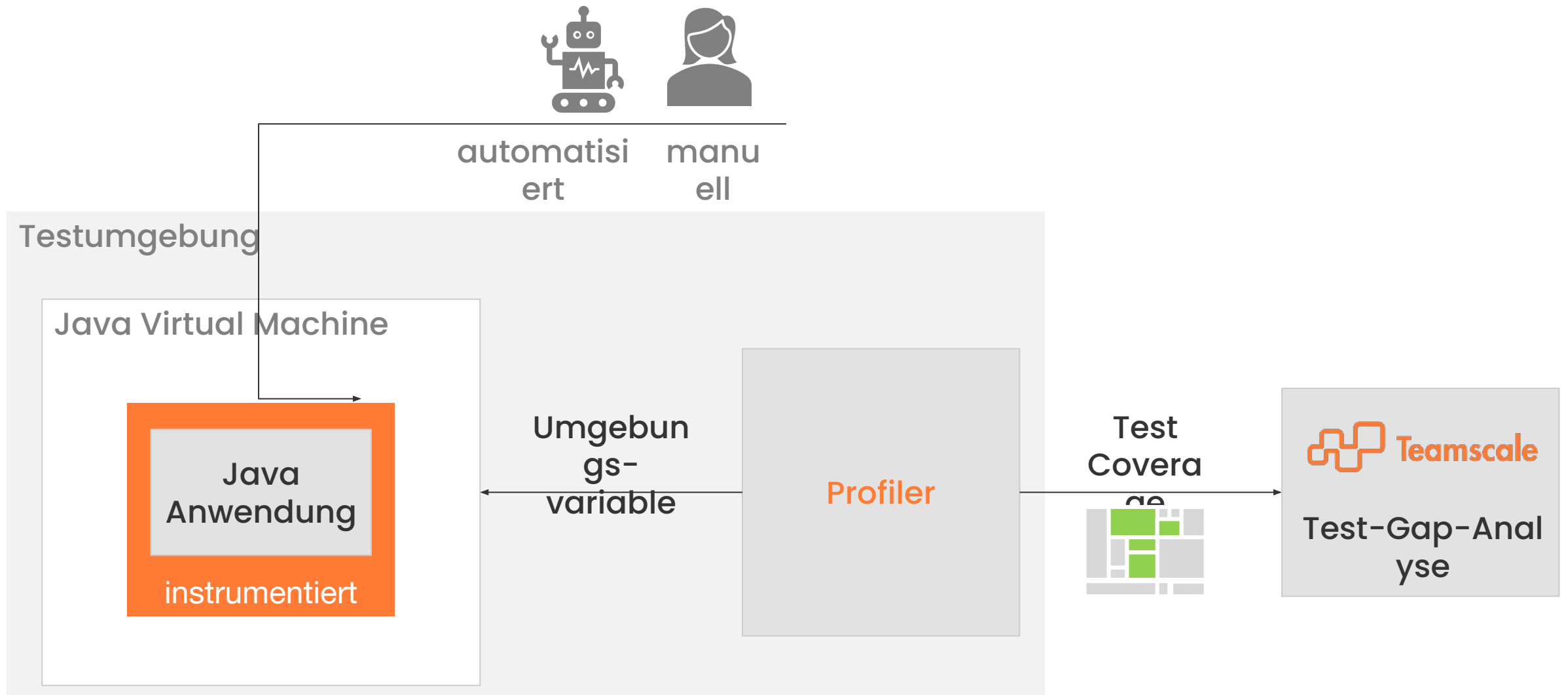
Profiler

Test
Covera

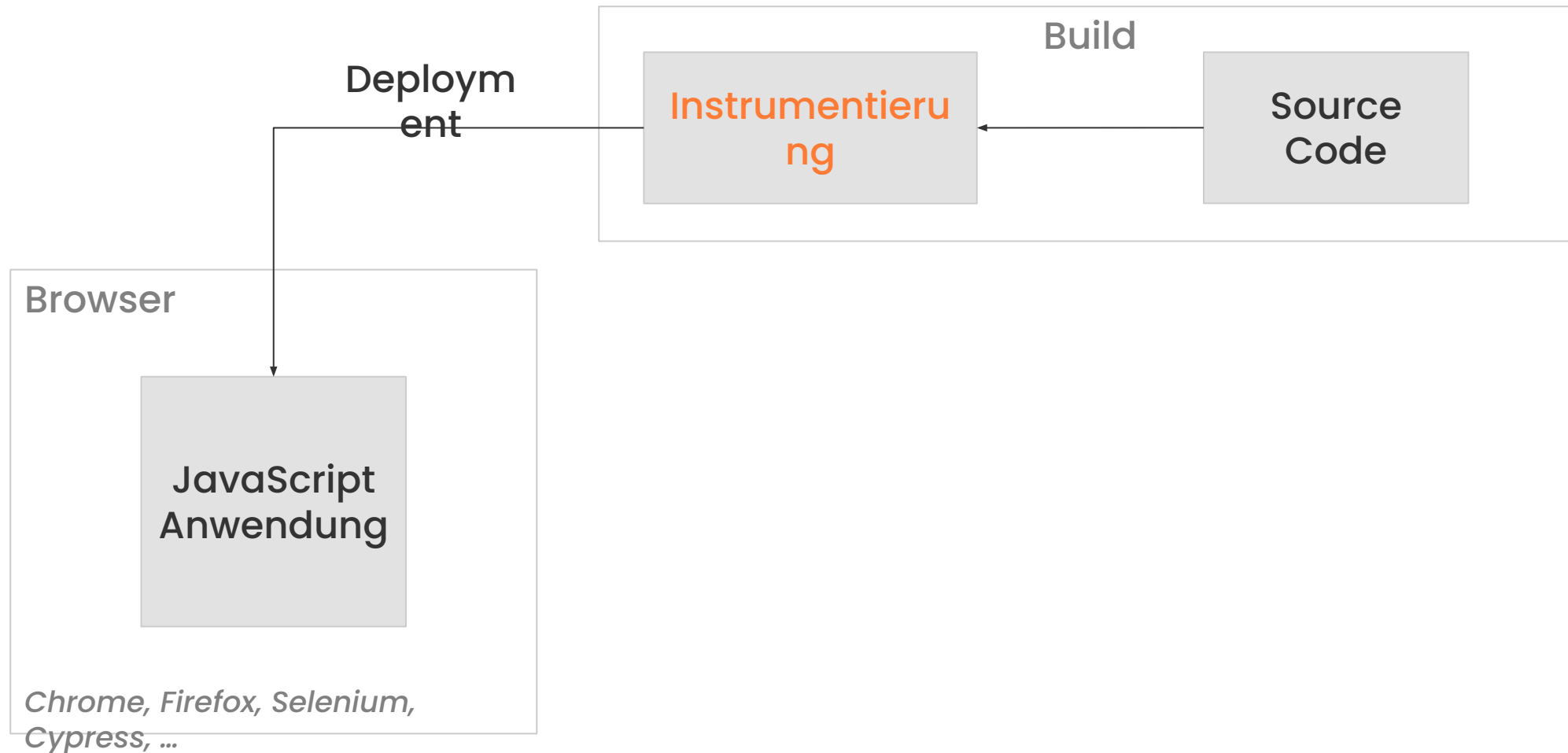


 Teamscale

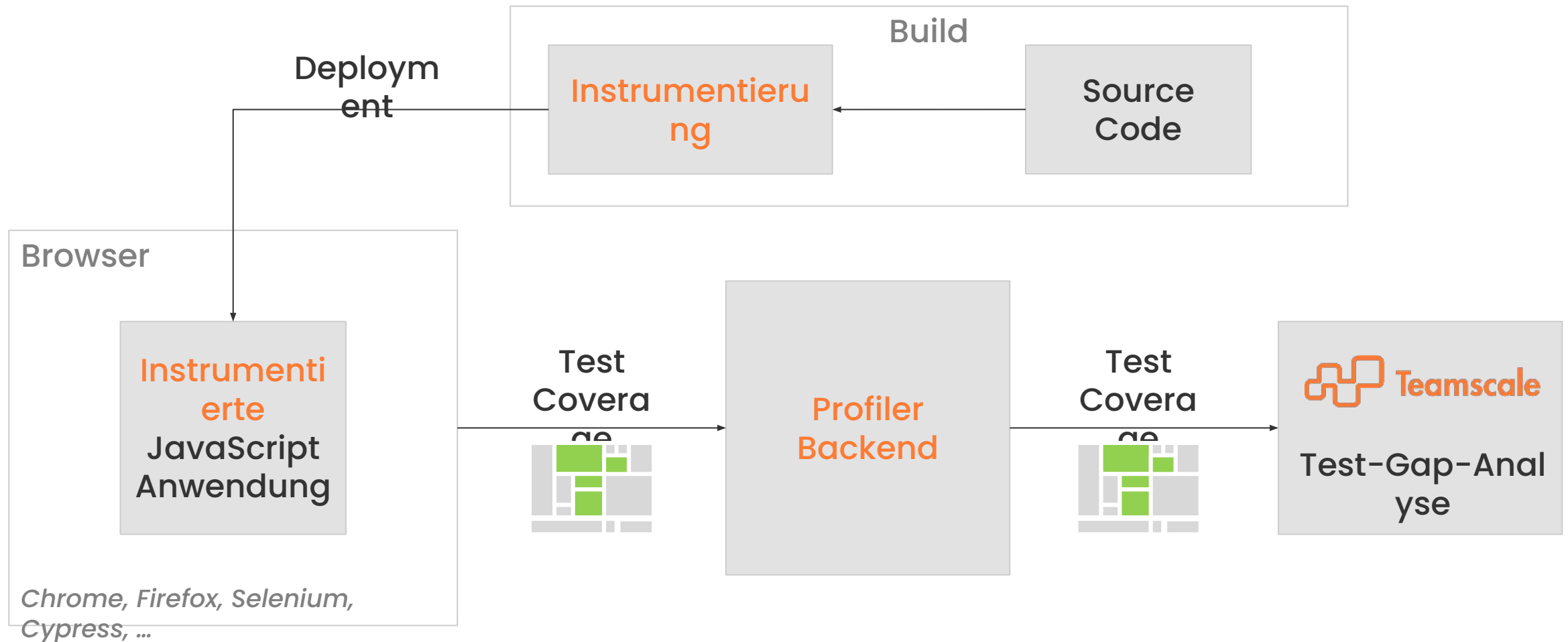
Test-Gap-Analyse



Profiling des JavaScript und TypeScript Frontends bei der Allianz



Profiling des JavaScript und TypeScript Frontends bei der Allianz



ABAP

Ada

C

C#

C++

COBOL

Delphi

Fortran

Go

Gosu

Groovy

HANA SQLScript

IEC 61131-3 ST

Java

JavaScript/TypeSc

ript

Kotlin

Matlab

OScript

Objective-C

Objective-C++

OpenCL C/C++

PHP

PL/SQL

Python

Simulink/Stateflow

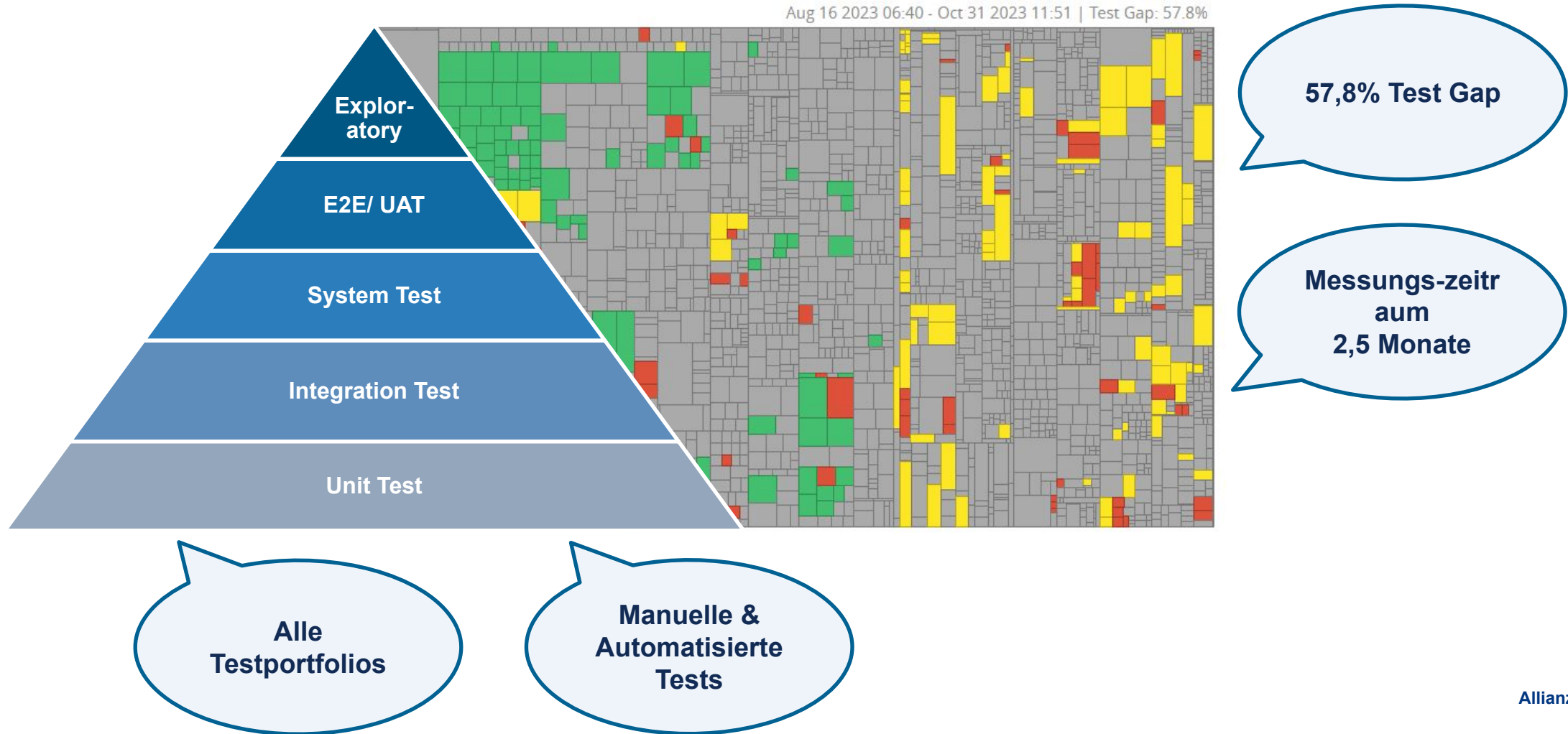
Swift

Transact-SQL

Visual Basic

Xtend

Testabdeckung Ergebnisse der ersten Messung (1/2)



Testabdeckung Ergebnisse der ersten Messung (2/2)

Alle Tickets (Anforderungen / Defects)

Anzahl geänderter Methoden per Ticket

% ungetestet von geänderten Methoden

Problembereiche aggregiert im Balkendiagramm

Auto-select issue branch main main Only issues with changes Coverage sources All Export

Found 83 issues matching your query

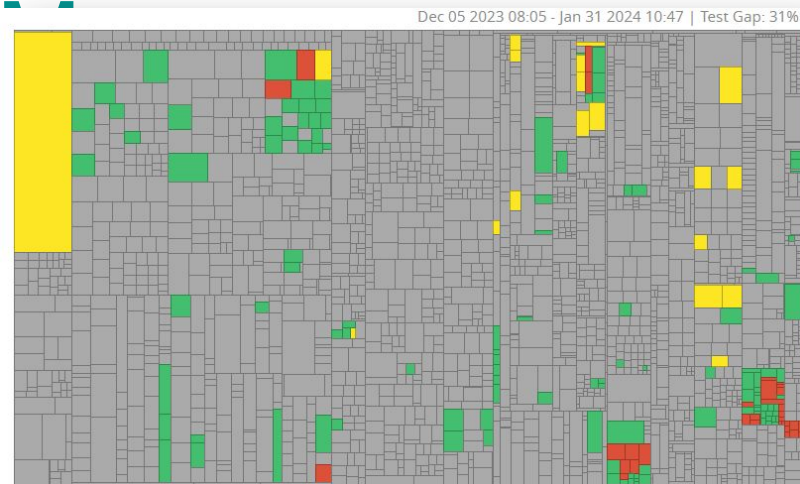
Test Gap over all matching issues: 0%

ID	Subject	Status	Assignee	# Changes	Test Gap	# Test Gaps
TS-10549	Undo/Redo for web-based architecture editor	Done	?	11	100%	11
TS-10784	Fix long method finding in TaintAnalysisRunner	Done	?	14	36%	5
TS-10923	Implement metric 'Nesting Depth' for Simulink	Done	?	6	100%	6
TS-11364	External findings are not registered during first upload	Done	?	21	100%	21
TS-11942	Manual test coverage uploaded during development	Done	?	9	100%	9

Gründe für die geringe Testabdeckung

- Komplexe Softwarearchitektur und nicht ausführlich detaillierte Anforderungen
- Strikte Zeitvorgaben und begrenzte Ressourcen
- Abweichungen zwischen den Anforderungen und dem implementierten Code
- Testdurchführung nicht zu dem richtigen Zeitpunkt
- Wenig strukturierte Test Fälle und große, schwer zu wartende Testportfolios
- Fehlende Transparenz der Testabdeckung zum Zeitpunkt des Testdesigns und Testausführung

Testabdeckung Ergebnisse nach Einführung



ID	Subject	Status	Assignee	# Changes	Test Gap	# Test Gap
TS-10549	Undo/Redo for web-based architecture editor	Done	?	14	30%	5
TS-10784	Fix long method finding in TaintAnalysisRunner	Done	?	6	0%	0
TS-10923	Implement metric ‚Nesting Depth‘ for Simulink	Done	?	19	5%	1
TS-11364	External findings are note registered during first upload	Done	?	4	0%	0
TS-11942	Manual test coverage uploaded during development	Done	?	3	0%	0

- ✓ Testabdeckung um 20% erhöht
- ✓ Gesamttestabdeckung um 48% erweitert
- ✓ Backend und Frondend berücksichtigt

- ✓ Detaillierte Informationen zur Testabdeckung auf Jira-Ticket-Ebene
- ✓ Testabdeckungsdaten werden automatisch direkt in Jira übertragen
- ✓ Die Testabdeckung kann von den Product Ownern als Akzeptanzkriterium verwendet werden



Tool-Demo morgen um **10:15 Uhr Track D**

Besuchen Sie uns am **Stand!**



Vortragsfolien

Disclaimer

This document includes forward looking statements, such as prospects or expectations, that are based on management's current views and assumptions and subject to known and unknown risks and uncertainties. Actual results, performance figures, or events may differ significantly from those expressed or implied in such forward looking statements. Deviations may arise due to changes in factors including, but not limited to, the following (I) the general economic and competitive situation in the Allianz Group's core business and core markets, (II) the performance of financial markets (in particular market volatility, liquidity, and credit events), (III) the frequency and severity of insured loss events, including those resulting from natural catastrophes, and the development of loss expenses, (IV) mortality and morbidity levels and trends, (V) persistency levels, (VI) particularly in the banking business, the extent of credit defaults, (VII) interest rate levels, (VIII) currency exchange rates, most notably the EUR/USD exchange rate, (IX) changes in laws and regulations, including tax regulations, (X) the impact of acquisitions including and related integration issues and reorganization measures, and (XI) the general competitive conditions that, in each individual case, apply at a local, regional, national, and/or global level. Many of these changes can be exacerbated by terrorist activities.

No duty to update

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Thank you!

Allianz Technology

Let's care for tomorrow. You. IT.

