

# Muss ich heute wirklich schon wieder alles testen?

Fehler trotz langlaufender Test-Suiten schnell und zuverlässig aufdecken

# Über Mich

## Forschung

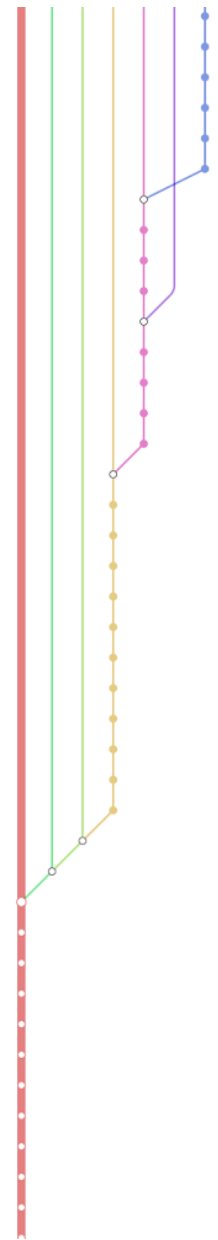
- Statische Analyse, Test-Gap-Analyse, ...
- PC Mitglied von MSR, ICPC, ...

## Beratung

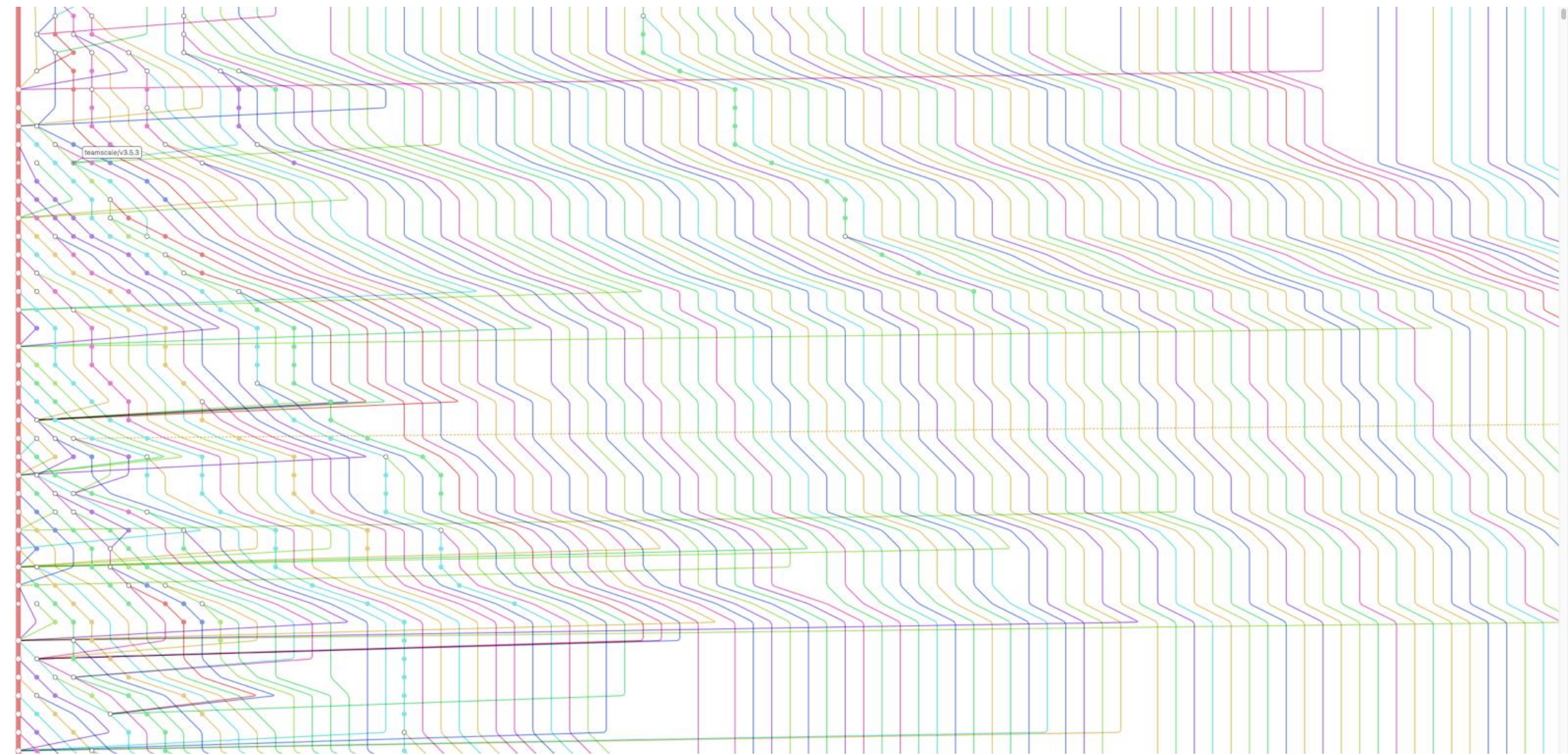
- Gründer und Mitglied der Geschäftsleitung
- Qualitäts-Bewertung & Qualitäts-Controlling



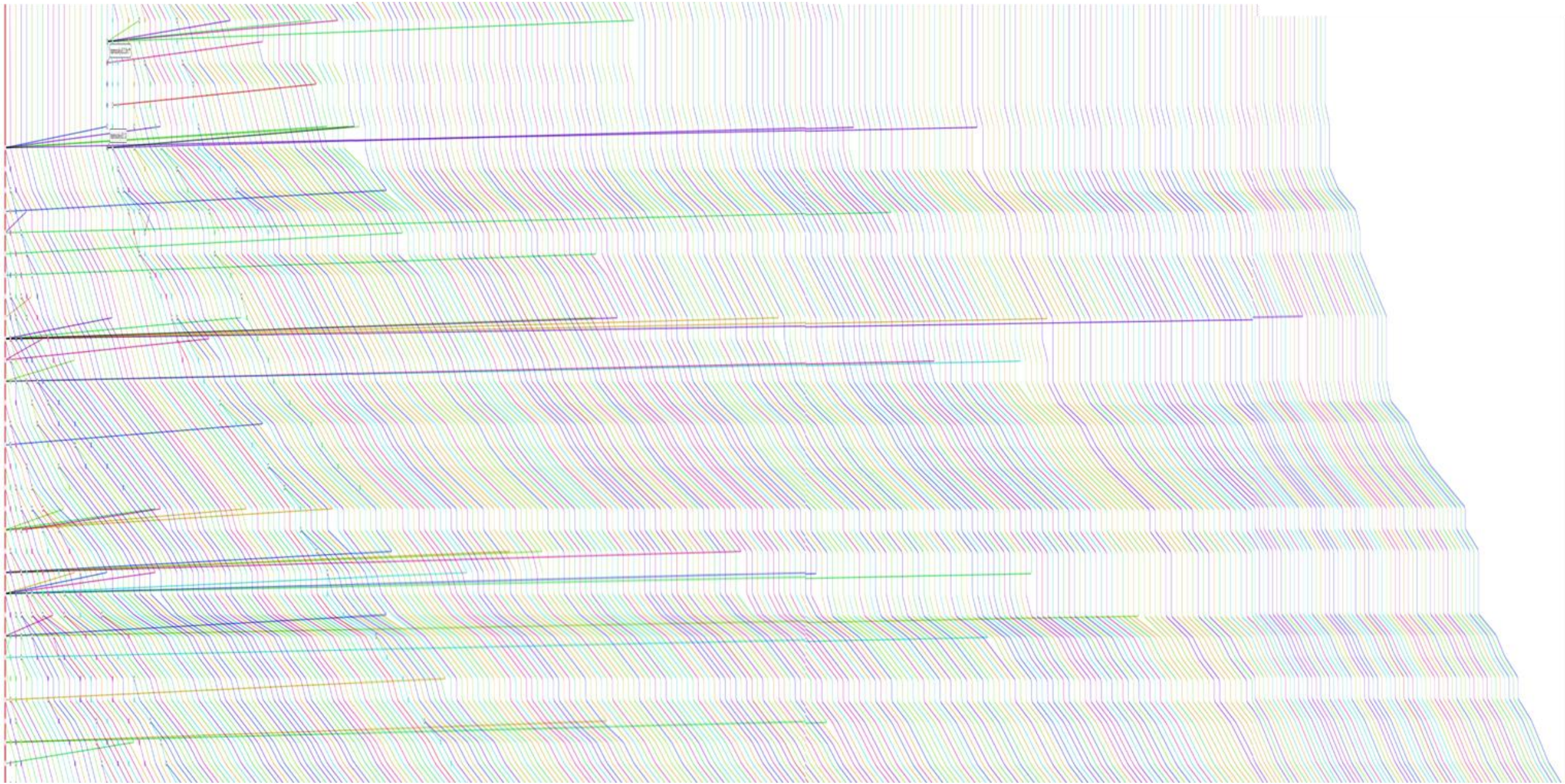










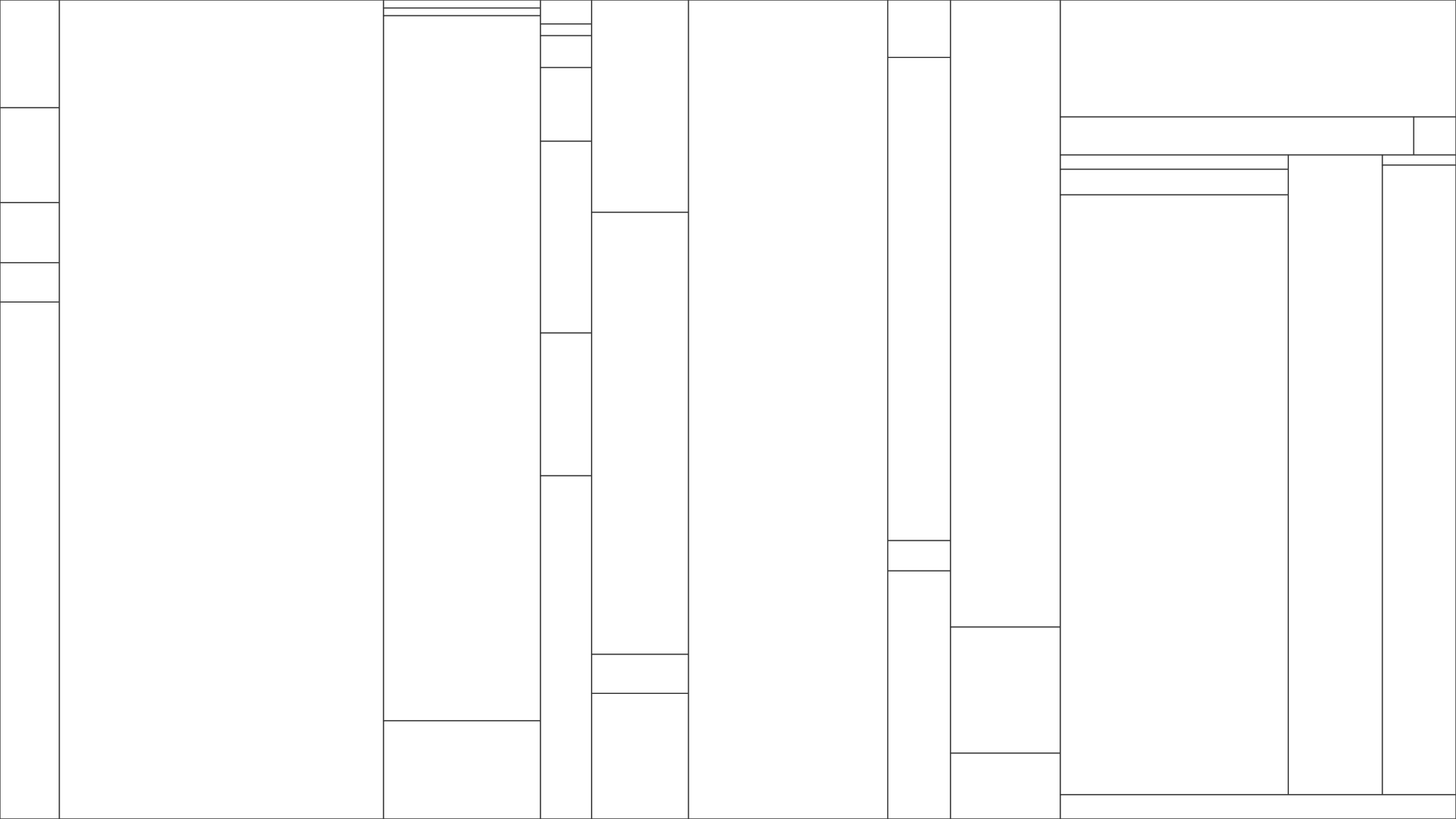


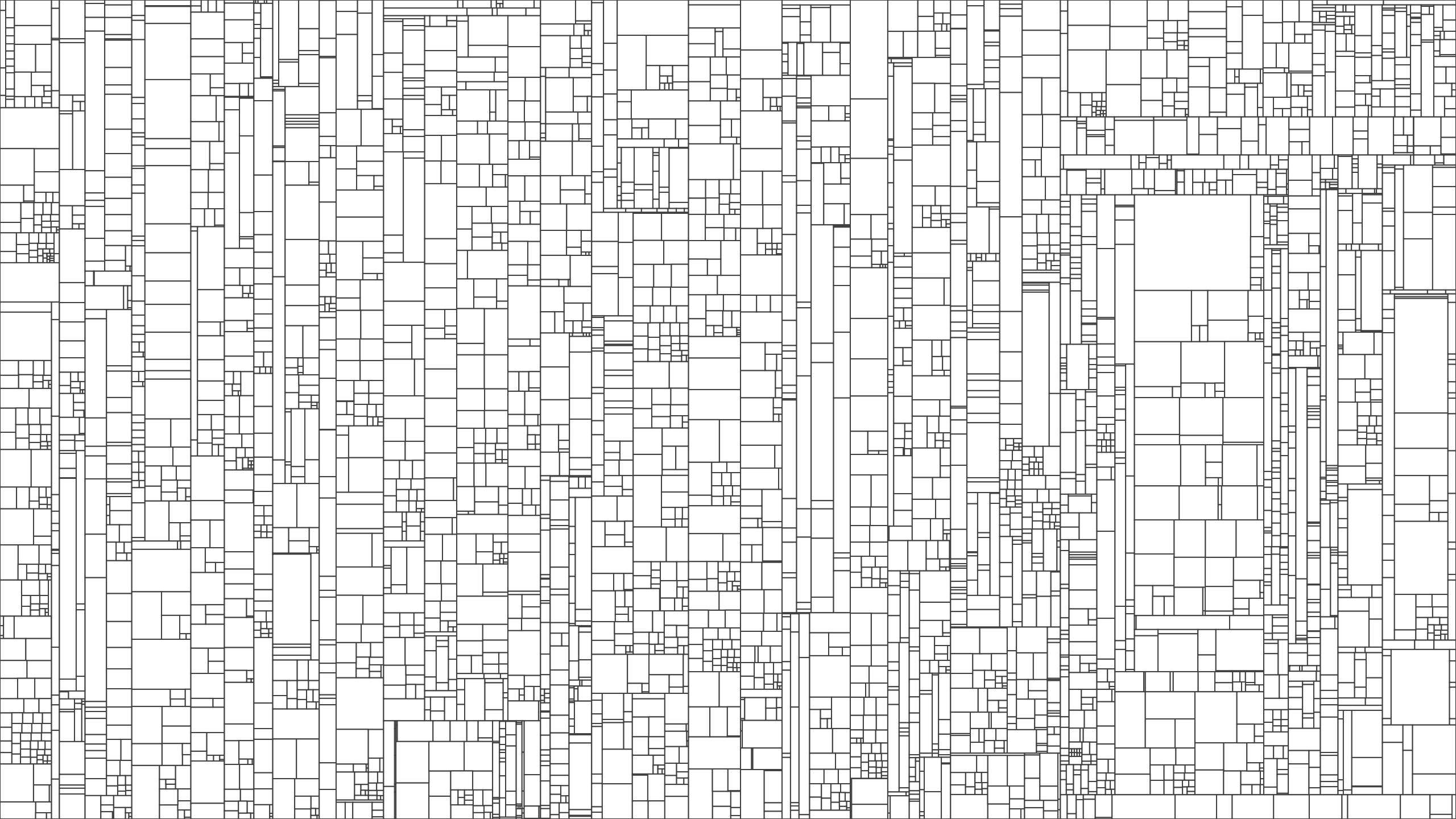


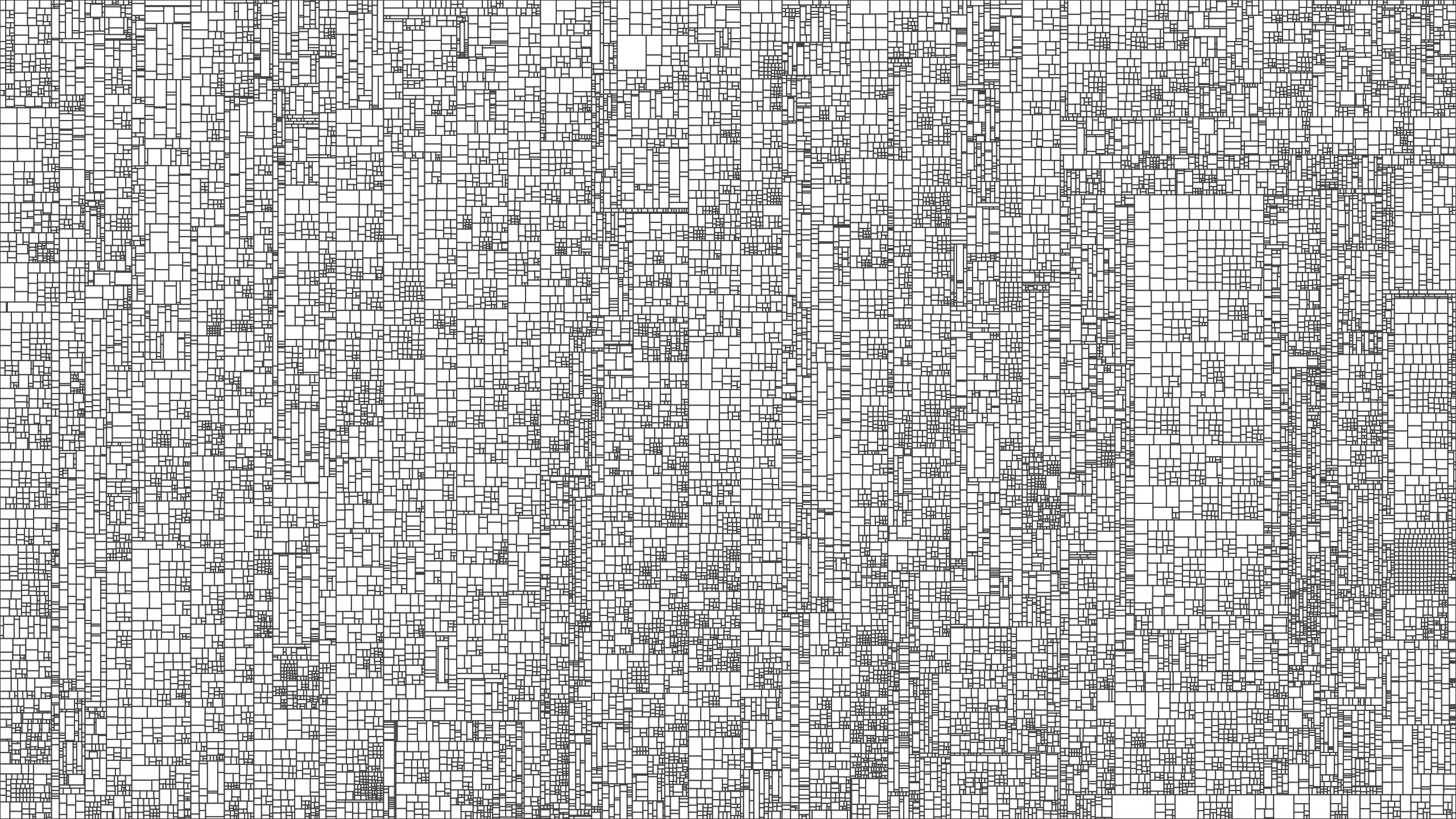
















# Data Flow Analysis can not handle java lambdas (logs many errors currently)

- Edit
- Comment
- Assign
- More ▾
- Back to New



## Details

Type:	<span style="color: red;">■</span> Bug	Status:	<span style="background-color: green; color: white; padding: 2px;">DONE</span> (View Workflow)
Priority:	<span style="color: orange;">↑</span> High	Resolution:	Green
Component/s:	Backend	Fix Version/s:	Teamscale 4.3
Labels:	<span style="border: 1px solid #ccc; padding: 2px;">dataflow</span> <span style="border: 1px solid #ccc; padding: 2px;">java</span>		
Affected Version:	master		
Merge Request:	<a href="https://git.cqse.eu/cqse/teamscale/merge_requests/2734">https://git.cqse.eu/cqse/teamscale/merge_requests/2734</a>		
PDash Task:	#4886		

## People

Assignee:	Andreas Sewe <a href="#">Assign to me</a>
Reporter:	Rainer Niedermayr
QA-Contact:	Alexander von Rhein
Votes:	<span style="border: 1px solid #ccc; border-radius: 50%; padding: 2px;">2</span> Vote for this issue
Watchers:	<span style="border: 1px solid #ccc; border-radius: 50%; padding: 2px;">3</span> Start watching this issue

## Description

Analysis profile: Java  
 Repository: JabRef, start revision 9efd23b71871747fe5e18e915e637891d7e55b6d

```

ERROR : An error occurred while trying to construct a CFG for function 'null' in element src/main/java/net/sf/jabref/exporter/layout/format/DOI
[STATEMENT: lambda expression: null (lines 33-33)
]
Tokens: doi . getURL ( )
Occurred in src/main/java/net/sf/jabref/exporter/layout/format/DOICheck.java:32-32 (com.teamscale.index.dataflow.DataFlowFindingsSynchronizer.c
org.conqat.engine.core.core.ConQATException: Could not find any rule that applies to the following entity list:
[STATEMENT: lambda expression: null (lines 33-33)
]
Tokens: doi . getURL ( )
Occurred in src/main/java/net/sf/jabref/exporter/layout/format/DOICheck.java:32-32
    at org.conqat.engine.sourcecode.dataflow.heuristics.ControlFlowCreator.findApplicableRule(ControlFlowCreator.java:164)
    at org.conqat.engine.sourcecode.dataflow.heuristics.ControlFlowCreator.transformOneStep(ControlFlowCreator.java:139)
    at org.conqat.engine.sourcecode.dataflow.heuristics.ControlFlowCreator.transform(ControlFlowCreator.java:92)

[...]

ERROR : An error occurred while trying to construct a CFG for function 'null' in element src/main/java/net/sf/jabref/exporter/layout/format/DOI
[STATEMENT: lambda expression: null (lines 31-31)
]
Tokens: doi . getDOI ( )
Occurred in src/main/java/net/sf/jabref/exporter/layout/format/DOIStrip.java:30-30 (com.teamscale.index.dataflow.DataFlowFindingsSynchronizer.c
org.conqat.engine.core.core.ConQATException: Could not find any rule that applies to the following entity list:
  
```

## Dates

Created:	24/Nov/16 8:35 AM
Updated:	4 days ago
Resolved:	08/May/18 12:42 PM

## Time Tracking

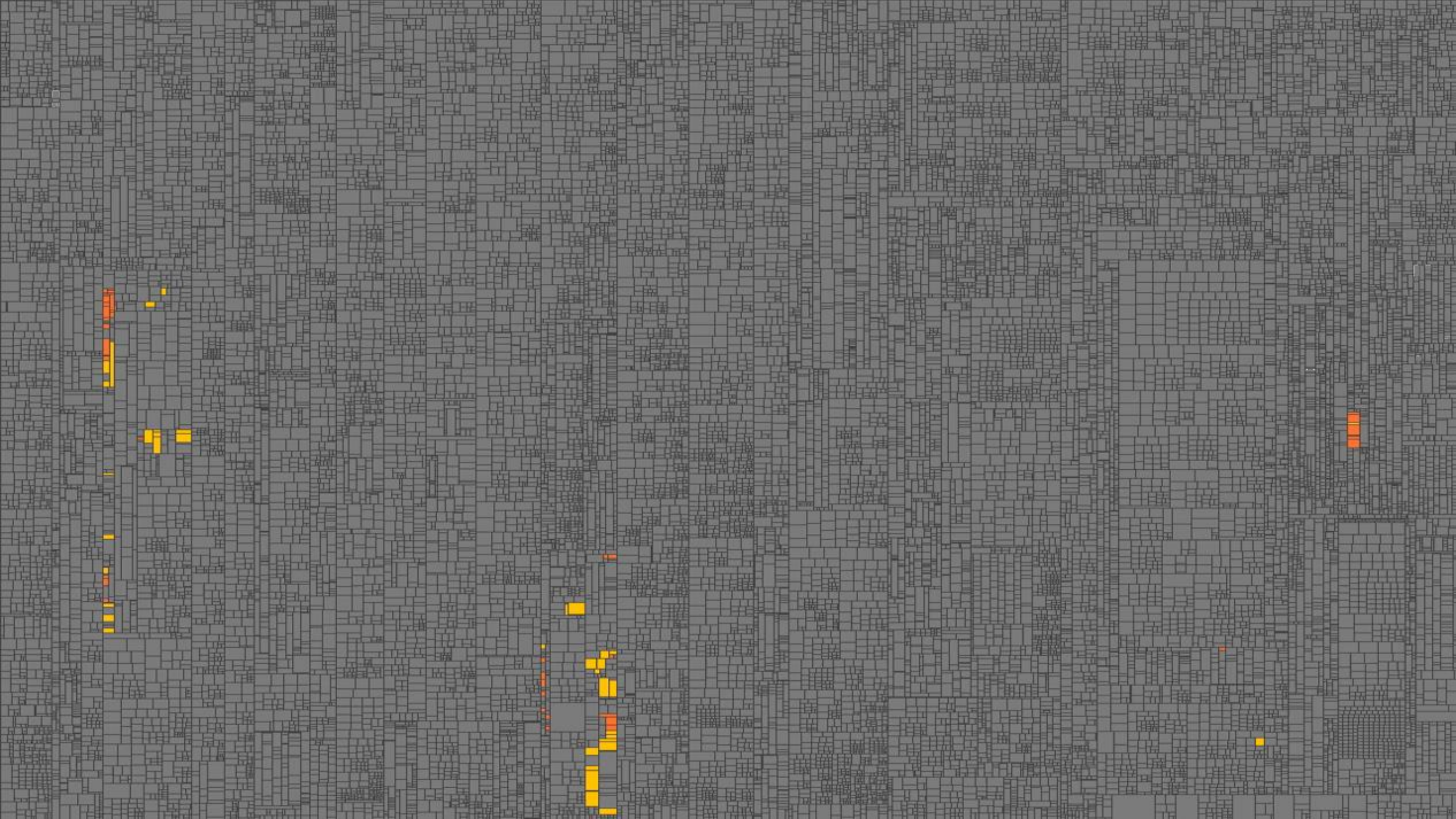
Estimated:	<div style="width: 100%; height: 10px; background-color: #ccc;"></div> Not Specified
Remaining:	<div style="width: 100%; height: 10px; background-color: #ccc;"></div> 0m
Logged:	<div style="width: 100%; height: 10px; background-color: #4CAF50;"></div> 4d 1h 57m

## Agile

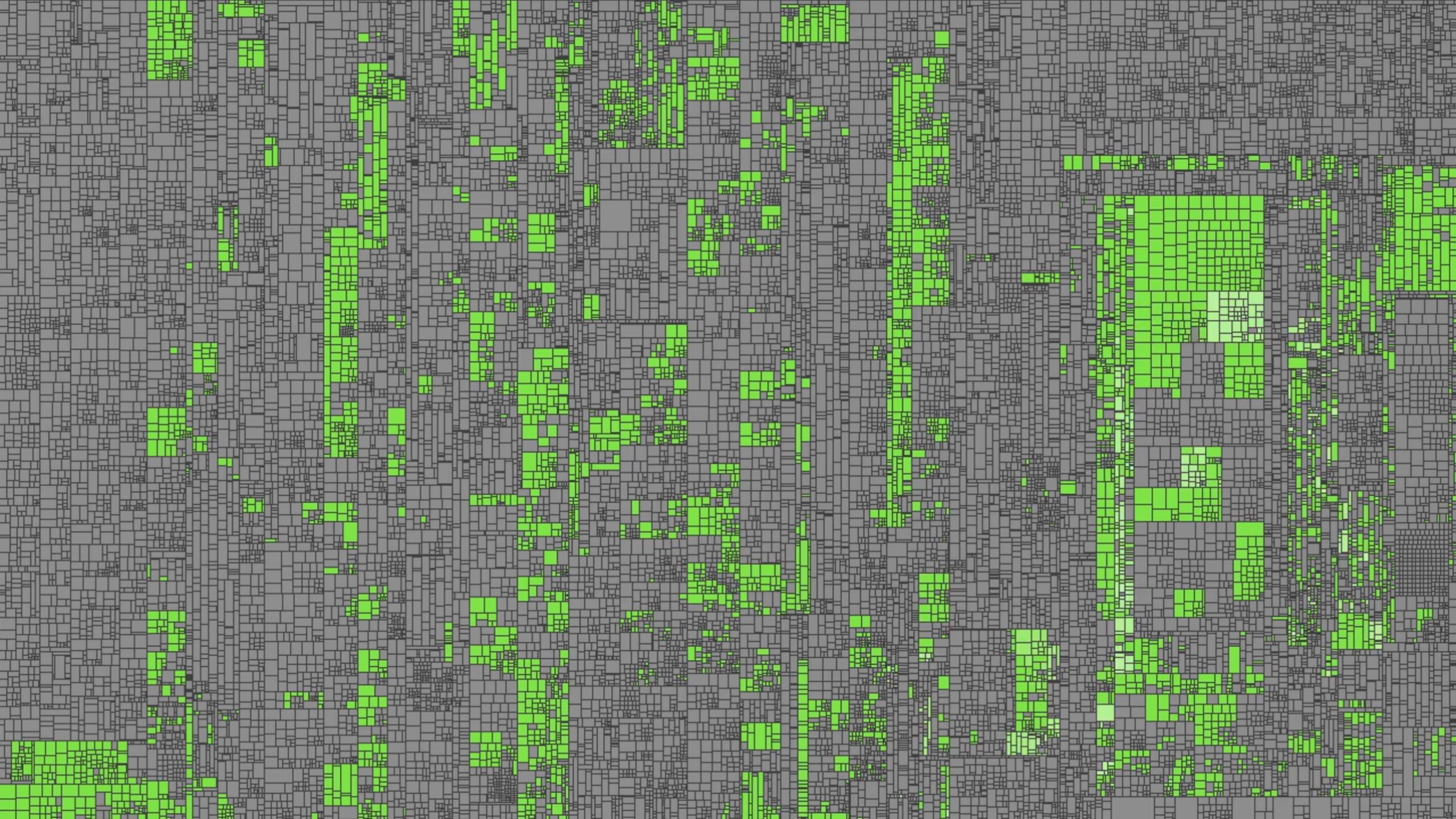
[View on Board](#)

## Gitlab CI

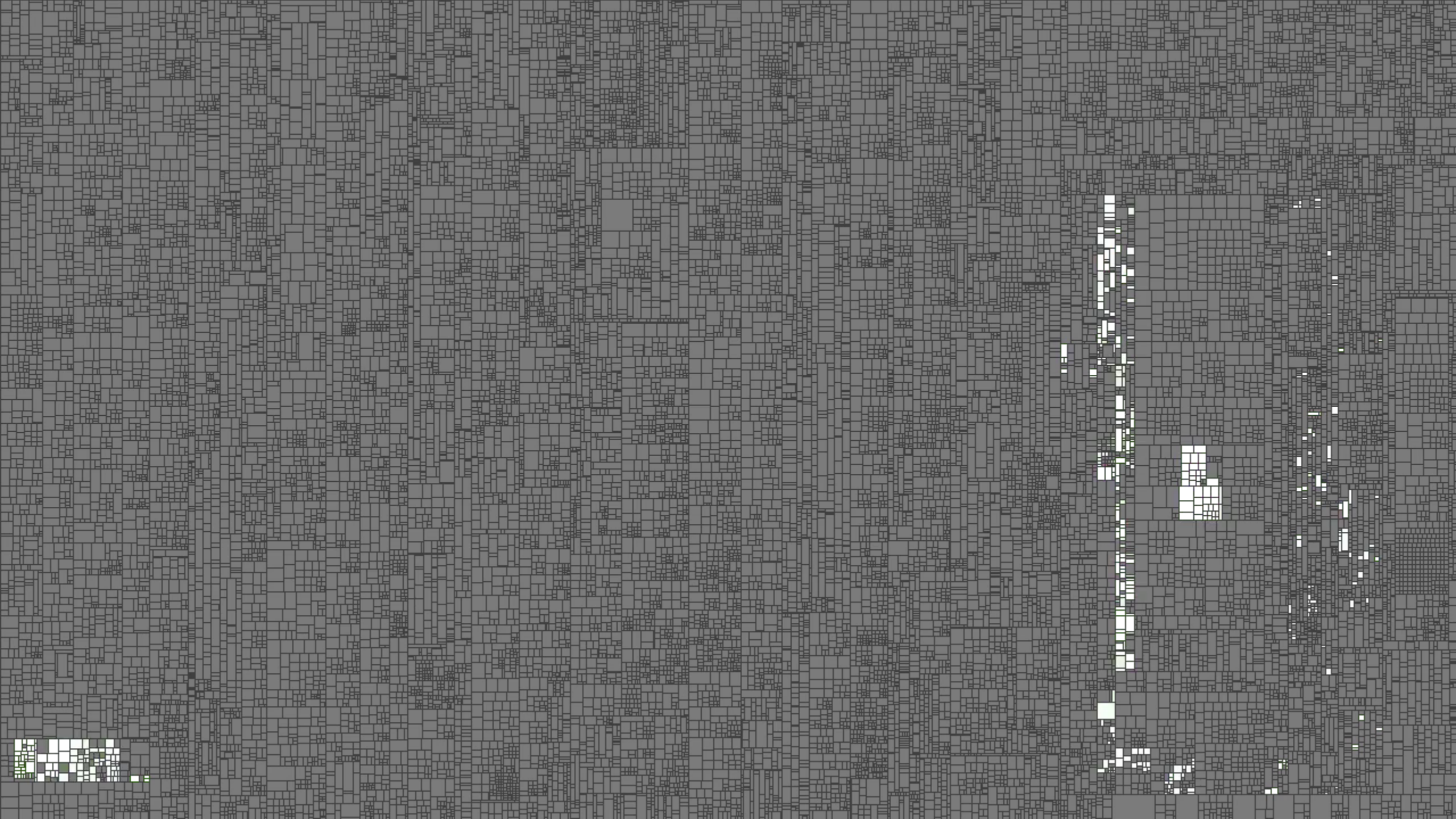


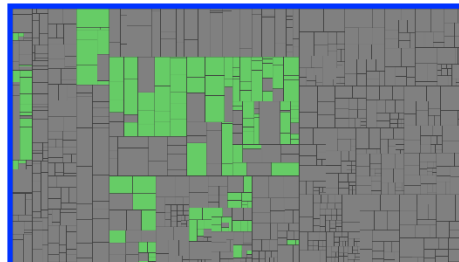
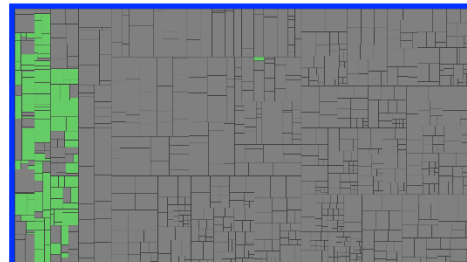
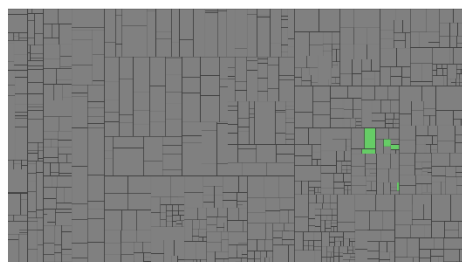
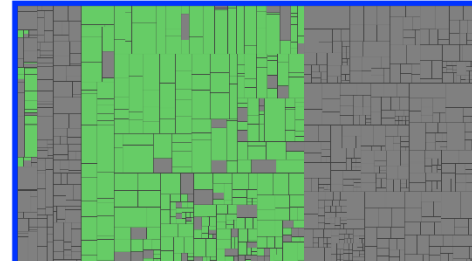
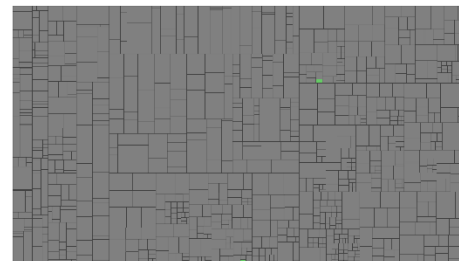
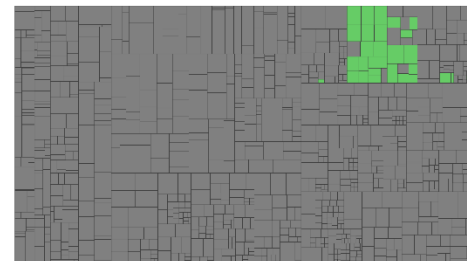
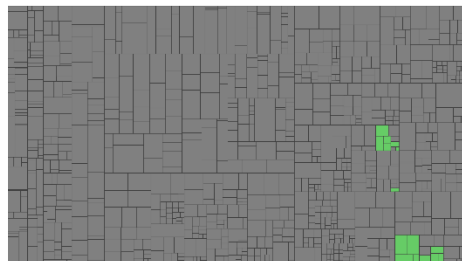
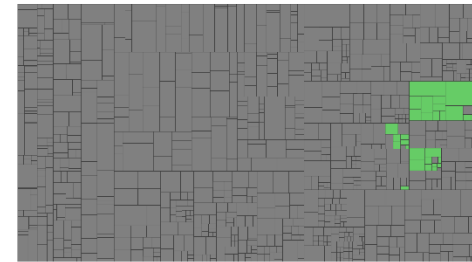
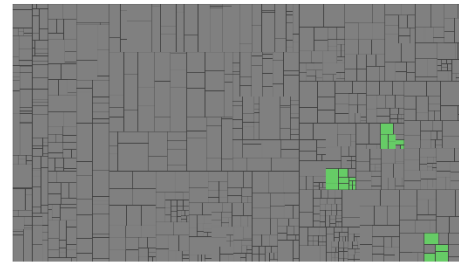
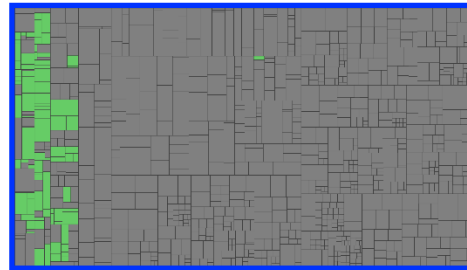
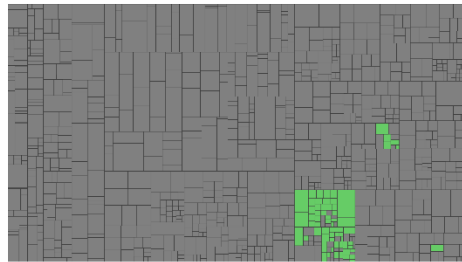
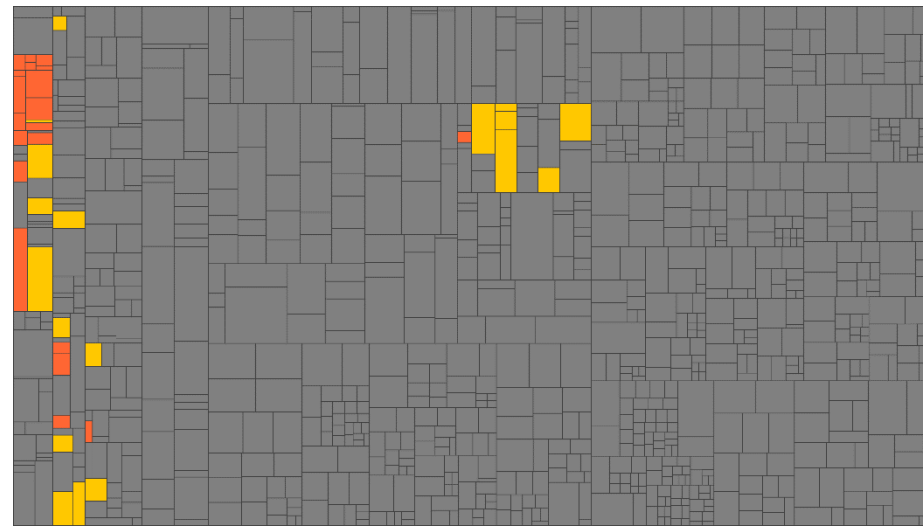




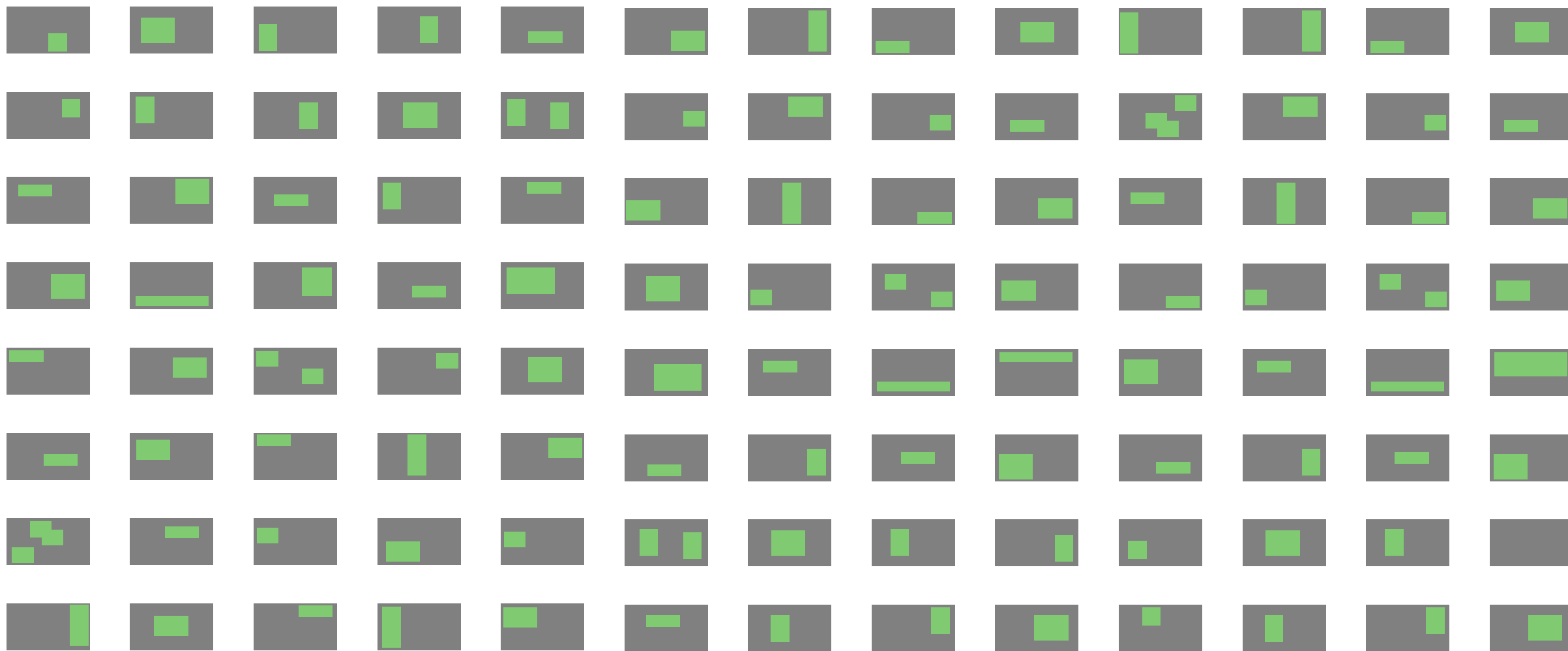








... 4000+ Testfälle  
ohne Überdeckung

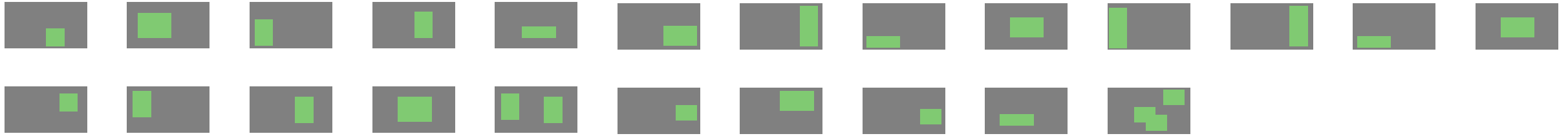




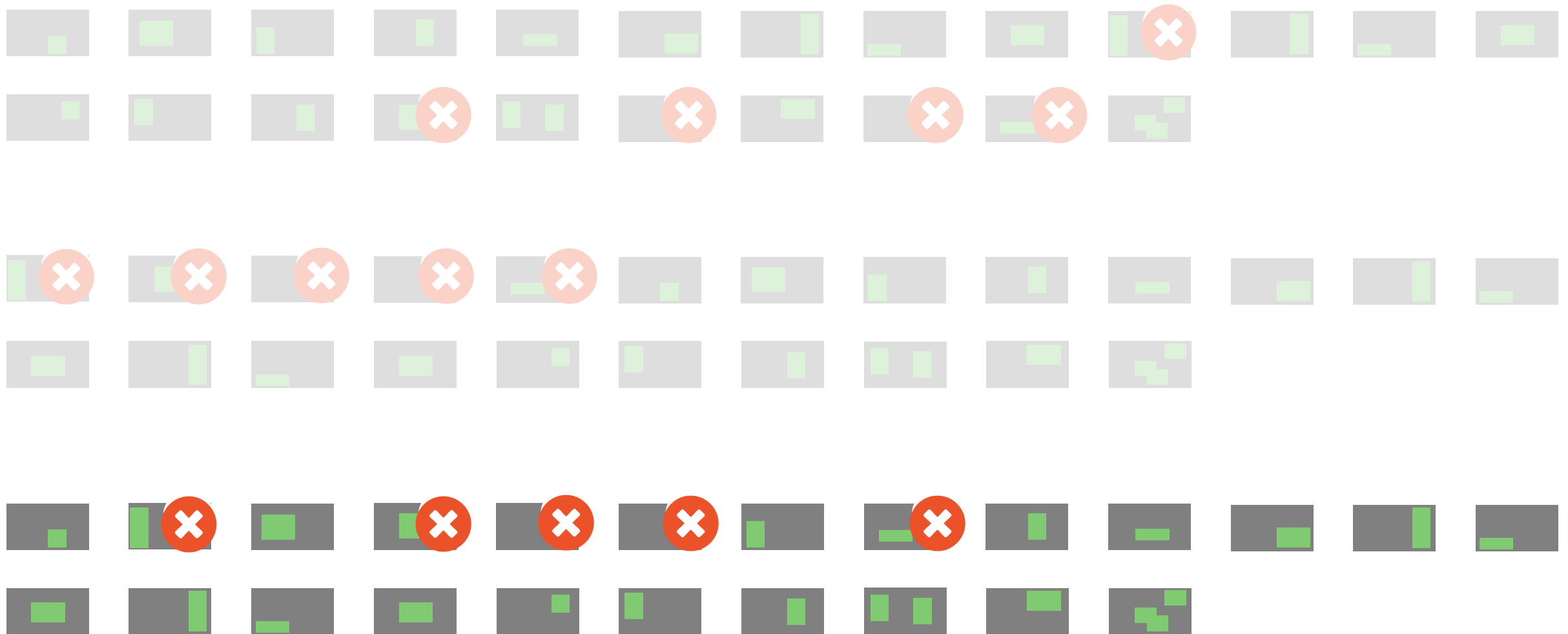
# Schritt 1: Selektion betroffener Testfälle



# Schritt 1: Selektion betroffener Testfälle

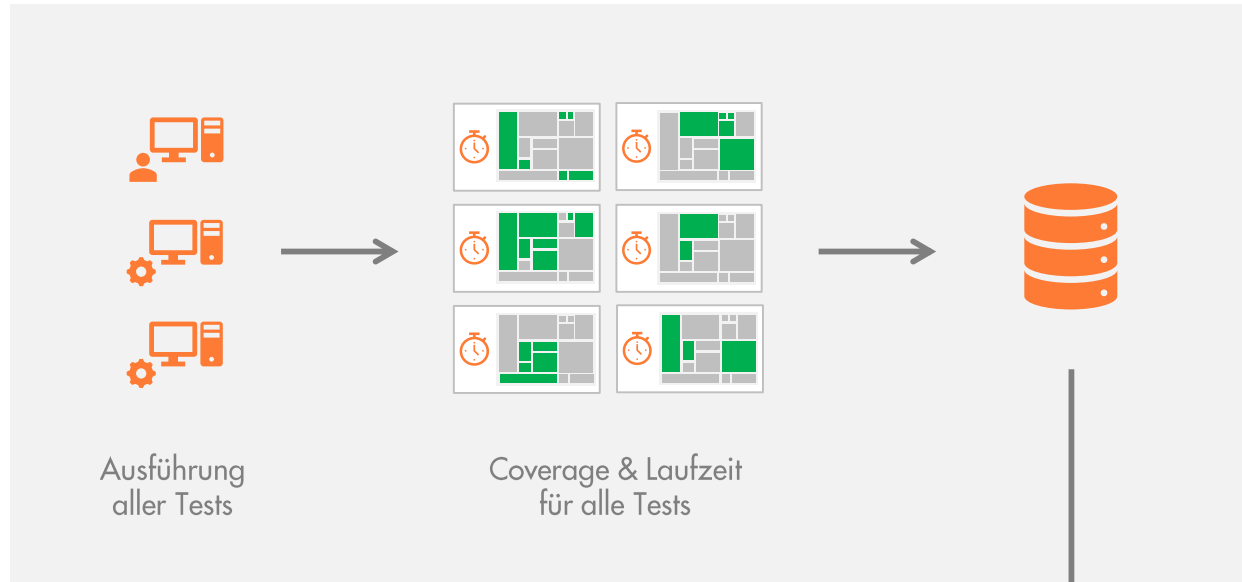


## Schritt 2: Priorisierung selektierter Testfälle





Initiale Aufzeichnung aller Tests



Testausführung nach Änderungen

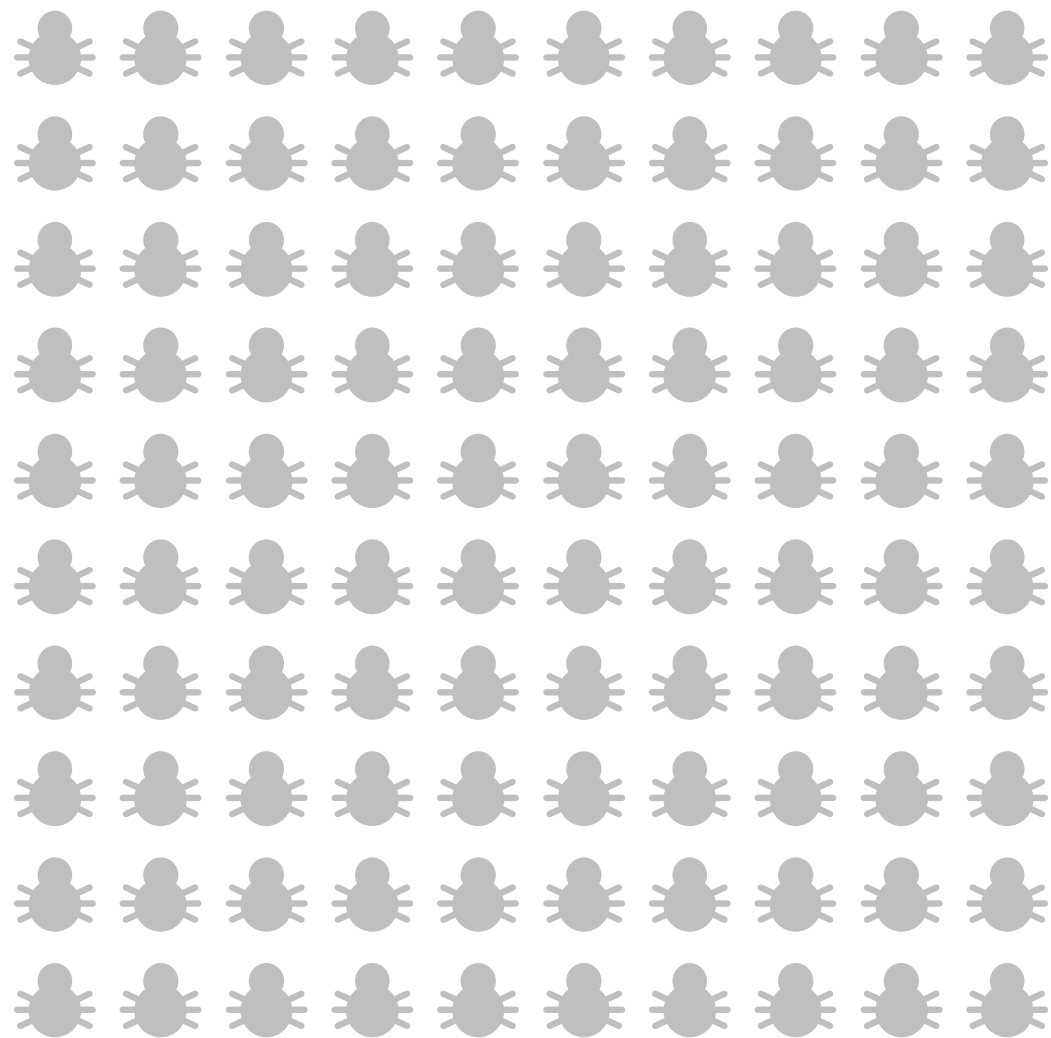
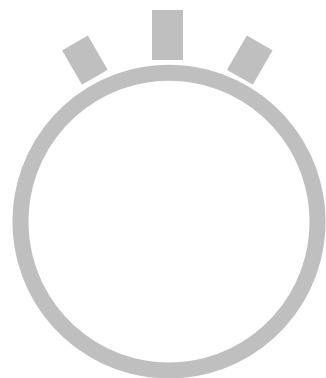


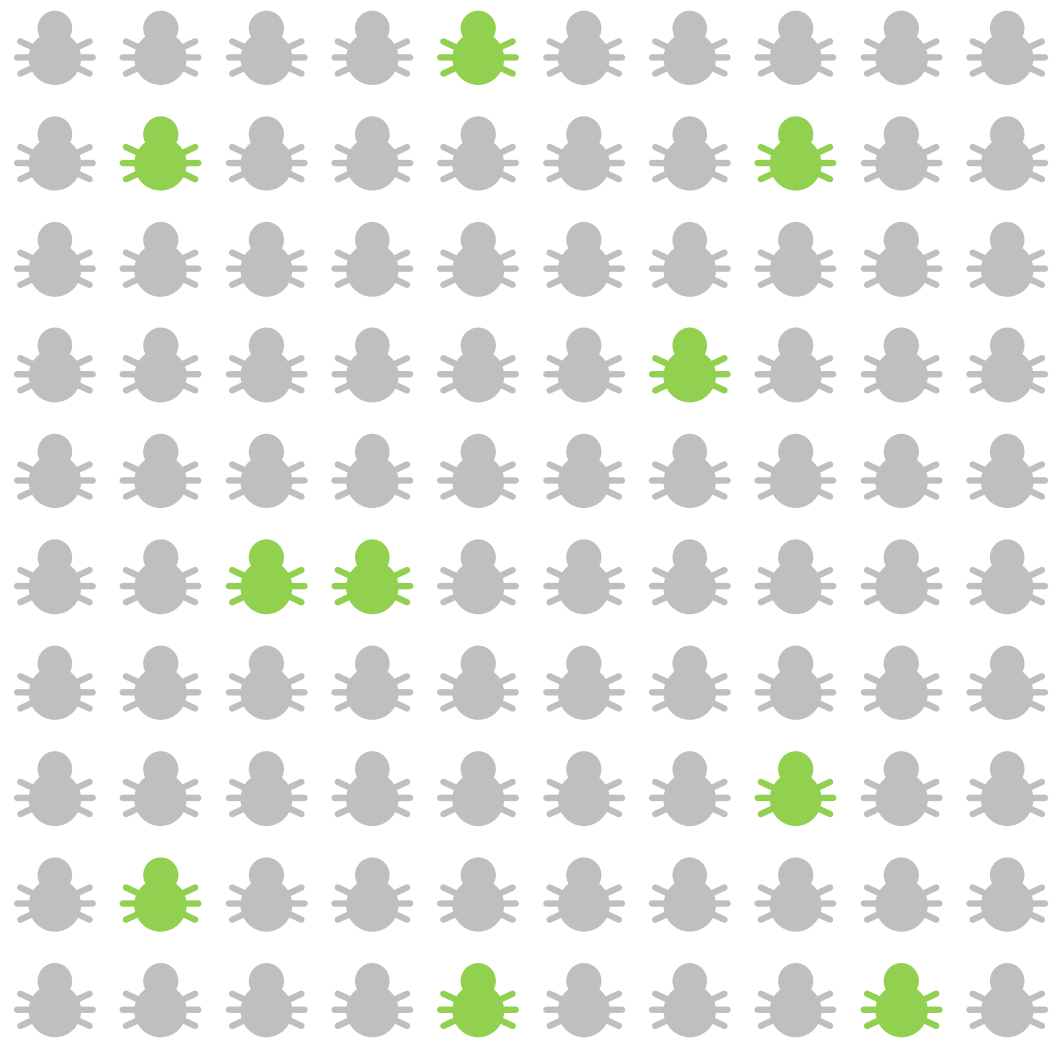
# Grenzen von Test-Impact-Analyse

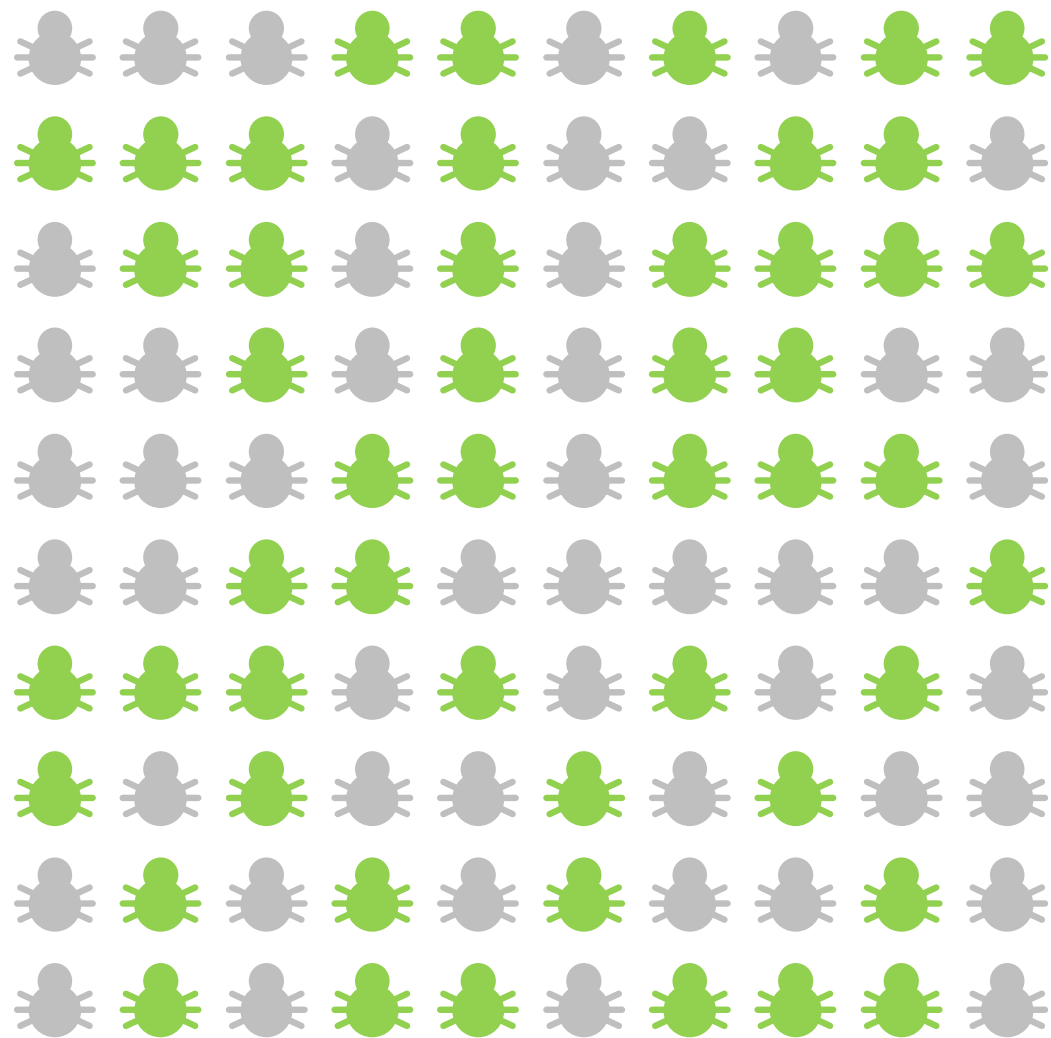
- Manche Änderungen betreffen alle Tests
  - Änderungen von Konfigurationsinformation
  - Änderungen an Testdaten
- Wenn sich die Tests selbst ändern, müssen sie erneut ausgeführt werden
- Es gibt keine Garantie, dass die selektierten Tests alle Fehler finden

⇒ In regelmäßigen Abständen alle Tests ausführen

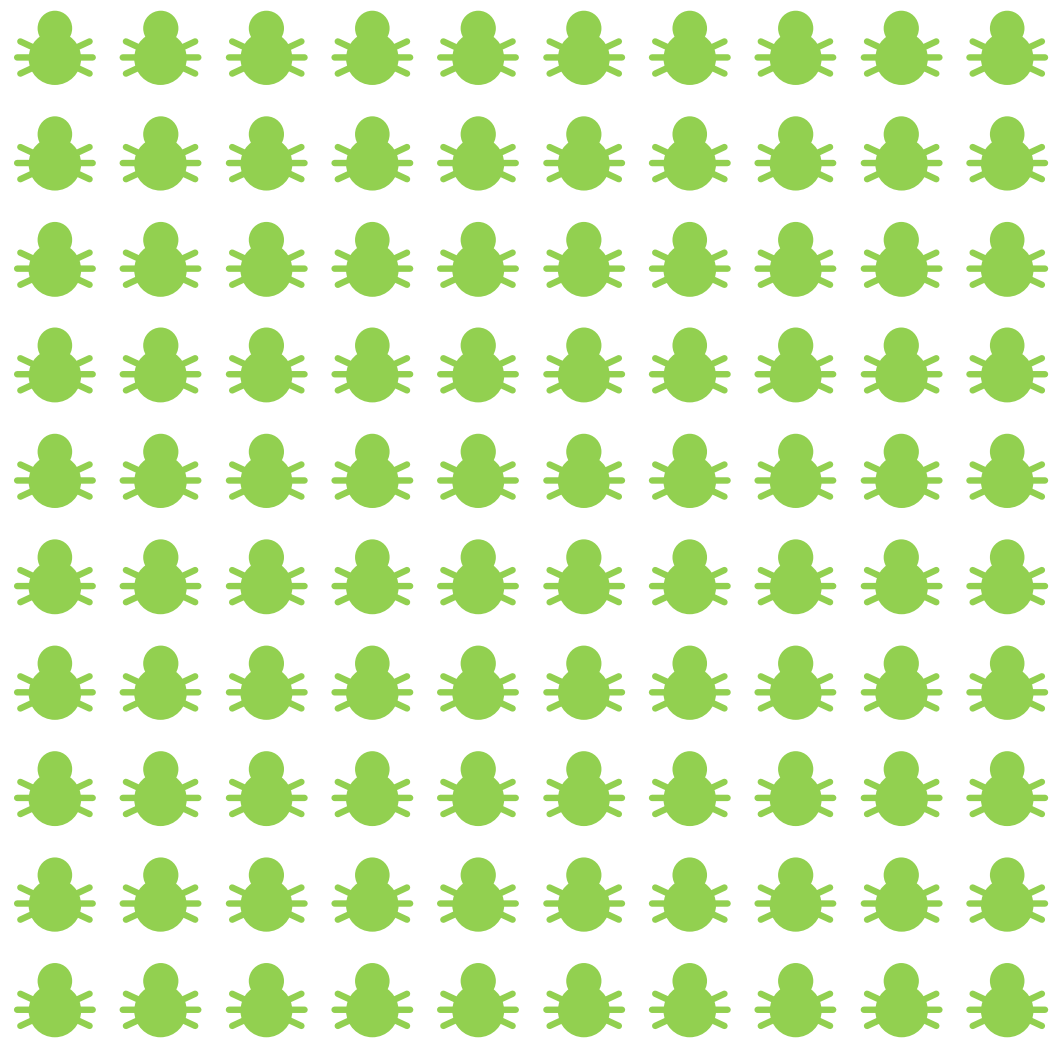
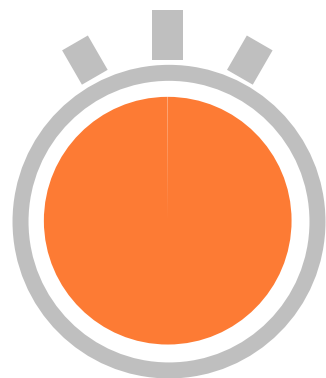
⇒ Hält testfallspezifische Coverage-Daten aktuell

















Baseline

Working Copy



```
int I = 0;
i++;
void foo() {
  do();
  c = a + b;
}
int get() {
  return fo();
}
close();
```



- Test 1
- Test 2
- Test 3
- Test 4
- Test 5

Werden mit den selektierten Tests  
die gleichen Fehler gefunden  
wie mit allen Tests?

Wieviel Zeit kann mit selektierten Tests eingespart werden?



System	Alle Tests [s]	Selektierte Tests [s]	Einsparung
Apache Commons Collections	25	1	98 %
Apache Commons Lang	25	3	88 %
Apache Commons Math	<div style="text-align: center;"> <p>Im Durchschnitt</p> <p><b>64%</b></p> <p>Einsparung</p> </div>	114	29 %
Histone Template Engine		32	7 %
JabRef		41	66 %
Joda-Time		1	94 %
Lightweight-Stream-API		1	68 %
LittleProxy		150	3 %
OkHttp	97	76	21 %
RxJava	464	171	63 %
Symia Commons Math Parser	1	1	0 %
Teamscale	1249	197	84 %

Welcher Anteil fehlerhafter Builds wird  
in begrenzter Zeit erkannt?

System	1 %	2 %	5 %	10 %
Apache Commons Collections	84 %	97 %	100 %	100 %
Apache Commons Lang	94 %	96 %	98 %	99 %
Apache Commons Math	80 %	86 %	92 %	93 %
Histone Template Engine	88 %	88 %	88 %	88 %
JabRef	96 %	96 %	96 %	96 %
Joda-Time	98 %	99 %	99 %	100 %
Lightweight-Stream-API	61 %	91 %	95 %	97 %
LittleProxy	74 %	77 %	80 %	80 %
OkHttp	91 %	91 %	91 %	97 %
RxJava	92 %	95 %	95 %	95 %
Symia Commons Math Parser	78 %	86 %	89 %	89 %
Teamscale	92 %	96 %	97 %	97 %







Gilt das auch für echte Fehler in Systemen?



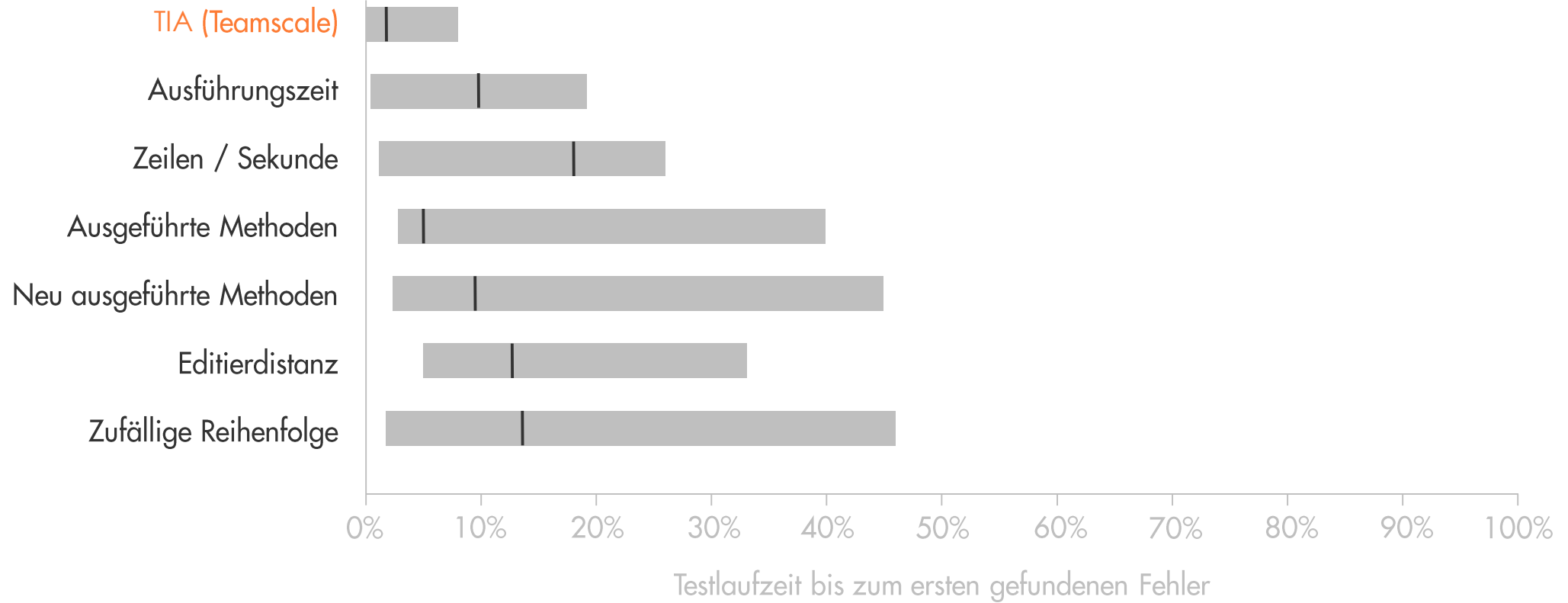


?





400+



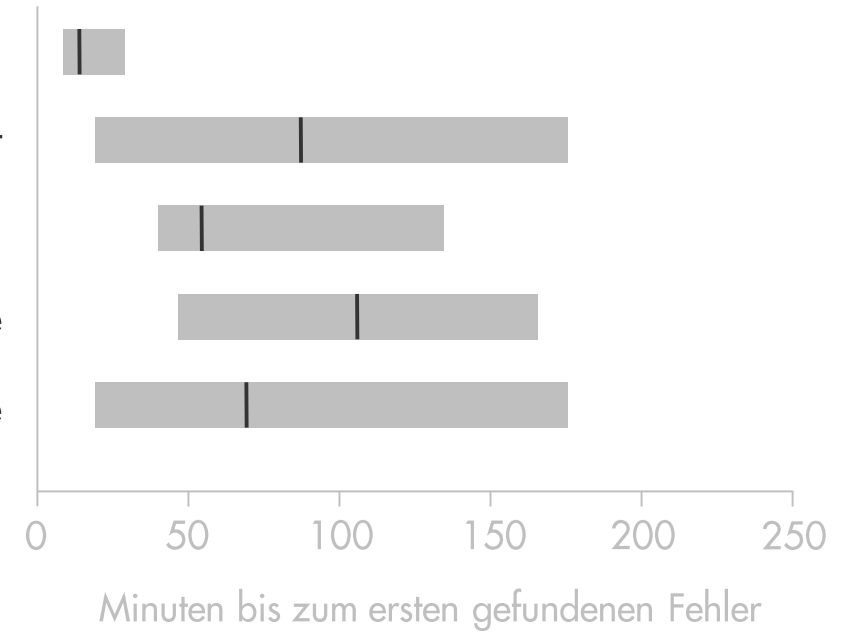


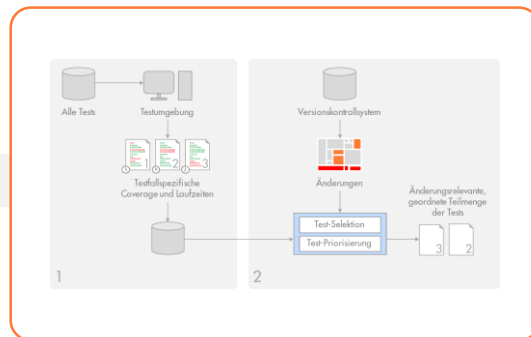
# HIL-Test

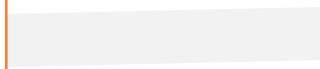
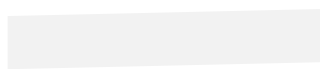


### TIA (Teamscale)

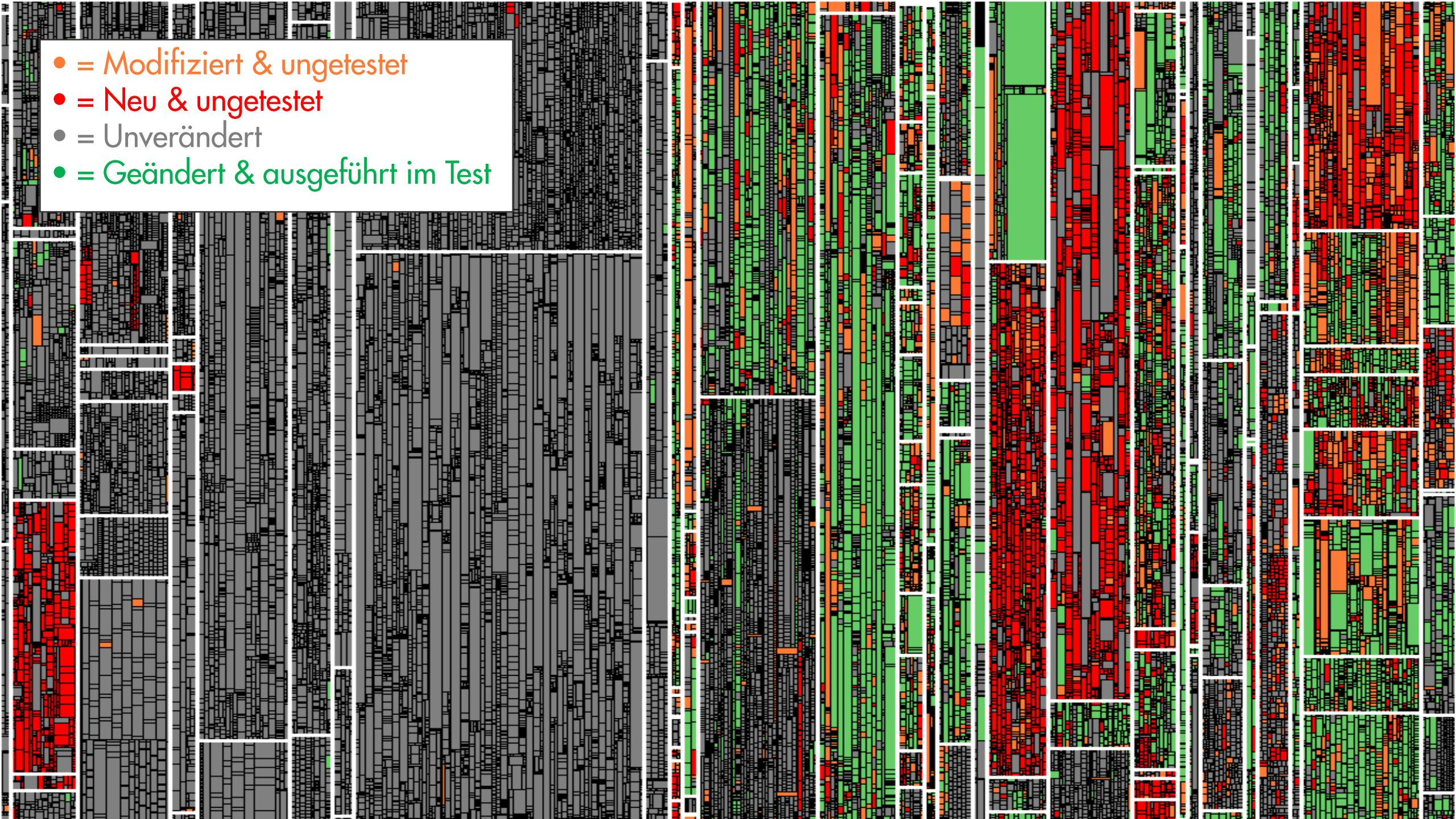
- Ausführungszeit
- Ausführungszeit (absteigend)
- Methoden / Sekunde
- Zufällige Reihenfolge



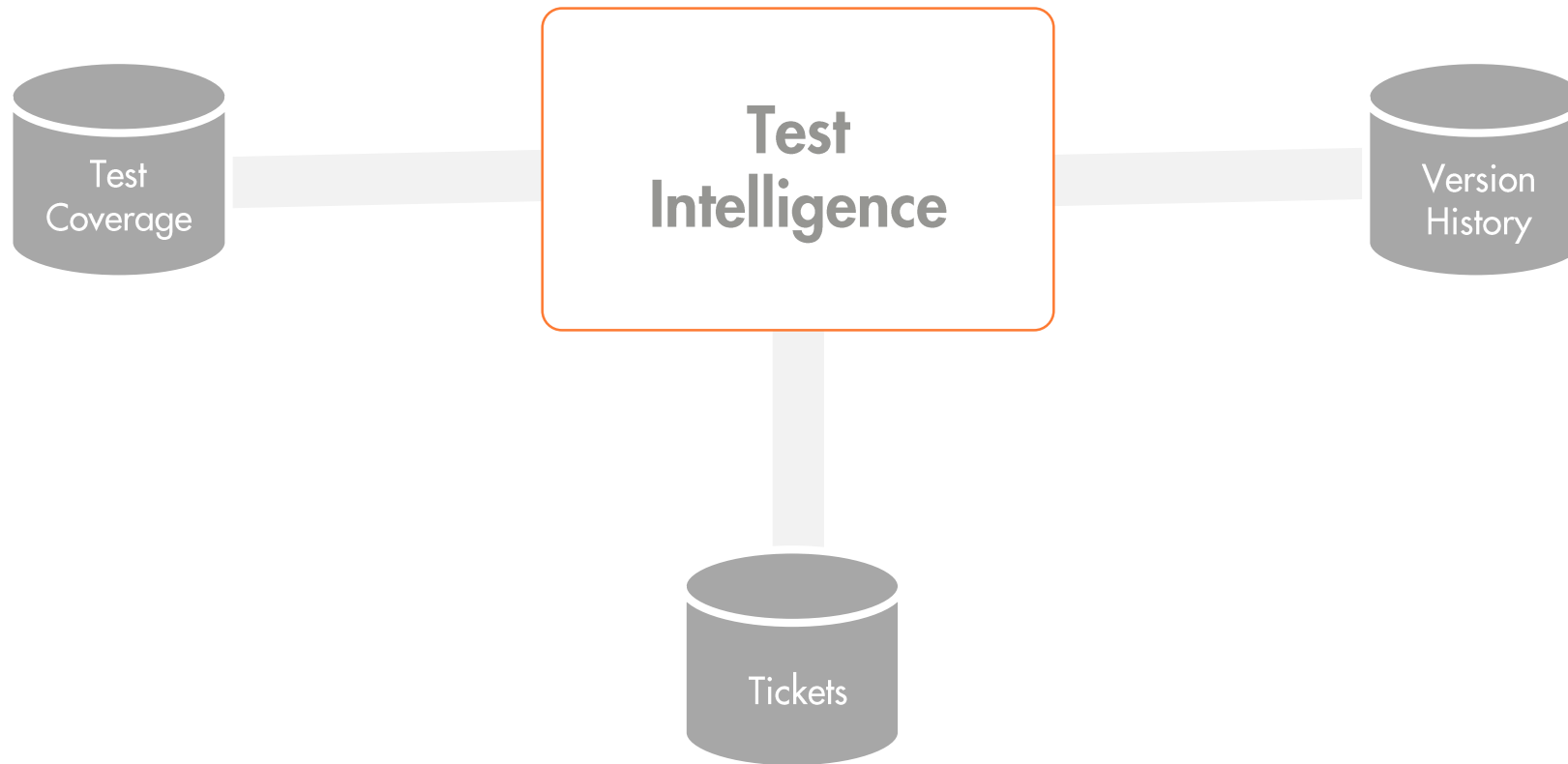

























- = Modifiziert & ungetestet
- = Neu & ungetestet
- = Unverändert
- = Geändert & ausgeführt im Test









Issue # <span>▼</span>	Subject	Done		Test Gap
<a href="#">TS-10549</a>	Undo/Redo for web-based architecture editor	Done		0% 
<a href="#">TS-10784</a>	Fix long method finding in TaintAnalysisRunner	Done		0% 
<a href="#">TS-10923</a>	Implement metric 'Nesting Depth' for Simulink	Done		29% 
<a href="#">TS-11364</a>	External findings are not registered during first upload	Done		14% 
<a href="#">TS-11942</a>	Manual test coverage upload during development	Done		43% 
<a href="#">TS-12050</a>	Tool for transferring findings blacklists and tasks	Done		50% 
<a href="#">TS-12262</a>	Cannot set or alter alias without reanalysis	Done		0% 
<a href="#">TS-13151</a>	Fetch parent relationship of TFS work items	Done		0% 

Issue # ▾	Subject		Test Gap
<a href="#">TS-14421</a>	Get rid of TestGapSynchronizer block	Done 	0% 
<a href="#">TS-14733</a>	Remove Dataflow blocks	Done 	22% 

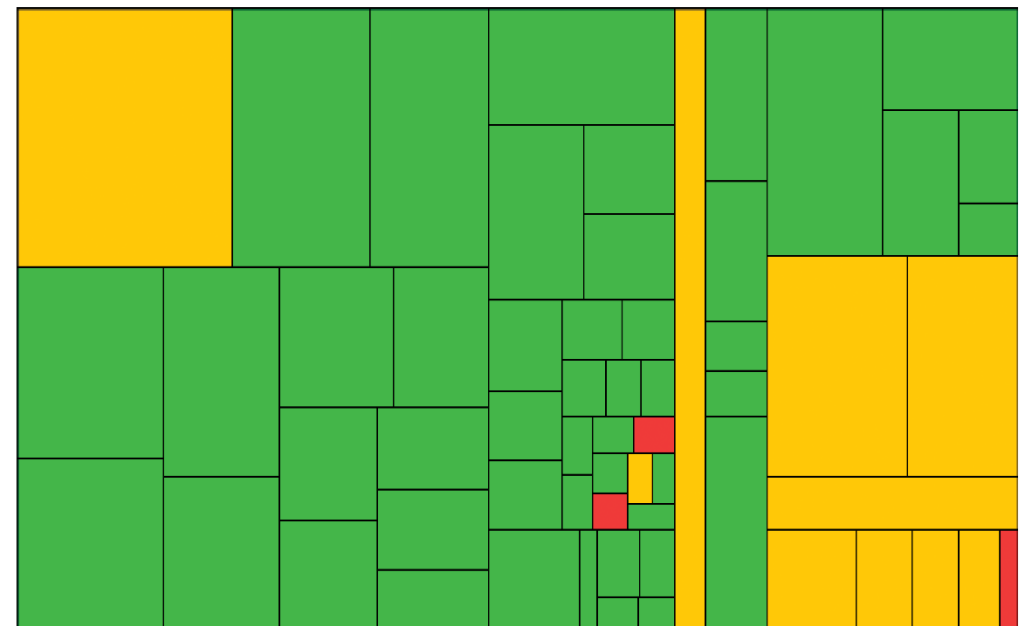
**Done Issue TS-14733 - Remove Dataflow blocks**

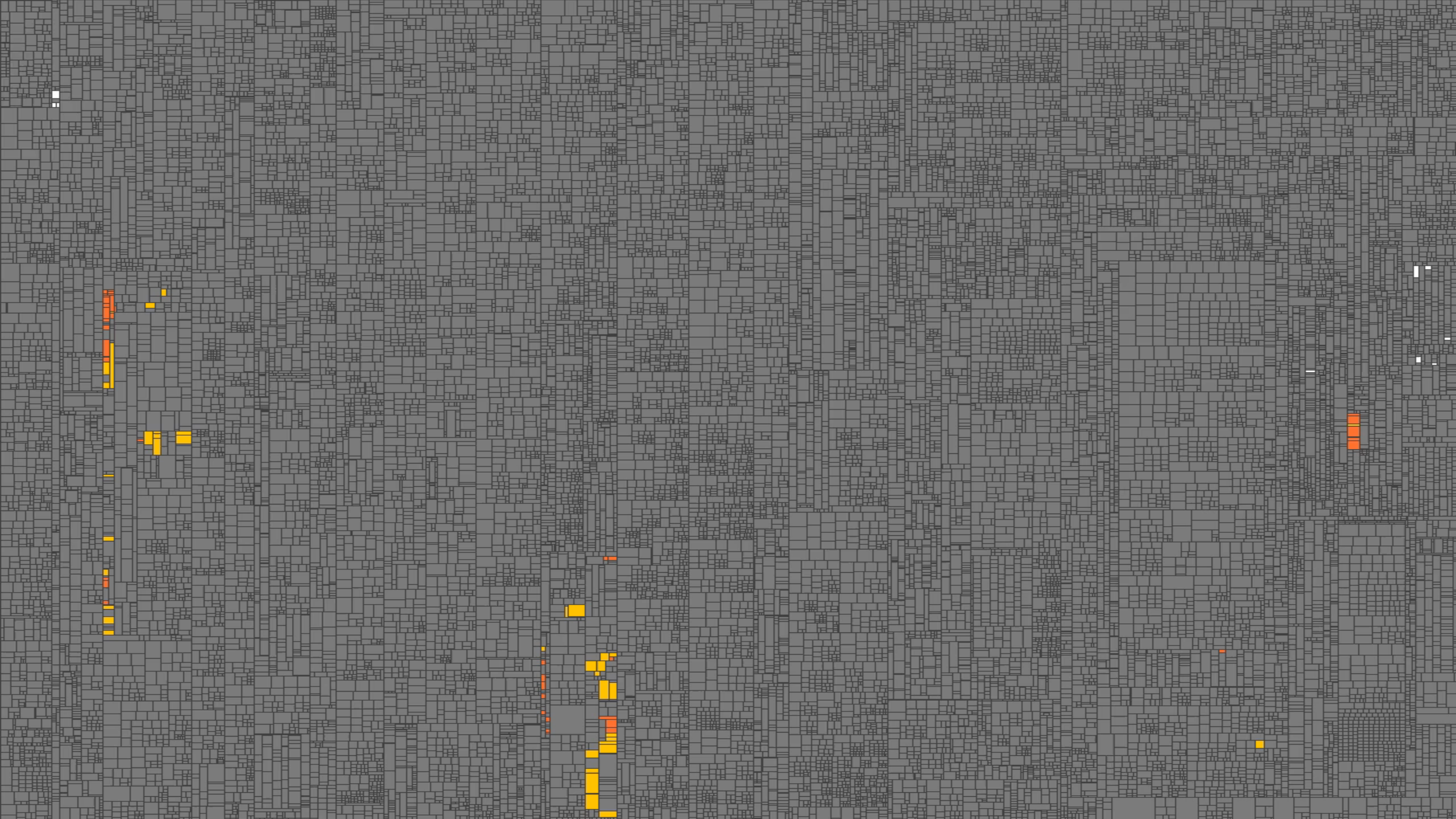
Creator:  (on Apr 06 2018 19:44) Last update: Aug 24 2018 09:32

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		
		<a href="https://git.cqse.eu/cqse/teamscale/3621">https://git.cqse.eu/cqse/teamscale/3621</a>		

Aug 15 2018 12:37–Now | Test Gap: 22%











# Kontakt – Ich freue mich auf Diskussionen 😊



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