

Ein Plädoyer für Software Intelligence

Wie schaffen wir durchgängige Konsistenz?

CQSE

Andreas Wilhelm



Leverkusen

Xabi Alonso
3-4-2-1

7.13

3:0

FT

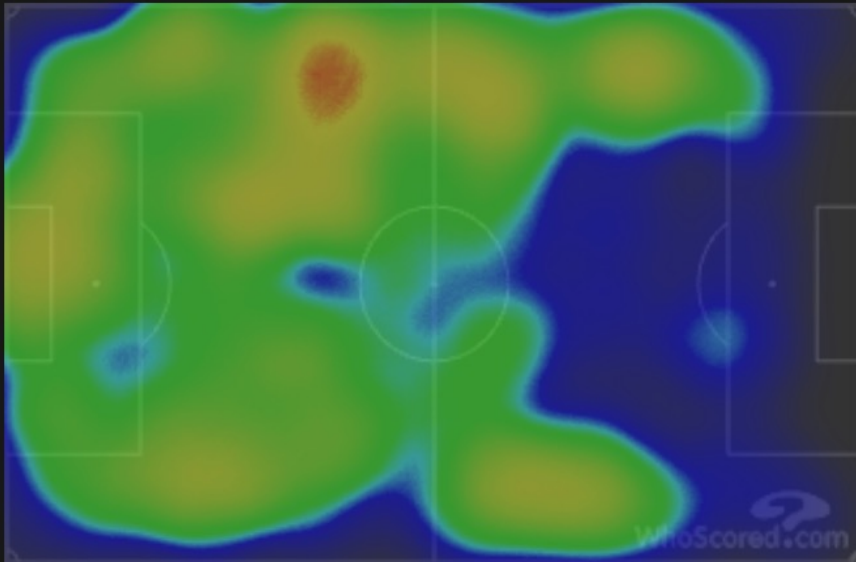
Bayern

Thomas Tuchel
3-4-2-1

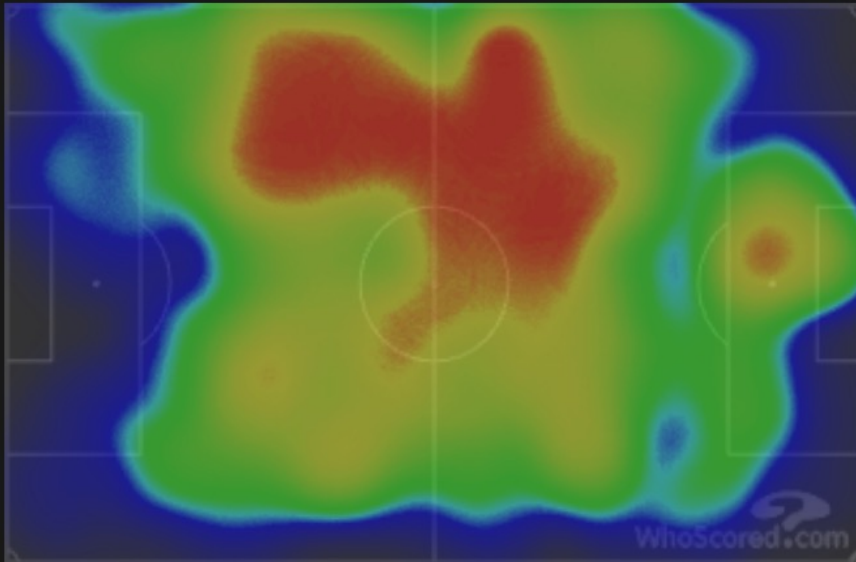


6.27

Touches: **594**



Touches: **845**



- Select all
- 1. Hrádecký (GK)
- 12. Tapsoba (DC)
- 3. Hincapié (DC)
- 4. Tah (DC)
- 2. Stanisic (DMR)
- 20. Grimaldo (DML)
- 8. Andrich (MC)
- 34. Xhaka (MC)
- 10. Wirtz (AMC)
- 19. Tella (AMC)
- 21. Adli (FW)
- 32. Puerta (Sub)
- 23. Hlozek (Sub)
- 7. Hofmann (Sub)
- 30. Frimpong (Sub)

- Select all
- 1. Neuer (GK)
- 2. Upamecano (DC)
- 15. Dier (DC)
- 3. Min-Jae (DC)
- 40. Mazraoui (DMR)
- 23. Boey (DML)
- 8. Goretzka (MC)
- 45. Pavlovic (MC)
- 42. Musiala (AMC)
- 10. Sané (AMC)
- 9. Kane (FW)
- 13. Choupo-Moting...
- 39. Tel (Sub)
- 6. Kimmich (Sub)
- 25. Müller (Sub)
- 22. Guerreiro (Sub)



2002

.msg

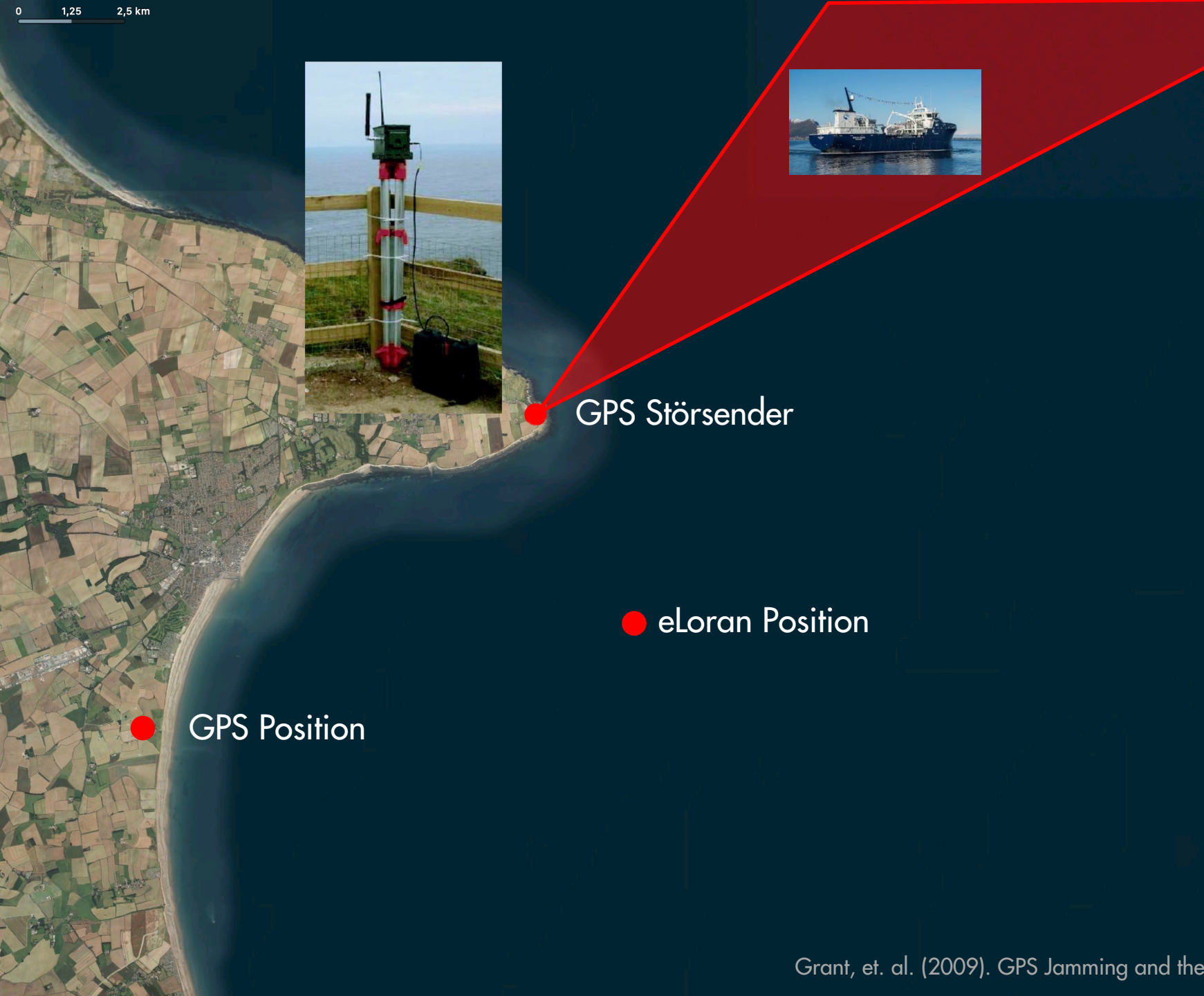
TUM SIEMENS
Ingenuity for life

CQSE

2024



Konsistenz

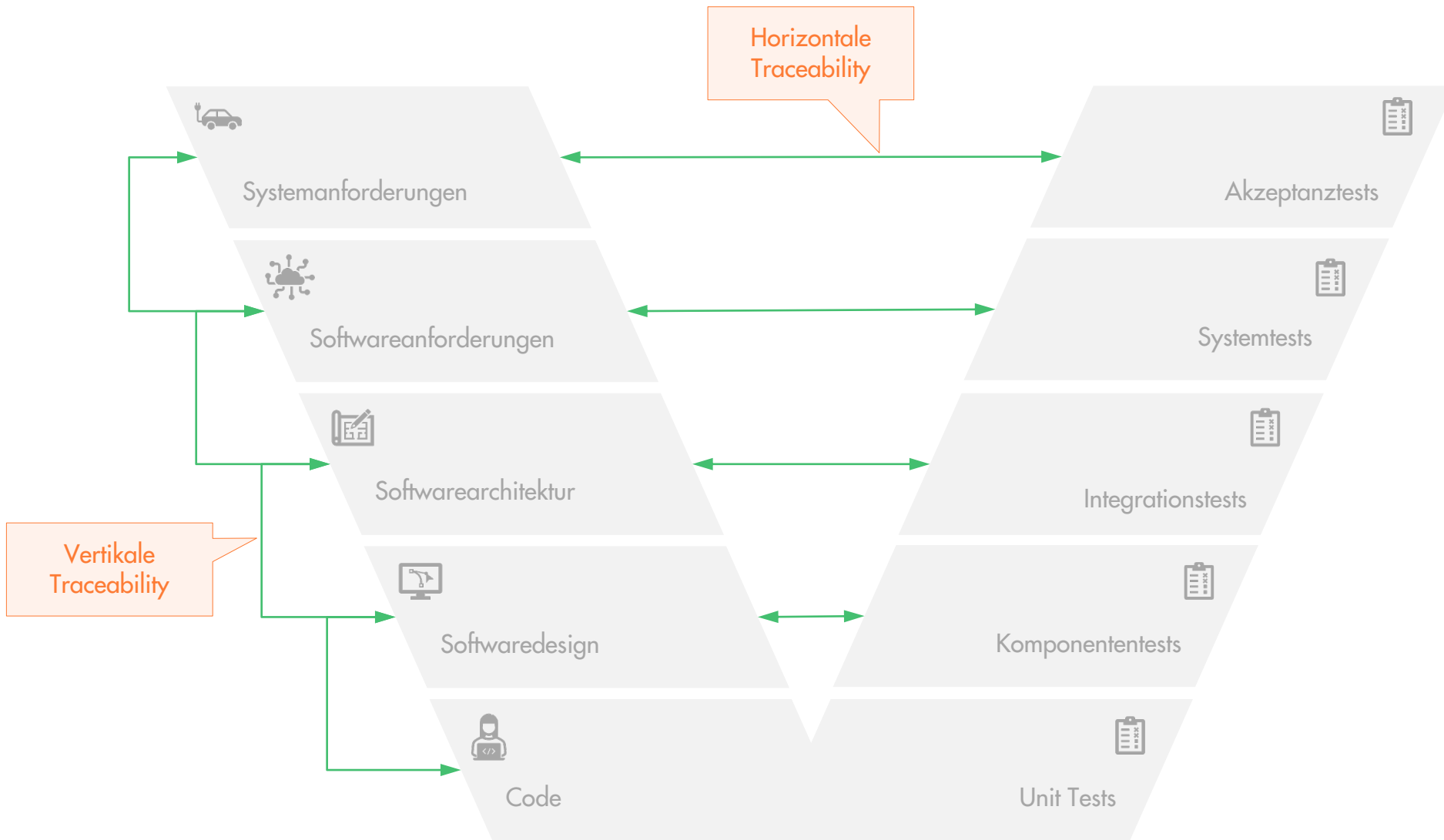


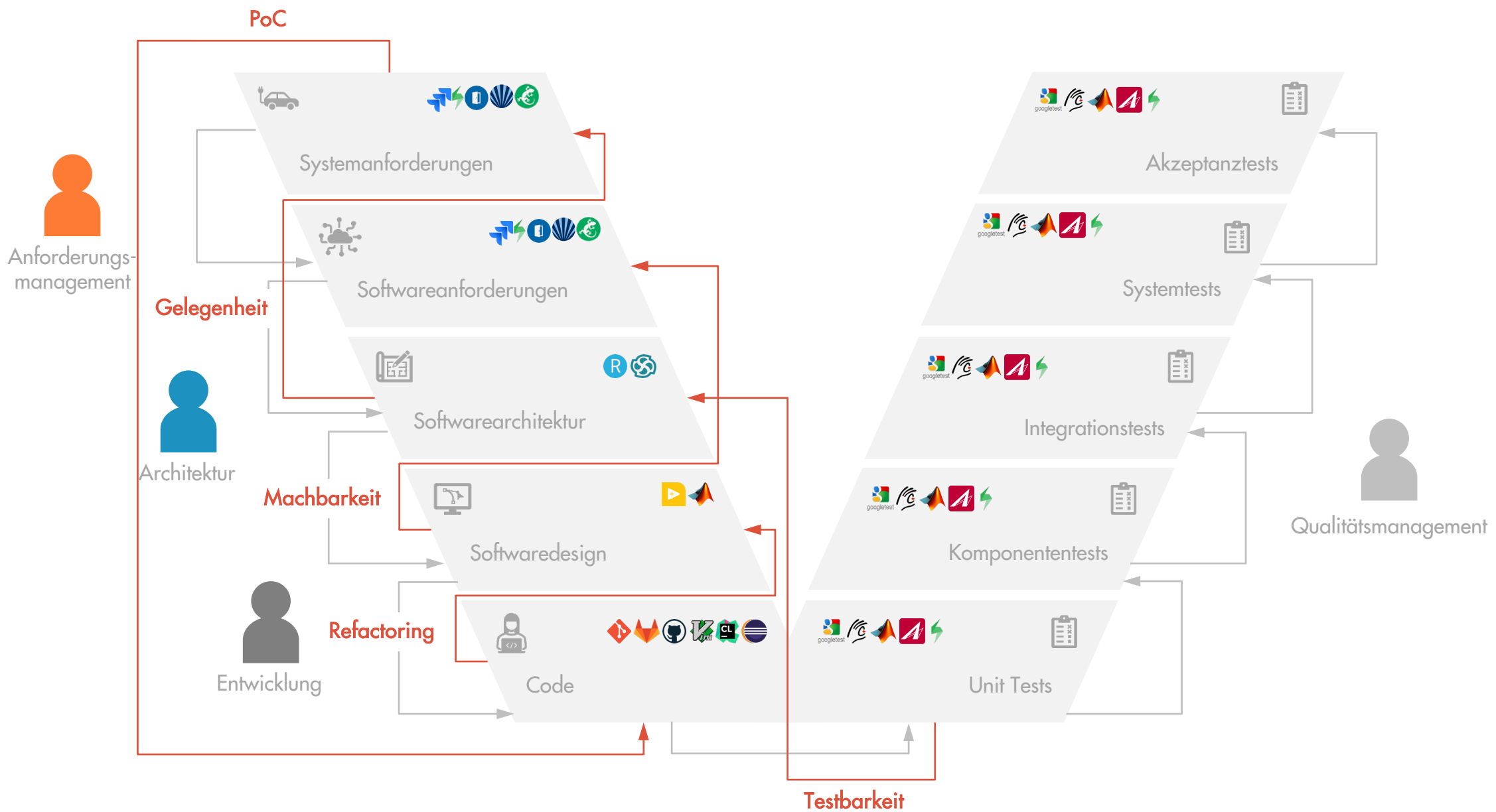
GPS Receiver

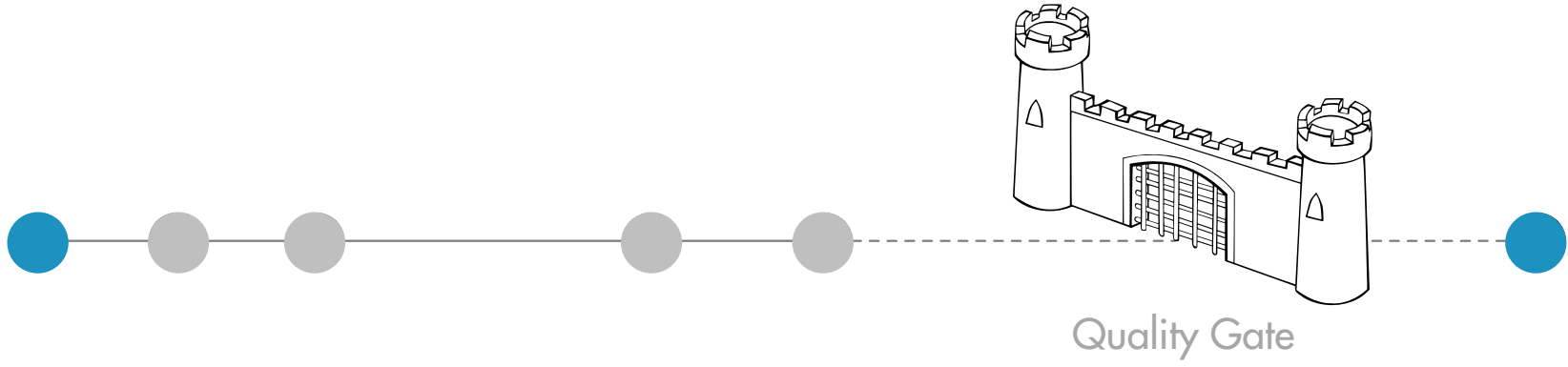
TNS Timing Data

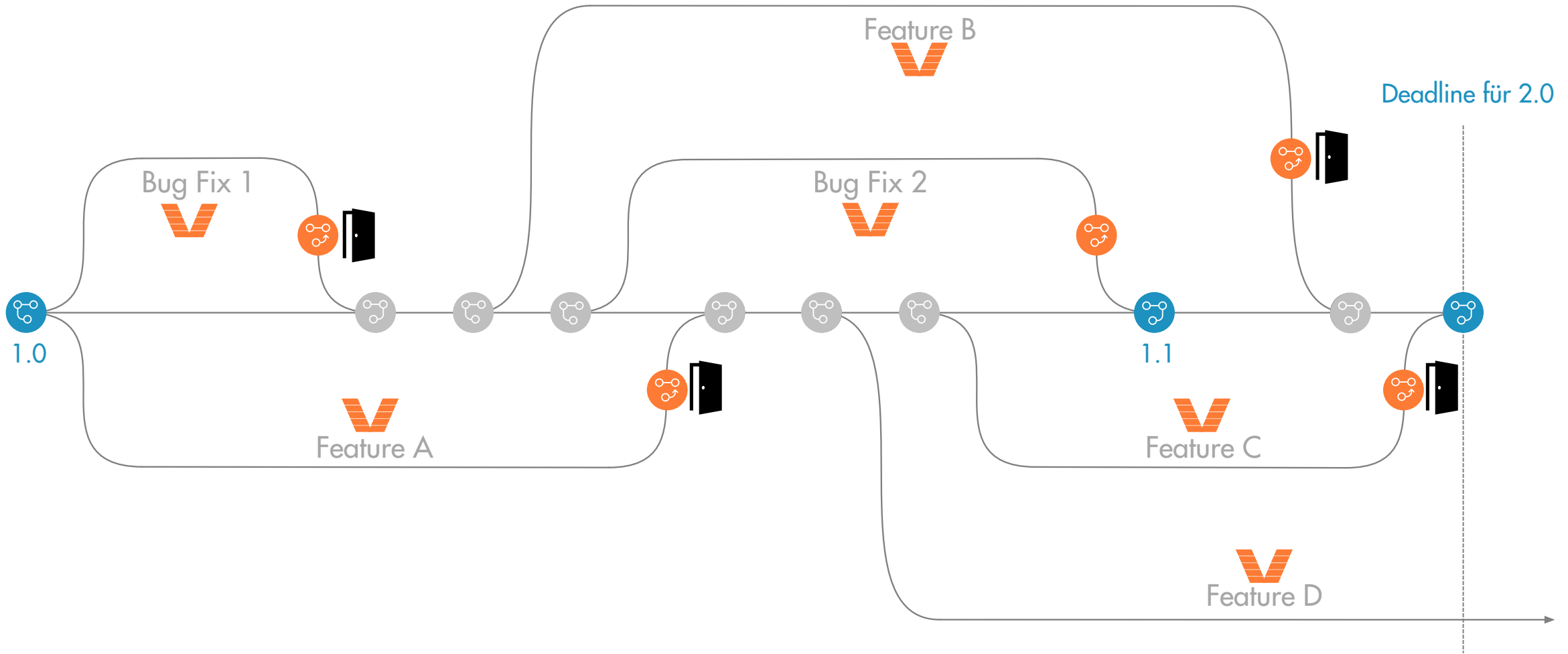


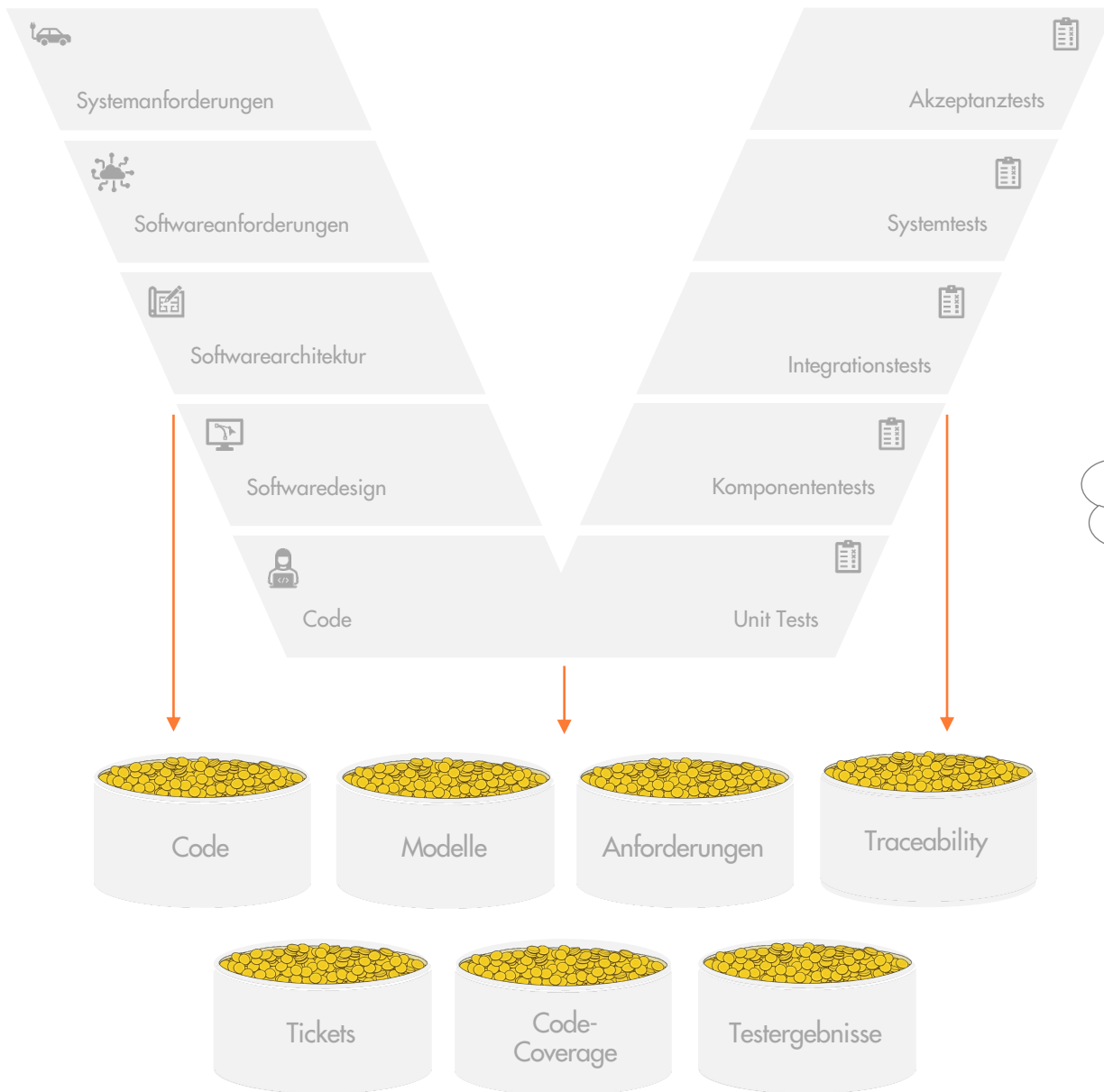
eLoran Receiver

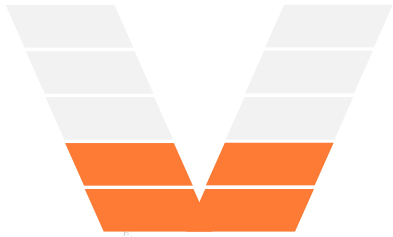












Mögliche Qualitätsprobleme
und fehlende Tests

TS-37541 swiftlint 139

Merged David Baum requested to merge [ts/37541_swiftlint_139](#) into [teamscale/v9.4.x](#) 1 week ago

Overview 7 Commits 4 Pipelines 4 Changes 5

Teamscale Findings 1 1 1 1 Test Gap (10%)

Edited 1 week ago by CQSE Teamscale IO

0 0



CQSE Teamscale IO @group_53136054_bot_4db54261318d41287d7647061b79825f started a thread on the diff [^ Hide thread](#)
1 week ago
Last updated 1 week ago by David Baum

[server/com.teamscale.index/src/main/java/com/teamscale/index/findings/swiftlint/SwiftLintRunner.java](#)

```
1 1 package com.teamscale.index.findings.swiftlint;
```



CQSE Teamscale IO @group_53136054_bot_4db54261318d41287d7647061b79825f
· 1 week ago

Developer

[Alert] Found potential inconsistent clone change in SwiftLintRunner.java ([view in Teamscale](#))



David Baum @naraesk · 1 week ago
That's intended :)

Author Developer

Reply...

Resolve thread

Mögliche Inkonsistenz

```
662 /**
663  * Runs clang-tidy with the given parameters. Returns a Pair of the return code
664  * and the output (combined out and err streams). Command is executed with a
665  * relatively short timeout of one minute, therefore this method should not be
666  * used for code analysis.
667  */
668 public static Pair<Integer, String> getNonAnalysisCommandLineOutput(String... options) {
669     String clangTidyExe = loadConfiguredClangTidyExe();
670     ProcessWrapper process = new ProcessWrapper(clangTidyExe);
671     for (String parameter : options) {
672         process.addArgument(parameter);
673     }
674     // I use StringBuffer instead of StringBuilder since it is thread safe and we
675     // will write to it asynchronously from the out and the err consumer.
676     // Linebreak is added to the string before calling append to make the operation
677     // atomic.
678     StringBuffer combinedOut = new StringBuffer();
679     process.setOutputConsumer(line -> combinedOut.append(line).append("\n"));
680     process.setErrorConsumer(line -> combinedOut.append(line).append("\n"));
681
682     int returnCode = process.runWithTimeout(1);
683     return new Pair<>(returnCode, combinedOut.toString());
684 }
```

```
168 /**
169  * Runs swiftlint with the given parameters. Returns a Pair of the return code
170  * and the output (combined out and err streams). Command is executed with a
171  * relatively short timeout of one minute, therefore this method should not be
172  * used for code analysis.
173  */
174 */
175 public static Pair<Integer, String> getNonAnalysisCommandLineOutput(String... options) {
176     ProcessWrapper process = new ProcessWrapper(SWIFTLINT_EXECUTABLE, true);
177     for (String parameter : options) {
178         process.addArgument(parameter);
179     }
180     // I use StringBuffer instead of StringBuilder since it is thread safe, and we
181     // will write to it asynchronously from the out and the err consumer.
182     // Linebreak is added to the string before calling append to make the operation
183     // atomic.
184     StringBuffer combinedOut = new StringBuffer();
185     process.setOutputConsumer(line -> combinedOut.append(line).append("\n"));
186     process.setErrorConsumer(line -> combinedOut.append(line).append("\n"));
187
188     int returnCode = process.runWithTimeout(1);
189     return new Pair<>(returnCode, combinedOut.toString());
190 }
```



CQSE Teamscale IO @group_53136054_bot_4db54261318d41287d7647061b79825f started a thread on the diff ^ Hide thread
1 week ago
Last updated 1 week ago by David Baum

server/com.teamscale.index/src/main/java/com/teamscale/index/findings/swiftlint/SwiftLintRunner.java

```
1 1 package com.teamscale.index.findings.swiftlint;
```



CQSE Teamscale IO @group_53136054_bot_4db54261318d41287d7647061b79825f Developer ✓ 😊 ⋮
· 1 week ago

🚨 **[Alert]** Found potential inconsistent clone change in SwiftLintRunner.java [\(view in Teamscale\)](#)

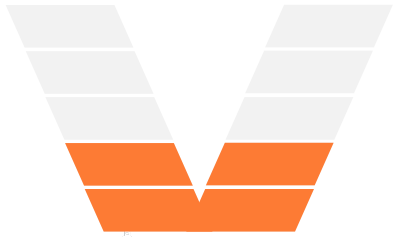


David Baum @naraesk · 1 week ago Author Developer 😊 ⋮
That's intended :)

Reply...

Resolve thread

Mögliche Inkonsistenz



Mögliche Qualitätsprobleme
und fehlende Tests

TS-37541 swiftlint 139

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CQSE Teamscale IO @group_53136054_bot_4db54261318d41287d7647061b79825f started a thread on the diff [^ Hide thread](#)
1 week ago
Last updated 1 week ago by David Baum

server/com.teamscale.index/src/main/java/com/teamscale/index/findings/swiftlint/SwiftLintRunner.java

```
1 1 package com.teamscale.index.findings.swiftlint;
```



CQSE Teamscale IO @group_53136054_bot_4db54261318d41287d7647061b79825f
· 1 week ago

Developer

[Alert] Found potential inconsistent clone change in SwiftLintRunner.java ([view in Teamscale](#))



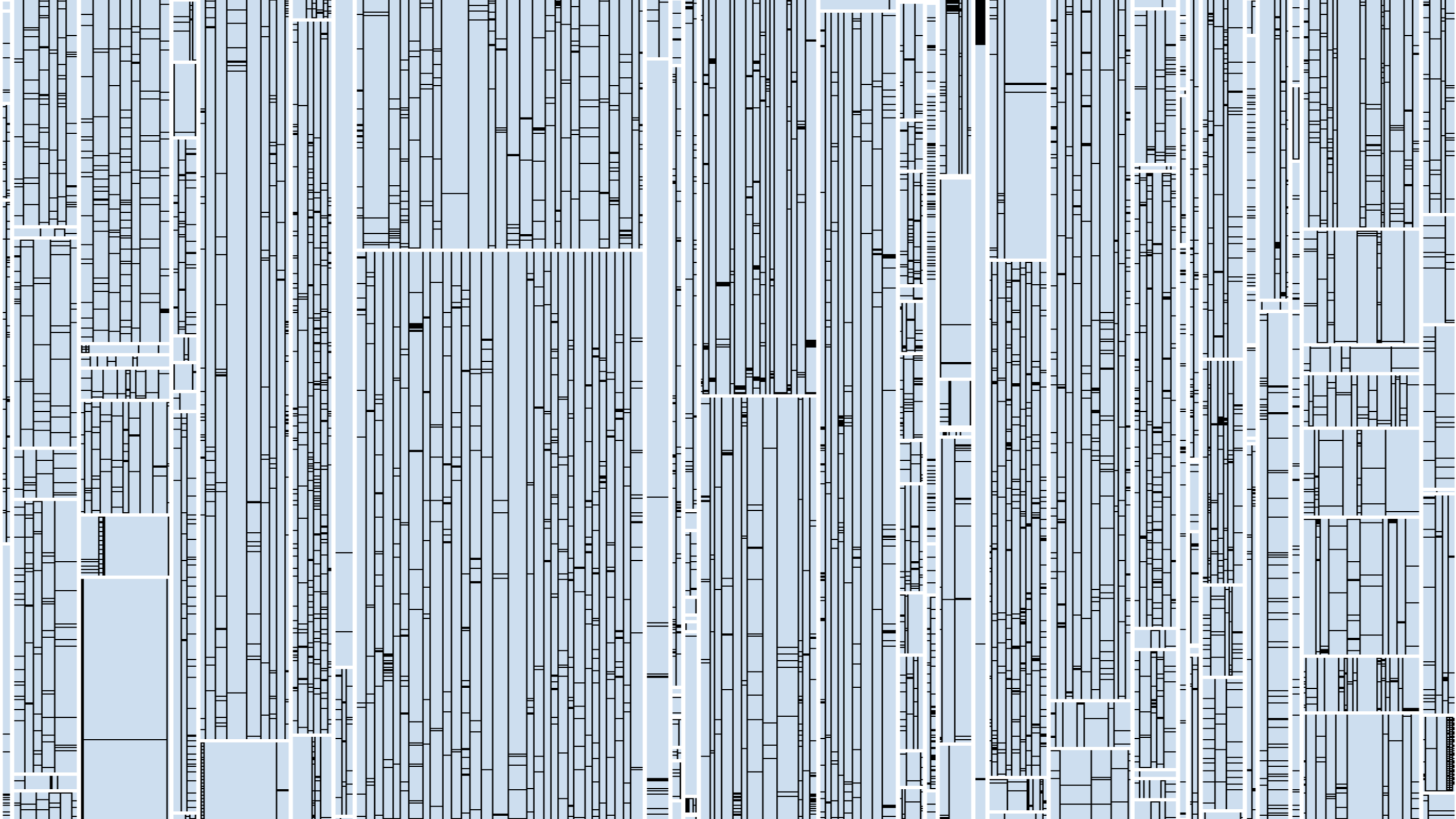
David Baum @naraesk · 1 week ago
That's intended :)

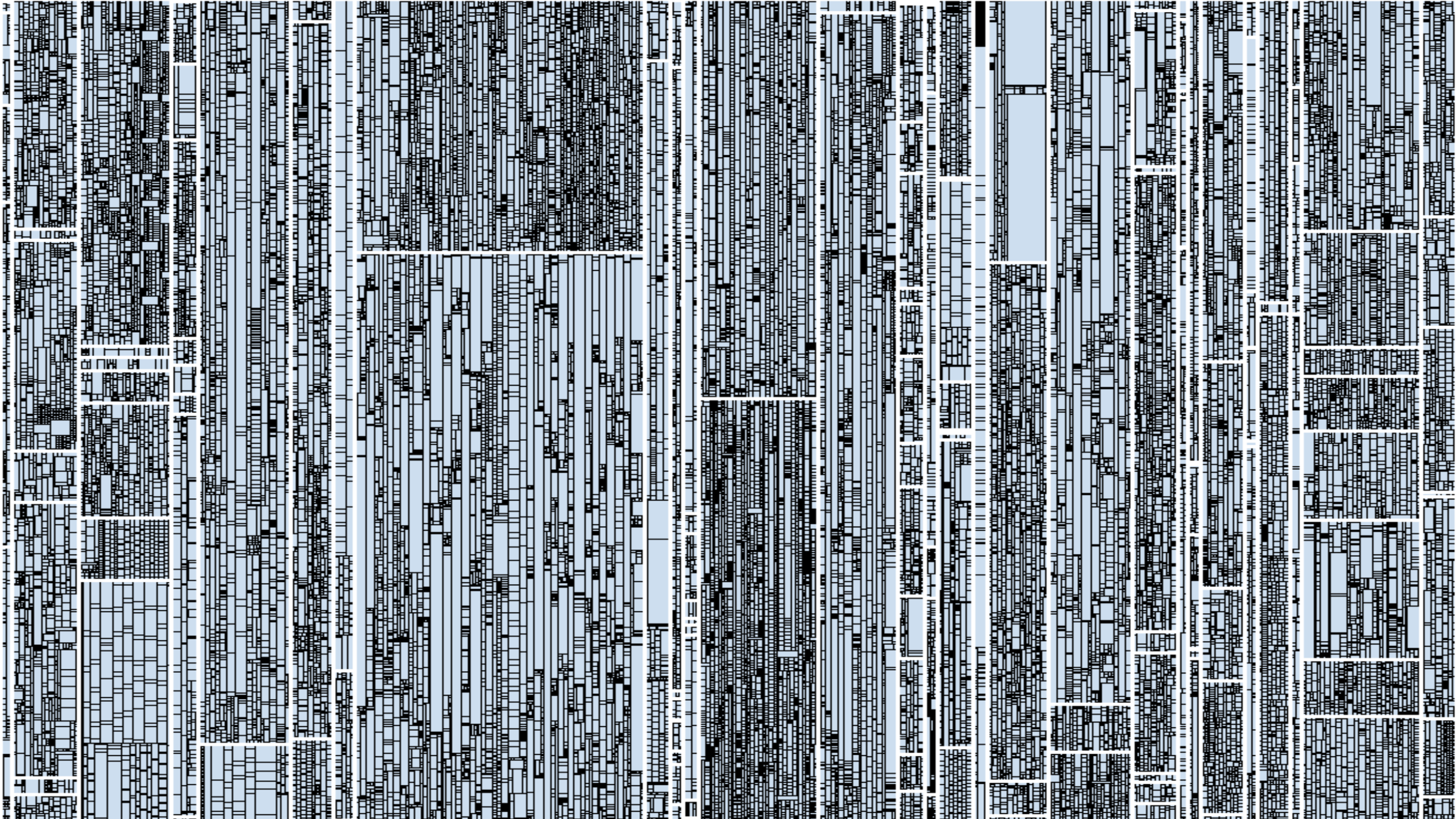
Author Developer

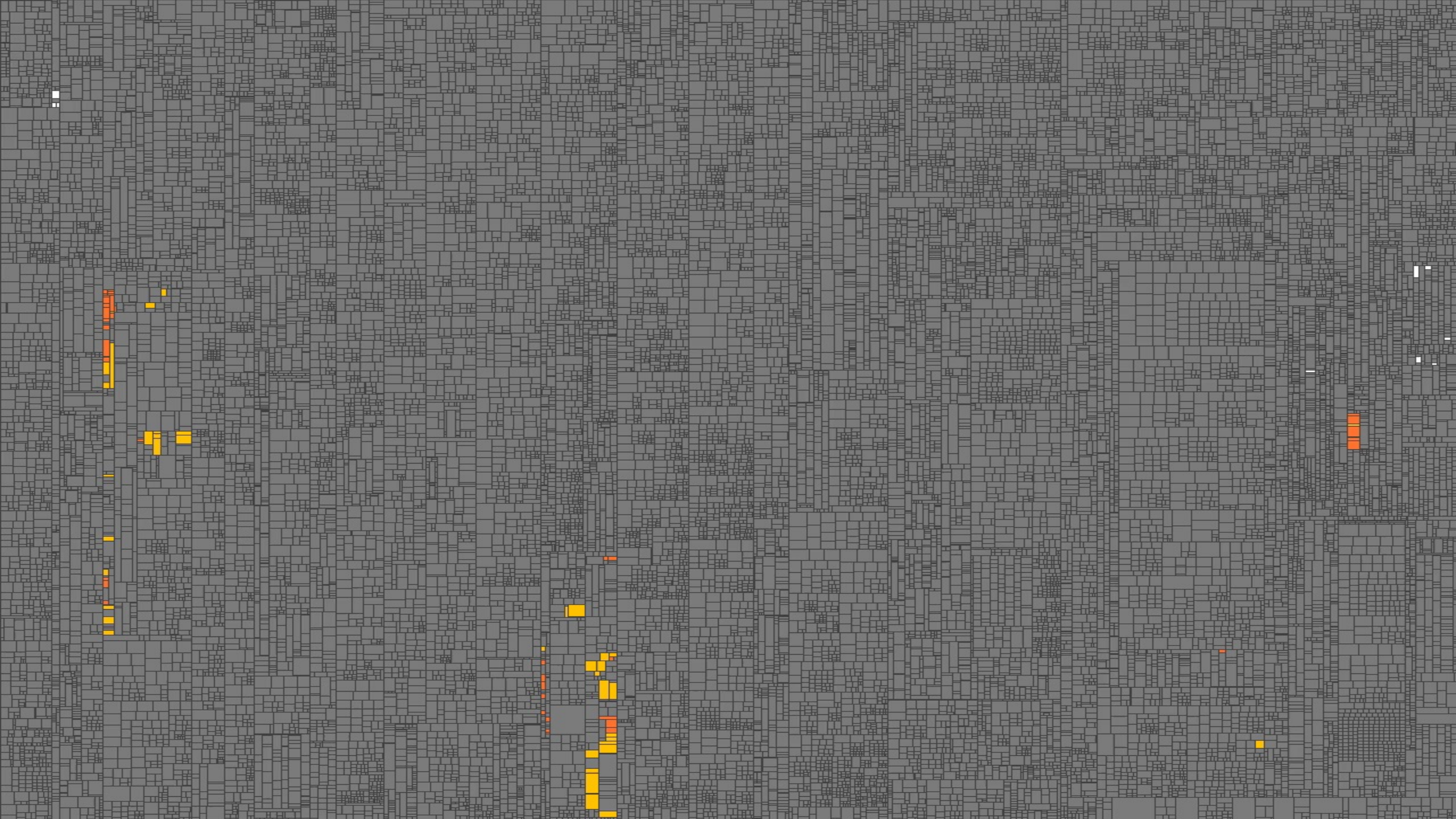
Reply...

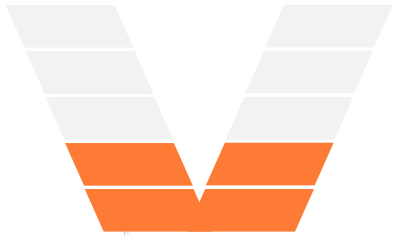
Resolve thread

Mögliche Inkonsistenz









Mögliche Qualitätsprobleme
und fehlende Tests

TS-37541 swiftlint 139

Merged David Baum requested to merge [ts/37541_swiftLint_139](#) into [teamscale/v9.4.x](#) 1 week ago

Overview 7 Commits 4 Pipelines 4 Changes 5

Findings 🚩 1 🔧 1 🔔 1 1 Test Gap (10%)

Edited 1 week ago by CQSE Teamscale IO

0 0



CQSE Teamscale IO @group_53136054_bot_4db54261318d41287d7647061b79825f started a thread on the diff [^ Hide thread](#)

1 week ago

Last updated 1 week ago by David Baum

[server/com.teamscale.index/src/main/java/com/teamscale/index/findings/swiftlint/SwiftLintRunner.java](#)

```
1 1 package com.teamscale.index.findings.swiftlint;
```



CQSE Teamscale IO @group_53136054_bot_4db54261318d41287d7647061b79825f

Developer



· 1 week ago

[Alert] Found potential inconsistent clone change in SwiftLintRunner.java ([view in Teamscale](#))



David Baum @naraesk · 1 week ago

Author

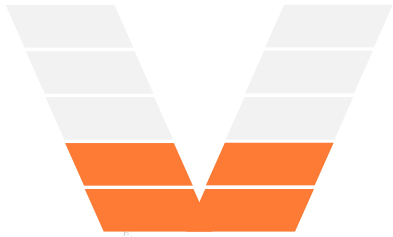
Developer



That's intended :)

Reply...

Resolve thread



20381 TS-37541 swiftlint 139

Delta

View on Platform

Request to merge [ts/37541_swiftlint_139](#) into [teamscale/v9.4.x](#) **MERGED** **SKIPPED**

This change contains 2 commits and introduces 1 new finding

^ Test Gaps

Feb 16 2024 10:48 - Now | Test Gap: 10%

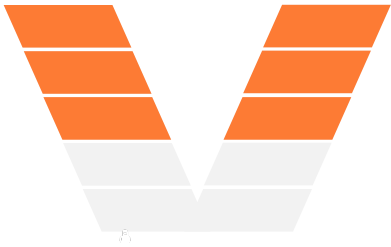
Coverage sources **All**



Aggregierte
Test Gap Daten



Findings **1** **2** **1**



20381 TS-37541 swiftlint 139

Delta

View on Platform

Request to merge [ts/37541_swiftlint_139](#) into [teamscale/v9.4.x](#)

MERGED

SKIPPED

This change contains 2 commits and introduces 1 new finding

^ Test Gaps

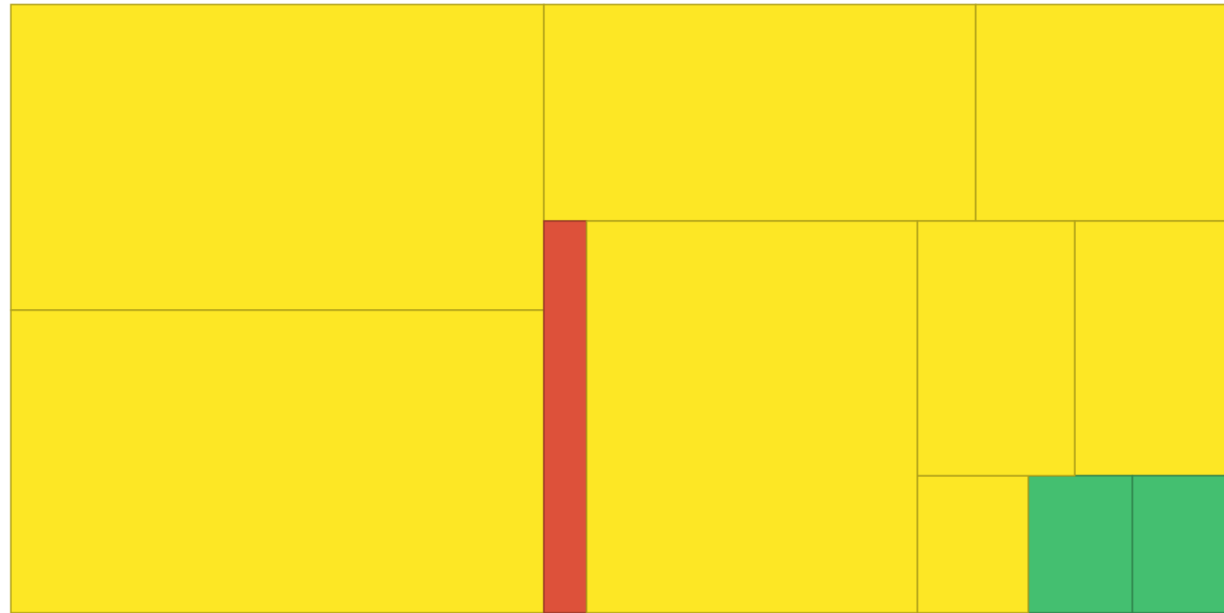
Feb 16 2024 10:48 - Now | Test Gap: 81.8%

Coverage sources

Integration Tests

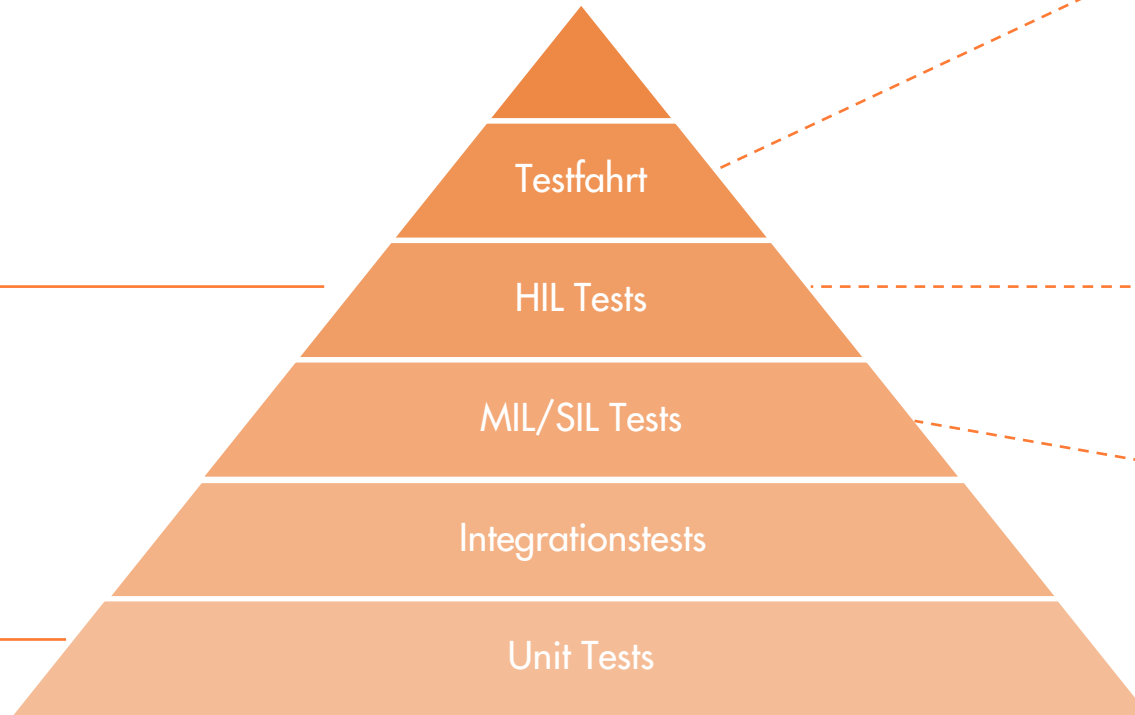
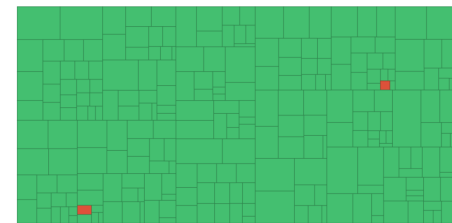
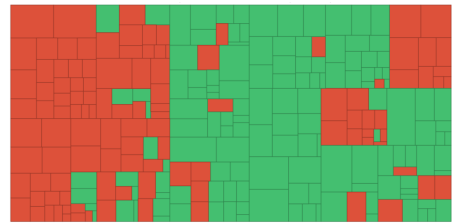
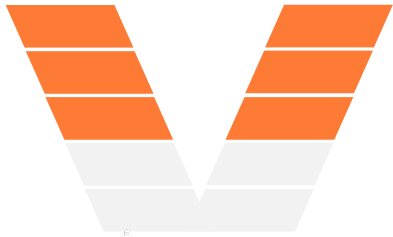
MockServer Live Tests

System Tests

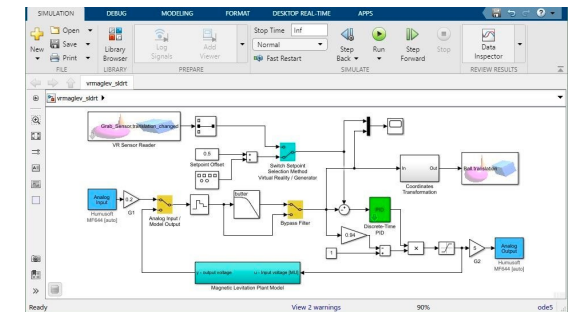


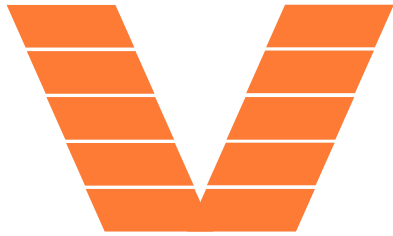
Spezifische
Test Gap Daten

Findings 1 2 1



Copyright dSPACE





Merged **TS-37049 Remove deprecated closure library usages** `ts/37049_remove_closure_li...` into `master`

Overview 18 Commits 39 Pipelines 5 Changes 252

Stefan Knilling @knilling started a thread on commit 19f44fd2 1 month ago
Resolved 1 month ago by Stefan Knilling

webapp/src/commons/ArrayUtils.ts

```
614 614     }
615 615     return true;
616 616   }
617 +
618 +   /**
619 +    * Inserts a value into a sorted array. The array is not modified if the value is
620 +    * already present.
621 +    * @param array The array to modify.
622 +    * @param value The object to insert.
623 +    * @param compareFn Optional comparison function by which the array is ordered. Should
624 +    * take 2 arguments to compare,
625 +    * and return a negative number, zero, or a positive number depending on whether the
626 +    * first argument is less than,
627 +    * equal to, or greater than the second.
628 +    * @returns True if an element was inserted.
629 +    */
630 +   public static binaryInsert<T>(array: T[], value: T, compareFn: (a: T, b: T) => number):
631 +   boolean {
```

Stefan Knilling @knilling · 1 month ago Developer ✓

Should we add some unit tests for the newly added utils functions (`binaryInsert`, `binarySearch`, `binarySelect`)?

Florian Dreier @DreierF · 1 month ago Author Developer

Added some tests for `binaryInsert`, `binarySearch`. `binarySelect` is IMHO sufficiently tested via `binarySearch`.

Stefan Knilling @knilling · 1 month ago Developer

Thanks!

Reply... Unresolve thread

Inkonsistenz durch fehlende Tests



Unvollständige Begründungen

As a client, I would like to be able to upload medical invoices online

Missing Rationale

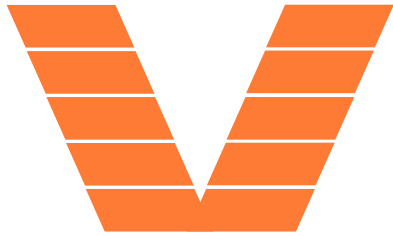
A rationale is missing (... so that ...).

Acceptance Criteria:

- The UI of the upload system **should** be user-friendly and provide a clear button with the title 'Upload medical invoice'.
- As soon as the button **is pressed**, an additional window will automatically open and it is possible to browse through files.
- The system must accept all common file formats for uploading (pdf **etc.**).
- **As soon as the user has found the desired invoice and presses the Upload button, the document is uploaded as quickly as possible and checked for the correct file format.**

Lange und schwer verständliche Sätze

Unpräzise Sprache



1 Verify the stack requirements

Delta

Request to merge [verify_stack](#) into [master](#)

This change contains 6 commits and introduces 2 new findings

Test Gaps

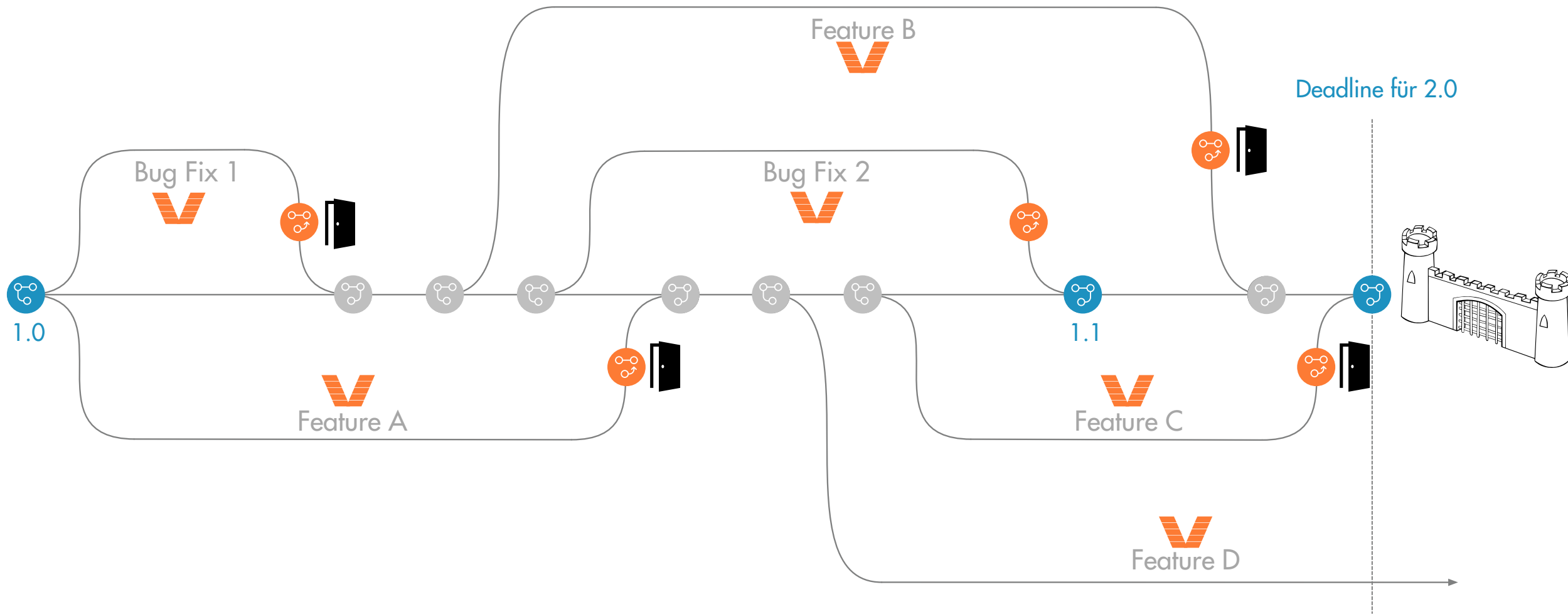
Findings 0 2 2

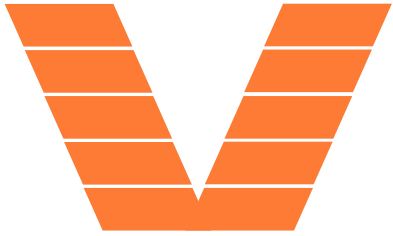
Impacted Specification Items

The following 4 specification items are related to the changes in this merge request. Please ensure that these specification items and the referencing code are still in line with one another.

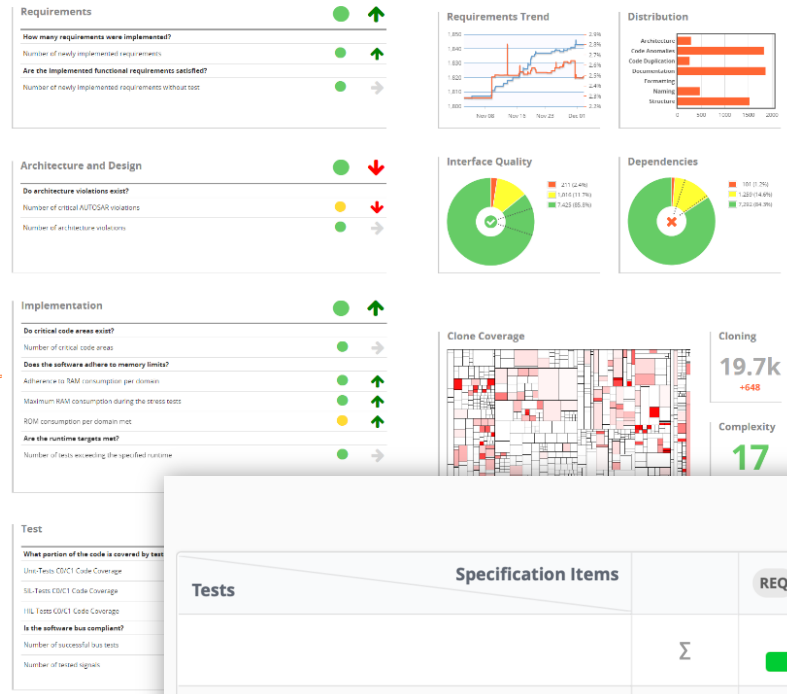
Specification Items	Type	Change	Message	Reference location
DP-539	REQ	+	Test StackTests_Peek now references DP-539	data_structures/tests/stack_tests.c:37
DP-547	TST	⚡	Test StackTests_Pop has been modified and references DP-547	data_structures/tests/stack_tests.c:22
DP-544	REQ	🔻	Test StackTests_Push no longer references DP-544	data_structures/tests/stack_tests.c:11
DP-541	REQ	🔻	Test StackTests_Push no longer references DP-541	data_structures/tests/stack_tests.c:11

Checkliste der relevanten Anforderungen





Dashboard zur Prozessoptimierung



Dynamische Verifikationsmatrix

Show test results from: **All**

Tests	Specification Items	REQ DP-539	REQ DP-540	TST DP-547	TST DP-548
	Σ	1	0	1	1
data_structures/tests/stack_tests.c/StackTests/Push	1				
data_structures/tests/stack_tests.c/StackTests/Pop	1				
data_structures/tests/stack_tests.c/StackTests/Peek	1				

Linux SKIPPED

Windows FAILURE

Show test results from: **All**

Tests	Specification Items	REQ DP-539	REQ DP-540	TST DP-547	TST DP-548
		1	0	1	1
data_structures/tests/stack_tests/StackTests/Peek		1			1
data_structures/tests/stack_tests/StackTests/Pop		1		1	
data_structures/tests/stack_tests/StackTests/Push		1			1

Linux SKIPPED
Windows FAILURE

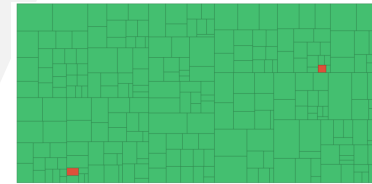
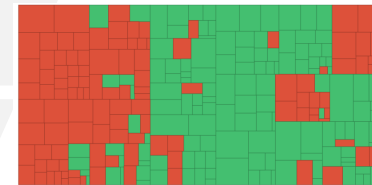
As a client, I would like to be able to upload medical invoices and
Missing Rationale
 Acceptance Criteria:
 - The UI of the upload system should be usable. A rationale is missing (., so that ...).
 - As soon as the button is pressed, an additional window will automatically open and it is possible to browse through files.
 - The system must accept all common file formats for uploading (pdf etc.).
 - As soon as the user has found the desired invoice and presses the Upload button, the document is uploaded as quickly as possible and checked for the correct file format.

```

152 // Run cleanup with the given parameters. Returns a pair of the return code
153 // and the output. Outputs out and err streams. Command is executed with a
154 // relatively short timeout of one minute, therefore this method should not be
155 // used for long actions.
156
157 public static Pair<Integer, String> executeCommand(String... options) {
158     String finalOutput = null;
159     ProcessBuilder process = new ProcessBuilder(SHELL_PATH, options);
160     try {
161         process.redirectErrorStream(true);
162         // Use StreamGatherer instead of StringGatherer since it is thread safe and we
163         // will write to it asynchronously from the out and the err streams.
164         // StreamGatherer is used for the string before calling append to save the operation
165         // from being blocked.
166         StreamGatherer commandOutput = new StreamGatherer();
167         process.redirectOutputStream(commandOutput);
168         process.redirectErrorStream(commandOutput);
169         return new Pair<Integer, String>(process.waitFor(), commandOutput.toString());
170     } catch (IOException | InterruptedException e) {
171         // ...
172     }
173 }
  
```

```

623 // Binary compare's optional comparison function by which the array is ordered. Should
624 // take 2 arguments to compare.
625 // * and returns a negative number, zero, or a positive number depending on whether the
626 // first argument is less than,
627 // * equal to, or greater than the second.
628 // * provides flow of an element was inserted.
629 // *
630 // public static BinaryInsert<T>(array: T[], value: T, compareFn: (a: T, b: T) => number):
631 //     boolean {
632     // ...
633     // ...
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```



Sind meine Änderungen konsistent?



» Software Intelligence «

Meine Folien finden Sie hier:
tmscl.me/embeddedtesting_2024_konsistenz

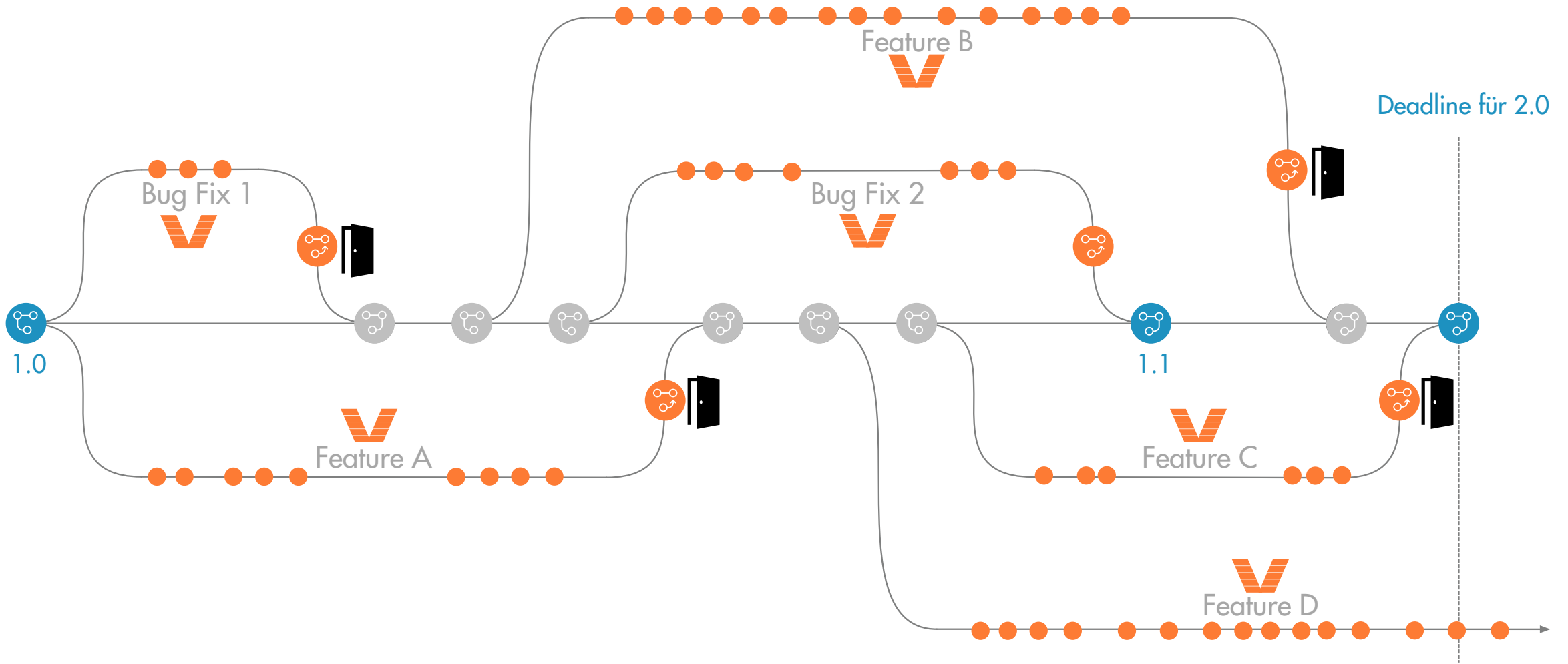


Dr. Andreas Wilhelm · wilhelm@cqse.eu · +49 171 4692677

CQSE GmbH
Centa-Hafenbrädl-Straße 59
81249 München

CQSE
Continuous Quality in Software Engineering

Backup



LOC 1.482.363

Entwickler 52

offene Merge Requests 302

automatisierte Tests 13.687

Testausführungsdauer ~11,4h

Commits/h 2,1

Pipelinedauer ~40m

Laufzeit Unit Tests ~15m

Laufzeit stat. Analyse ~3s

Test Impact Analyse

