

UI5con

How we replaced our legacy build infrastructure with UI5 Tooling

Florian Vogt & Merlin Beutlberger, SAP SE

July 6th, 2023

Build infrastructure for UI5

Internal production of the SAPUI5 product
(this includes OpenUI5)

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Produce artifacts for release via
ABAP, Java, CDN, npm, etc.

70 libraries maintained
by over 400 developers

Build infrastructure for UI5

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Produce artifacts for release via
ABAP, Java, CDN, npm, etc.

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Bundle resources

Minify resources

Compile themes

...

Create source maps

Generate metadata for
API reference, MTA build, npm
consumption, etc.

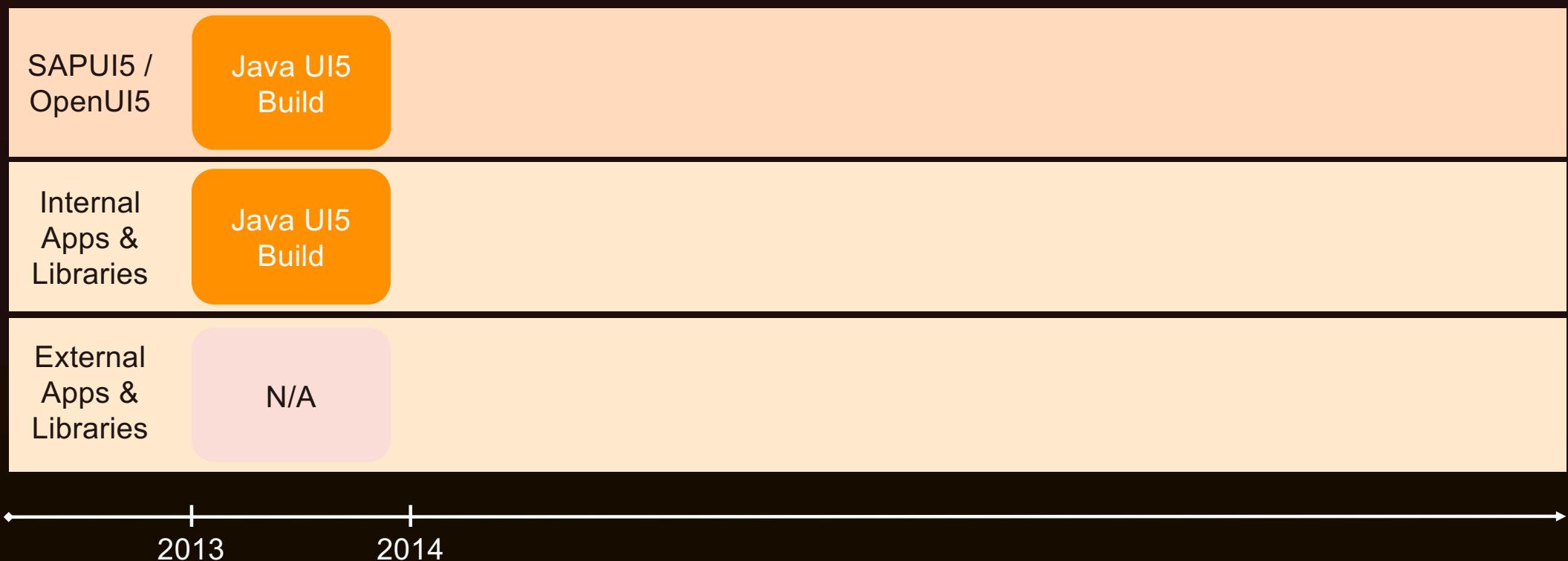
Build tools for UI5

UI5 Tooling

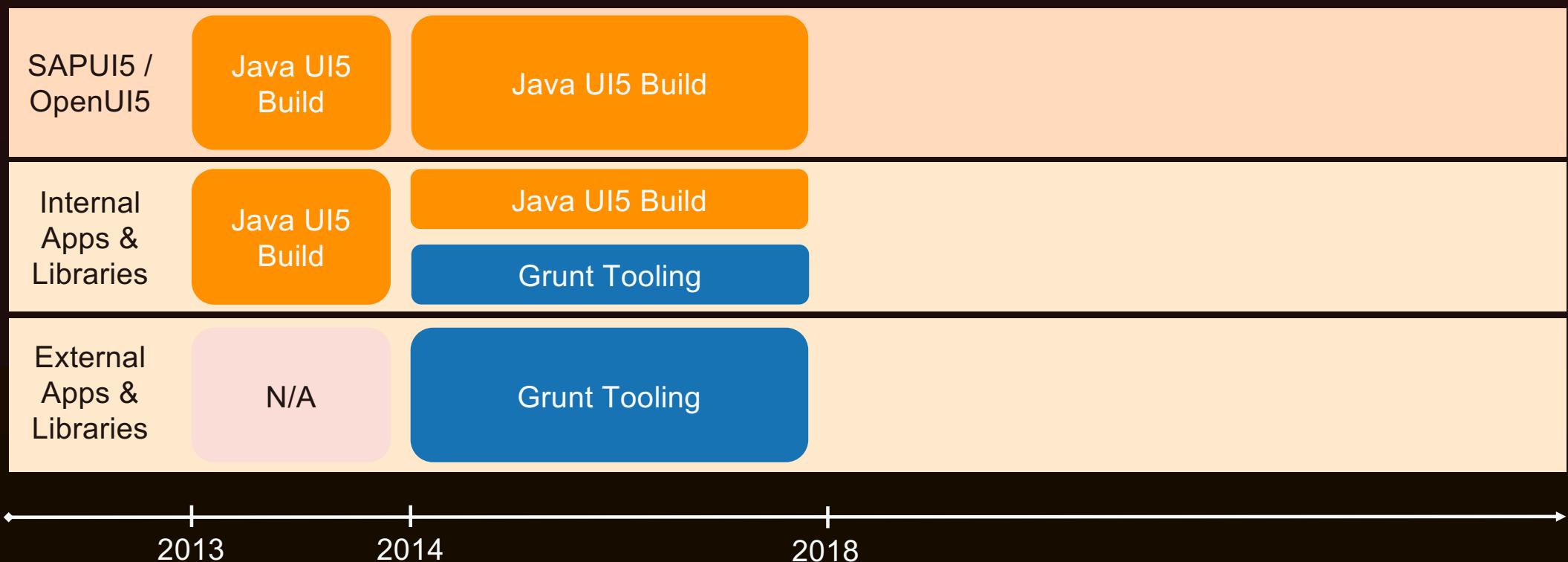
Java UI5 Build

Grunt Tooling

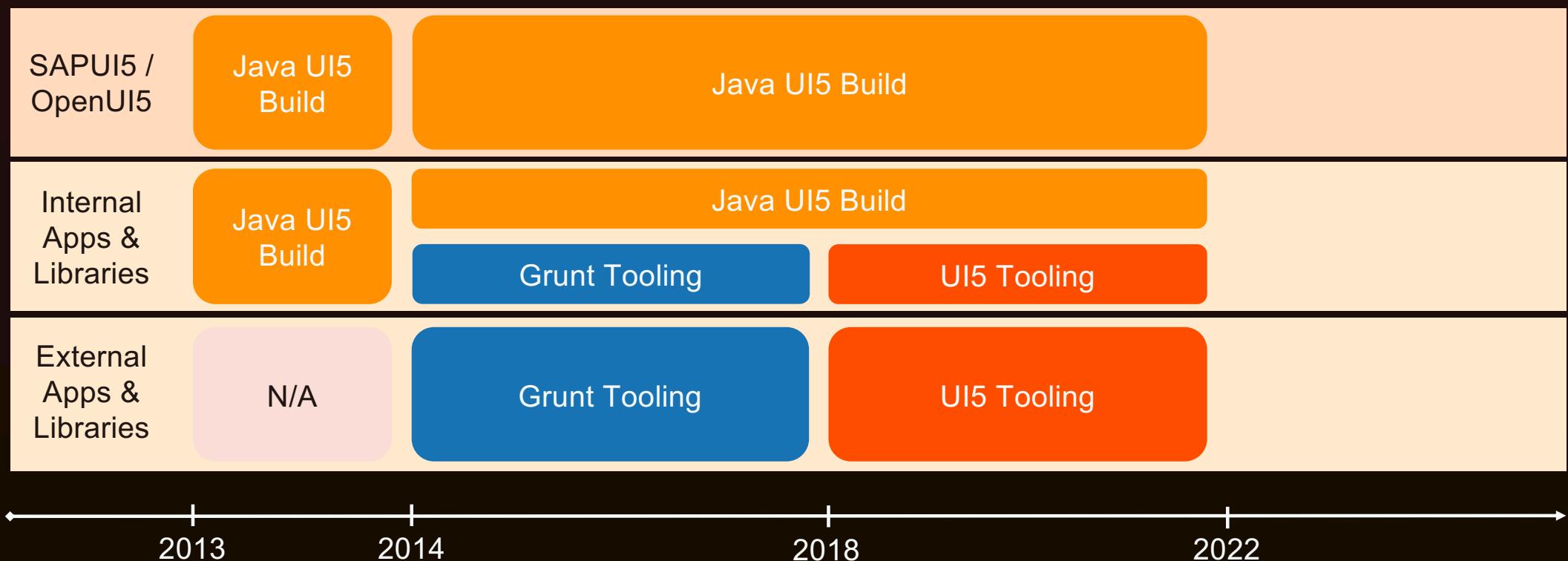
History of build tools for UI5



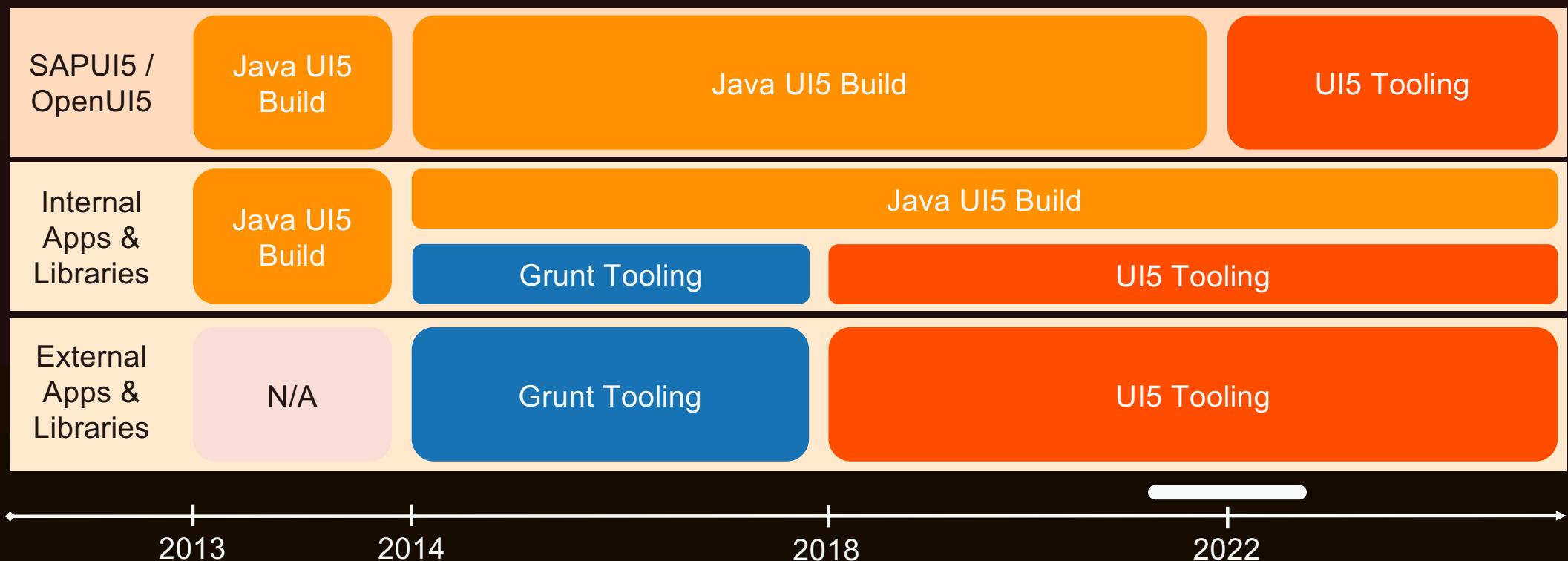
History of build tools for UI5



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History of build tools for UI5



Build tools for UI5

Java UI5 Build

- Based on Java / Maven
- Full-fledged feature-set (w/ legacy)
- Proprietary / SAP internal



Grunt Tooling

- Based on the Grunt Task Runner
- Limited feature-set
- Open Source (Apache 2.0)



UI5 Tooling

- Based on Node.js (JavaScript)
- Full-fledged feature-set (w/o legacy)
- Open Source (Apache 2.0)



Build tools for UI5

Deprecated

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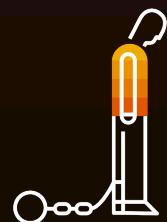
Reasons to migrate to UI5 Tooling



Double maintenance



Expertise in different
technologies required

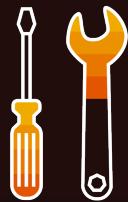


Old parsers limited
to ES5 Syntax



Performance

Reasons to migrate to UI5 Tooling



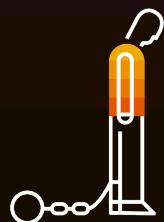
Double maintenance



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Drinking our own champagne



Old parsers limited
to ES5 Syntax



Performance

Migrating to UI5 Tooling

Java UI5 Build

- Based on Java / Maven
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Maven™

UI5 Tooling

- Based on Node.js (JavaScript)
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The Challenge

Java UI5 Build

- Based on Java / Maven
- **Full-fledged feature-set**
(w/ legacy)
- Proprietary / SAP internal



Is the build result
the same though?

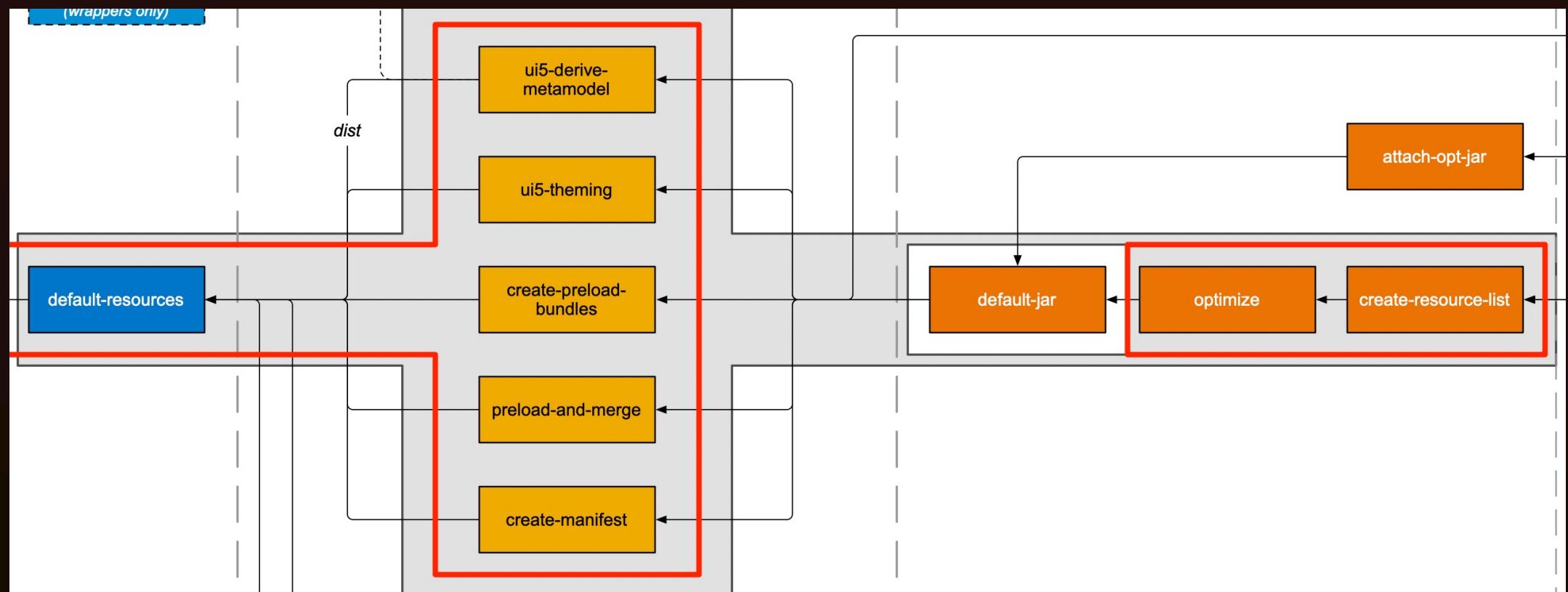


UI5 Tooling

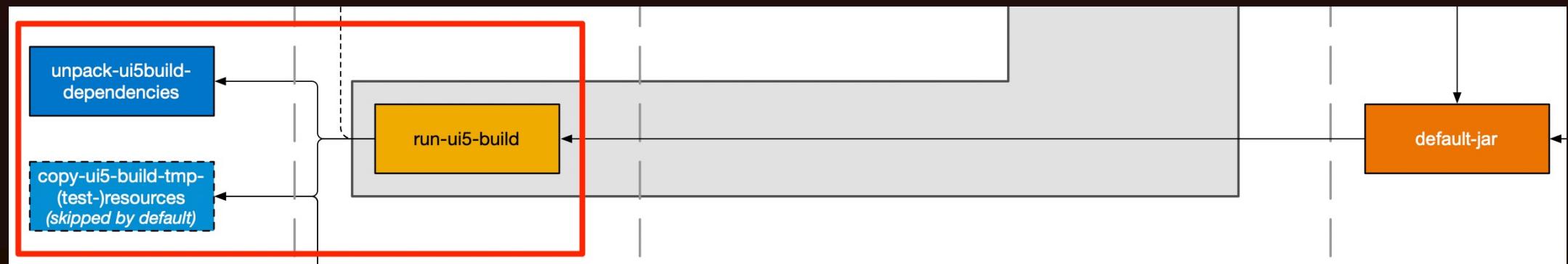
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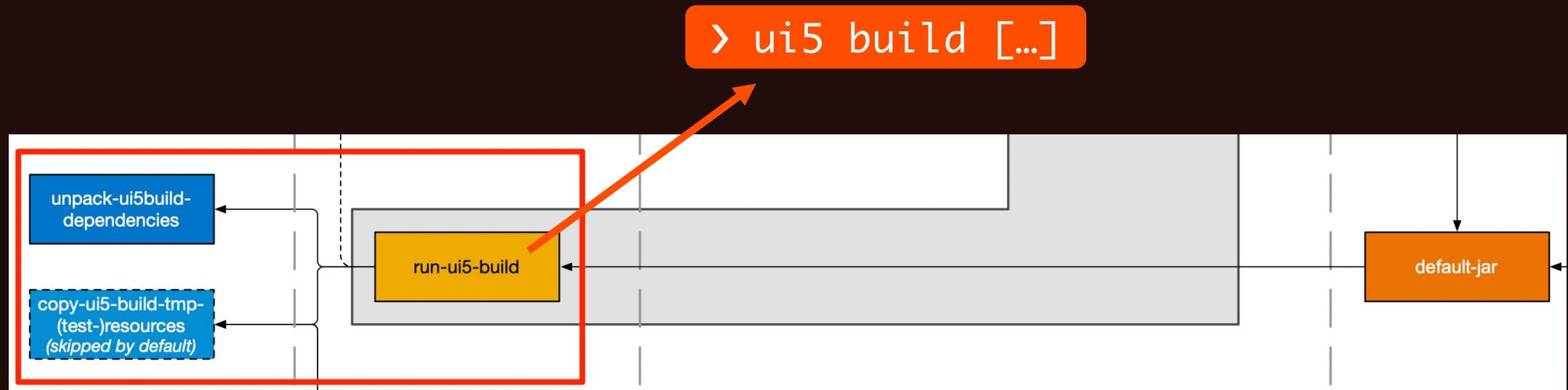
Legacy build using "Java UI5 Build" tools



New build using UI5 Tooling



New build using UI5 Tooling



The road to feature parity

Java UI5 Build

UI5 Tooling
Build

The road to feature parity

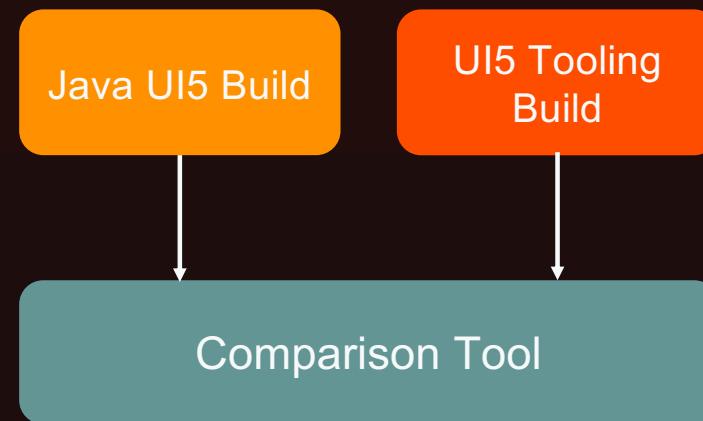
Java UI5 Build

UI5 Tooling
Build

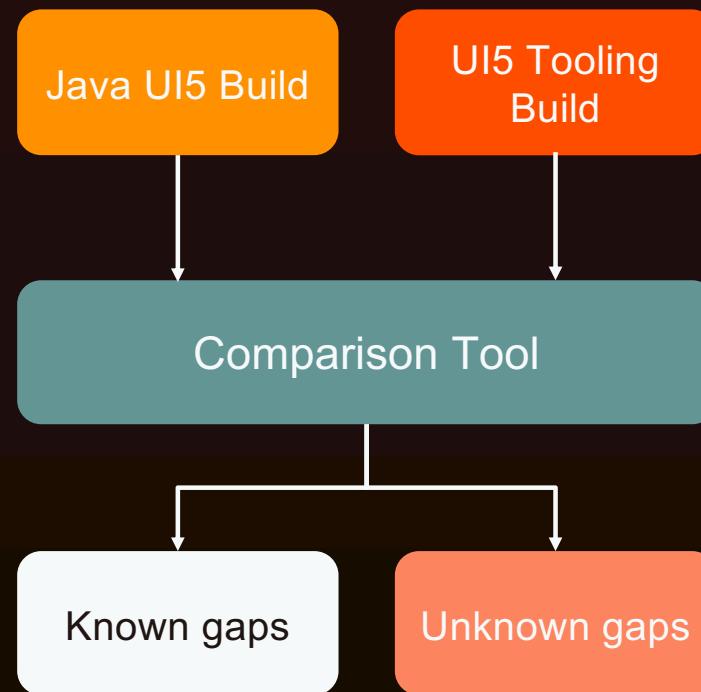
Is the build result
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The road to feature parity



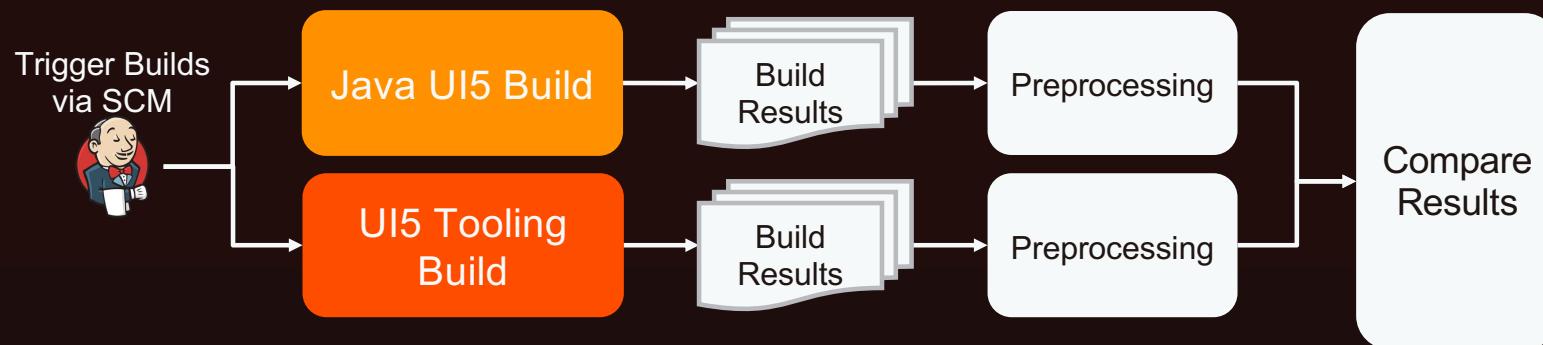
The road to feature parity



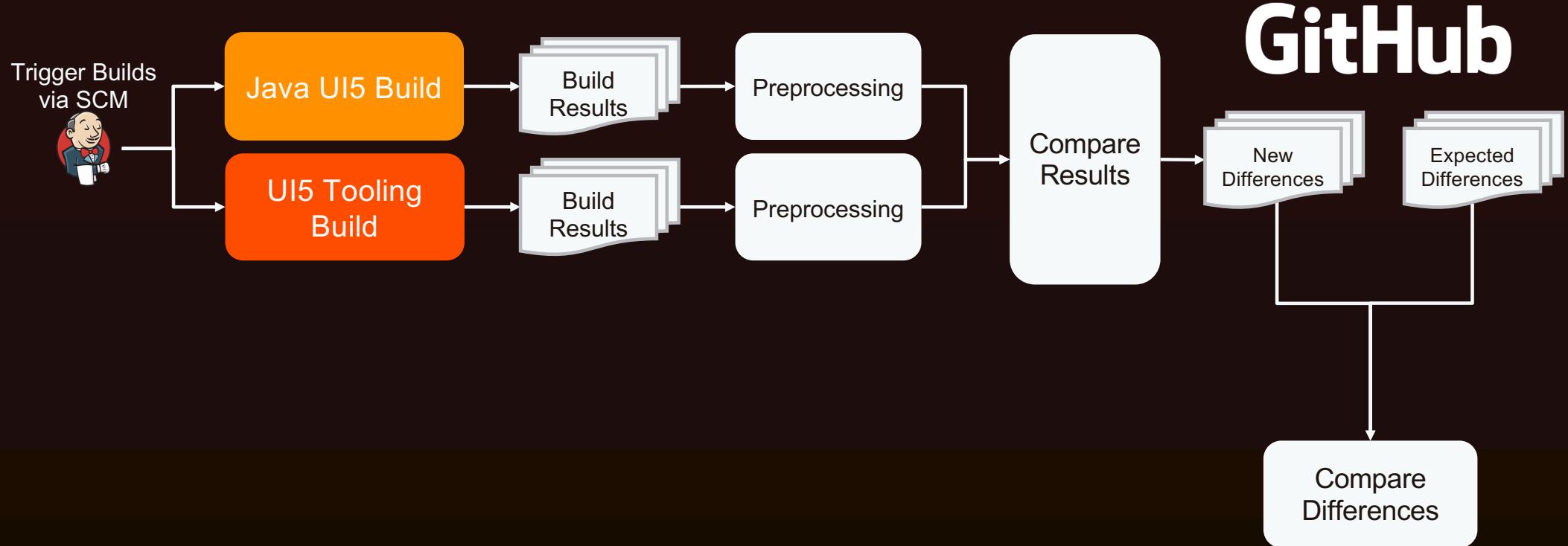
The Comparison Tool



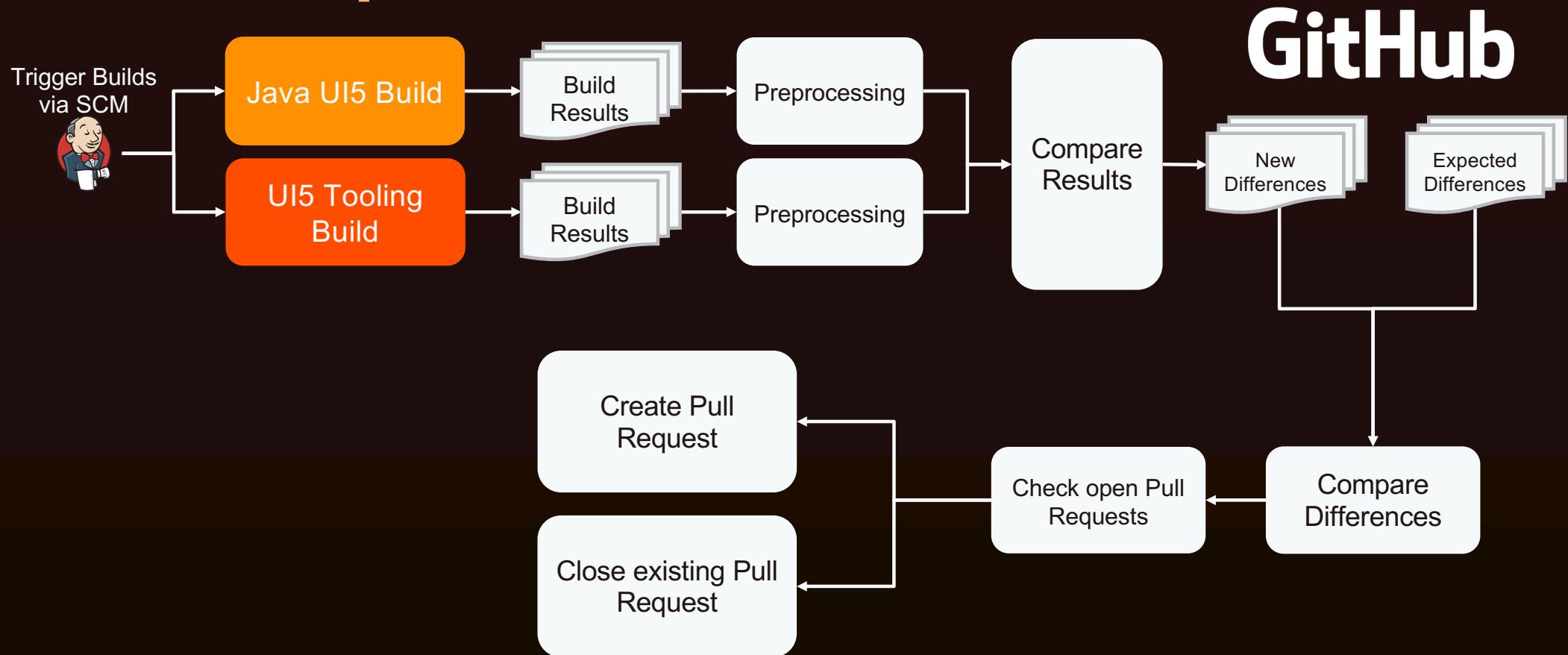
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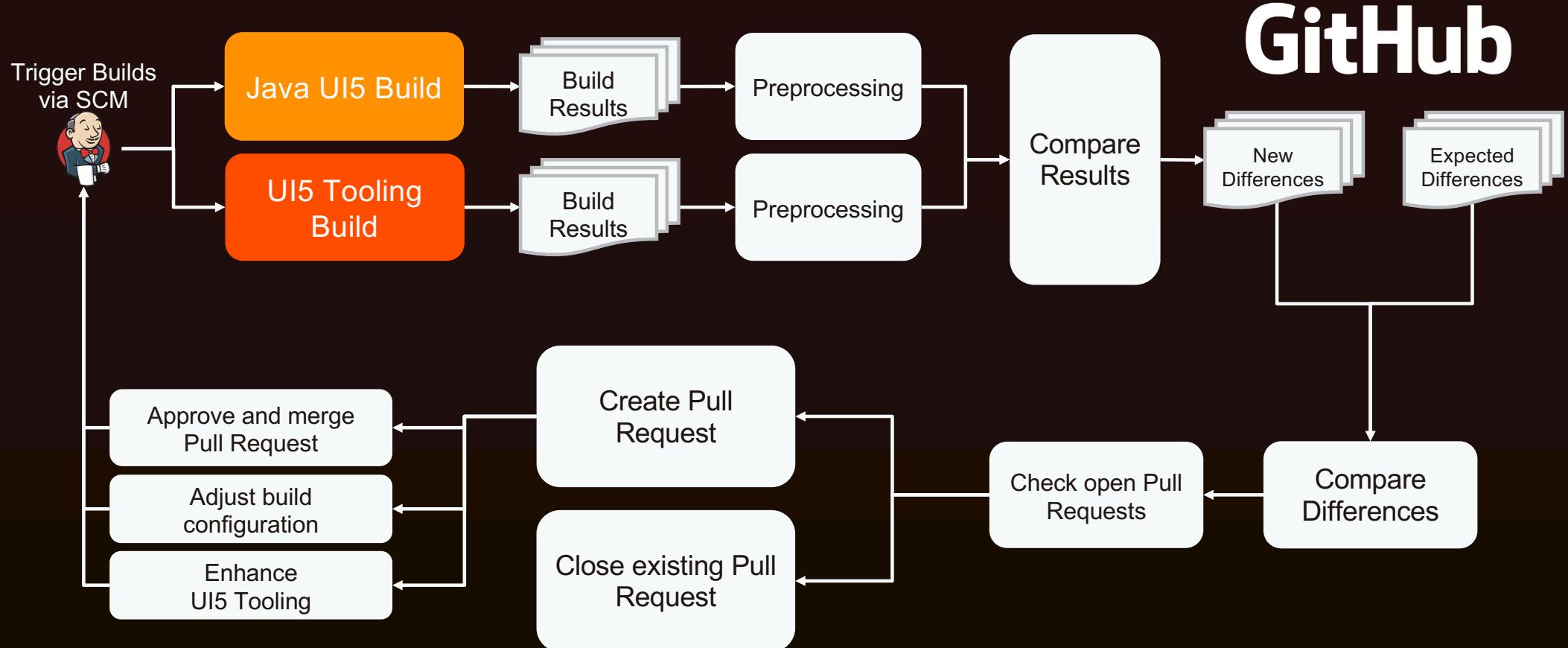
The Comparison Tool



The Comparison Tool



The Comparison Tool



Automated Pull Requests

openui5[5650430]: [INTERNAL] remove the Flexil window #762

Merged Florian Vogt merged 1 commit into master from update-ef2e0f65-fb6f-4a66-af20-49972a

Conversation 3 Commits 1 Checks 0 Files changed 1

ui5-core-founda... (UI5 Core Foundation Bot) commented on 15 Jul 2022 • edited

Signature: 5b5af4d417673f97f9ef8c7d269490dea7c6b556e

First detected with

[INTERNAL] remove the Flexibility section in the UI5 support window

Gerrit change: openui5+/5650430 ([link to PS3](#))
POMahawk build: #49085

Latest POMahawk executions

- openui5 change 5663844: ⚠ PS3 shows differences in build #49194
- sapui5/sapui5.runtime change 5664836: ⚠ PS11 shows differences in build #49215

Update snapshots based on openui5 change 5650430 ...

ui5-core-founda... (UI5 Core Foundation Bot) commented on 18 Jul 2022

The same difference appeared again for a different change:

[INTERNAL] sap.ui.model.odata.v4.ODataModel#getKeepAliveContext: obse

Gerrit change: openui5+/5663844 ([link to PS3](#))
POMahawk build: #49194

ui5-core-founda... (UI5 Core Foundation Bot) commented on 18 Jul 2022

The same difference appeared again for a different change:

[FIX] comp.SmartVM: argument not passed to the inner VM control

Gerrit change: sapui5.runtime+/5664836 ([link to PS11](#))
POMahawk build: #49215

Florian Vogt approved these changes on 18 Jul 2022

Florian Vogt (Florian Vogt) left a comment

LGTM

Florian Vogt merged commit **6ff560e** into master on 18 Jul 2022

Making the move

```
● ● ● sapui5.runtime: git show ae51ecf2f30eec5abe03a99...
commit ae51ecf2f30eec5abe03a991e633fd6d0dc7db40
Author: Matthias Osswald <mat.osswald@sap.com>
Date:   Mon Jul 25 12:35:29 2022 +0200

[INTERNAL] Infra: Switch to UI5 Tooling based build

JIRA: CPOUI5FOUNDATION-409
Change-Id: Id276b43c4aab42e88461fcfb37625d399b01b835
:
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```

And it just worked. 😊

Lessons Learned



Comparison was game changer



"Fail" early and often



No severe issues after migration



Scope was hard to plan

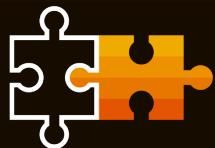
Further steps



UI5 Tooling integration in
SAP-internal application builds



Keep UI5 Tooling as slim as possible



Standard UI5 Tooling Extensions

github.com/SAP/ui5-tooling-extensions

UI5con

*Come meet us in
the Expert Corner!*

1:45pm to 3pm

Thank you!

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