

Using AI To Get An Architectural Overview About ABAP Custom Code

...and using the result to guide development going forward



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Disclaimer

- I work for a company that builds a code analysis tool ( Teamscale)
 - This presentation uses Teamscale's features and file formats
 - Ideas and concepts should be generally applicable
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- This session is all about exchanging ideas, so please contribute!

Status Quo

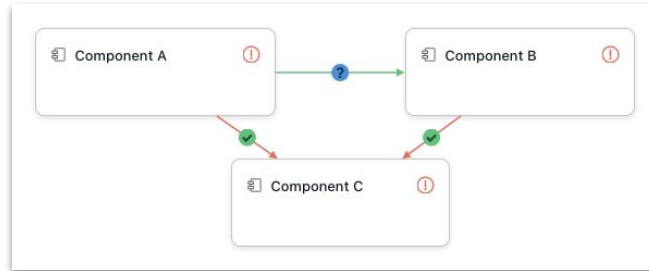


- SAP Systems have grown for decades
 - Hard to keep track of who uses what
 - Old code has lots of dependencies
 - Package interfaces are not always defined
 - Clean Core brings new rules
 - Where should we even start?
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- Can AI help us?

What We Already Had

- ABAP Code
- A tool to draw boxes and arrows
- A way to map code to boxes and identify dependencies

```
abapgit / src / repo / zcl_abapgit_repo_online.clas.abap @
203
204 METHOD zif_abapgit_repo_online~create_branch.
205   DATA: lv_shal TYPE zif_abapgit_git_definitions=>ty_shal.
206
207   ASSERT iv_name CP zif_abapgit_git_definitions=>c_git_branch-heads.
208
209   IF iv_from IS INITIAL.
210     lv_shal = get_current_remote( ).
211   ELSE.
212     lv_shal = iv_from.
213   ENDIF.
214
215   raise_error_if_branch_exists( iv_name ).
216
217   zcl_abapgit_git_porcelain=>create_branch(
218     iv_url = get_url( )
219     iv_name = iv_name
220     iv_from = lv_shal ).
221
222   " automatically switch to new branch
223   select_branch( iv_name ).
224
225 ENDMETHOD.
226
```

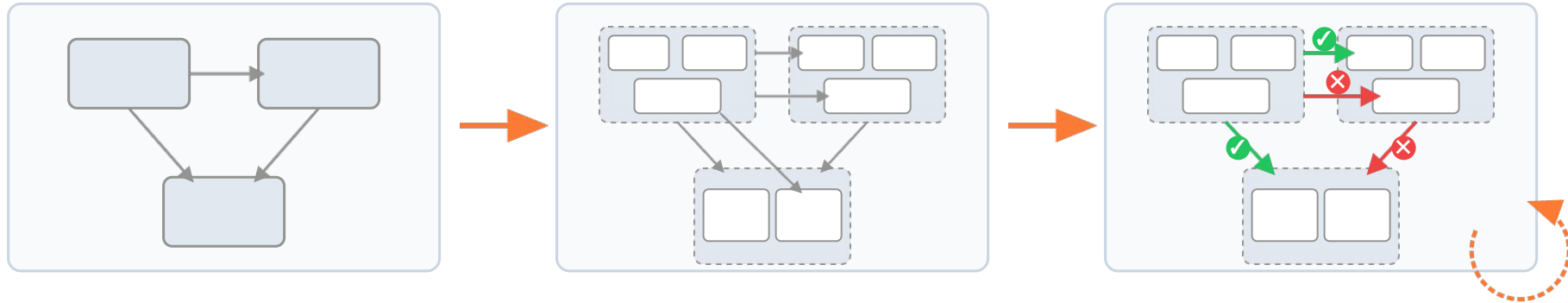


Unmatched Types 777

- ▼ src 753
 - > apack 7
 - > background 5
 - > cts 10
 - > data 17
 - > diff 9
 - > env 14
 - > exits 6

What We Wanted to Have

- No extensive modeling up-front
- Get a high-level overview over custom code
- Drill down and refine
- Specify rules
- Enforce these rules going forward



Approach

- Provide an AI with access to the code and the dependencies
- Ask the AI to generate output in a format the modeling tool understands
- Add a way to generate a new architecture model from the code
- Provide an error-correction loop (via schema validation)
- Enhance the editor with a textbox to invoke AI refinements

The image displays a UI mockup for an AI-assisted architecture tool. On the left, a vertical sidebar contains three buttons: '+ New Architecture' (dark blue), '+ New empty architecture' (light gray), and 'AI Generate architecture' (light gray with a pencil icon). The main area features two large panels. The left panel, titled 'Generate architecture with AI', contains a description of the AI's role, a 'Hints (optional)' text area, and two buttons at the bottom: 'Components only' and 'Components and dependency policies' (the latter is highlighted in dark blue). The right panel, titled 'Refine architecture with AI', contains a description of the refinement process, a 'Requested changes' text area, and a 'Refine' button at the bottom right. A central button labeled 'AI Refine Architecture' with a pencil icon is positioned between the two main panels.

+ New Architecture

+ New empty architecture

AI Generate architecture

Generate architecture with AI

Generates an architecture specification based on the current code and dependencies of the project using AI. Choose between generating just the component structure or additionally inferring the allowed and forbidden dependency policies between components. Generating dependency policies takes longer and the result usually needs more refinement.

Hints (optional)

Optionally describe how you expect the architecture to look, e.g. which components should definitely be created or how the system is layered.

Components only **Components and dependency policies**

AI Refine Architecture

Refine architecture with AI

Describe how the architecture should be changed. The AI applies the requested changes and keeps the architecture unsaved. Please carefully review the AI generated changes before saving. Please note that the AI is not aware of previous interactions.

Requested changes

For example: separate the test code of each component into its own sub-component.

Refine



Demo

Thanks for Listening

Get my slides and future talks



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