

Production-Driven Patch Generation

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Firefox 52 crashes 63892 per day!

Automatic Program Repair



Firefox



Repair Strategy



Presence
of a Crash

Offline - Automatic Program Repair



Buggy Program



GenProg,
Nopol, ...



Test Suite

Online - Automatic Program Repair



Running
Program



Repair Strategy

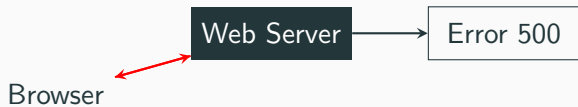


?

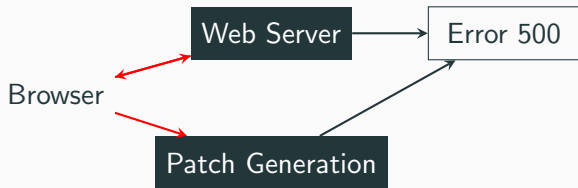
Itzal Concept



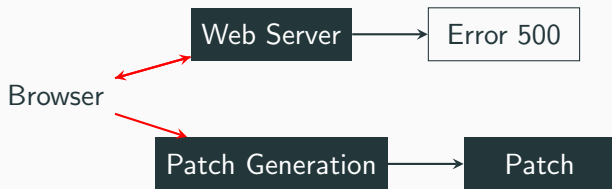
Itzal Concept



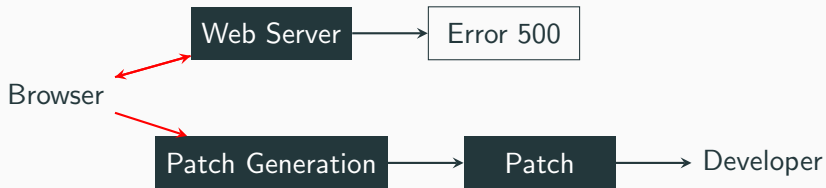
Itzal Concept



Itzal Concept



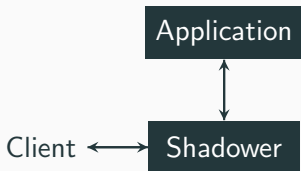
Itzal Concept



Itzal Architecture

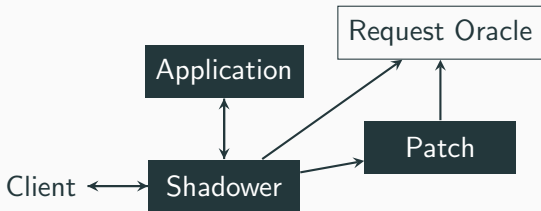


Itzal Architecture



Shadower: intercepts and duplicates the requests

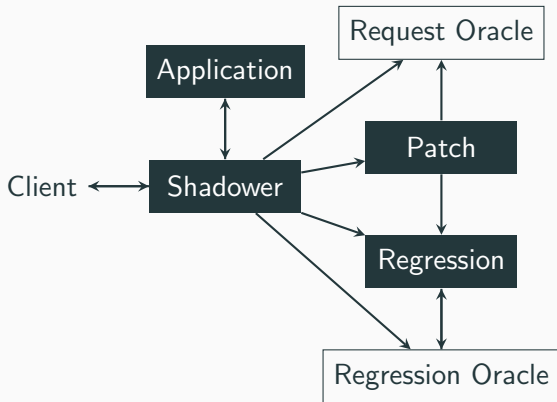
Itzal Architecture



Patch: generates patches that fix the requests

Request Oracle: detects if a request is passing or failing

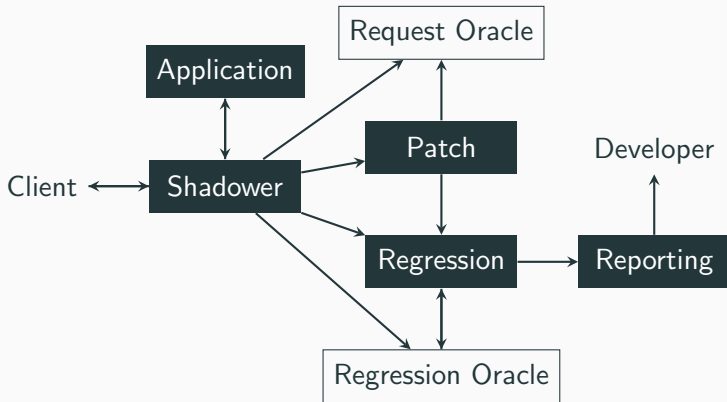
Itzal Architecture



Regression: executes passing request on patched application

Regression Oracle: compares the output of the application and the patched application

Itzal Architecture



Reporting: communicates the patches to the developers
(Dashboard, Pull Request, ...)

- Request Oracle: decides if a request is valid or not (e.g. $HTTP_{status} \neq 5xx$)
- Regression Oracle: decides if a patch has the good behavior for a specific request (e.g. Output Application = Output Patched Application)

Itzal Evaluation

The image shows the homepage of the Mayocat Shop website. The header features the 'Mayocat Shop' logo in a teal, handwritten-style font on the left, and a navigation menu with links for 'Discover', 'Community', 'Documentation', 'Showcase', and 'Contact' on the right. A 'Sign in / Sign up' link is also present in the top right corner. The main content area has a red background and features a yellow cartoon cat character with a teal top hat, a monocle, and a bow tie. To the right of the cat, the text reads: 'Open source e-commerce and marketplaces made simple'. Below this, a paragraph describes Mayocat Shop as the next generation of open source marketplace and e-commerce platforms, highlighting its powerful and innovative nature for building global marketplaces and individual e-commerce websites. A teal button labeled 'Download Mayocat Shop version 0.10.1' is prominently displayed, with links for 'Release notes', 'Installation instructions', and 'Getting started with Mayocat Shop' below it. The bottom section, titled 'State of the art technologies', mentions a robust server-based on Java and the use of HTML5. It includes two columns: 'Back-office' with a red arrow icon and 'Front-office' with the HTML5 logo. On the right, a 'Keep in touch' section contains a form for 'Your e-mail' and a teal 'OK' button, with social media links for GitHub, Twitter, and LinkedIn at the bottom.

Mayocat Shop

Sign in / Sign up

Discover Community Documentation Showcase Contact

Open source e-commerce and marketplaces made simple

Mayocat Shop is the next generation of open source marketplace and e-commerce platforms. With Mayocat Shop, developers and businesses can leverage a powerful and innovative platform to build great global marketplace and individual e-commerce websites and provide online merchants with a state of the art selling experience.

Download Mayocat Shop version 0.10.1

Release notes
Installation instructions
Getting started with Mayocat Shop

State of the art technologies

Take advantage of a robust server based on Java, and make e-shops with only HTML5 knowledge.

Back-office

Front-office

HTML5

Keep in touch

Your e-mail


OK

or follow us on [GitHub](#) or [Twitter](#) or [LinkedIn](#)

Itzal Evaluation

NPE in cart when no price is defined in shipping strategy #231

New issue

 **Closed** jvelo opened this issue on Dec 9, 2014 · 0 comments



jvelo commented on Dec 9, 2014

Owner + 👤

No description provided.



jvelo added the **bug** label on Dec 9, 2014



jvelo self-assigned this on Dec 9, 2014



jvelo added a commit that closed this issue on May 29, 2015

Fixes #231 NPE in cart when no price is defined in shipping strategy

ce04282



jvelo closed this in ce04282 on May 29, 2015

Assignees

 jvelo

Labels

bug

Projects

None yet

Milestone

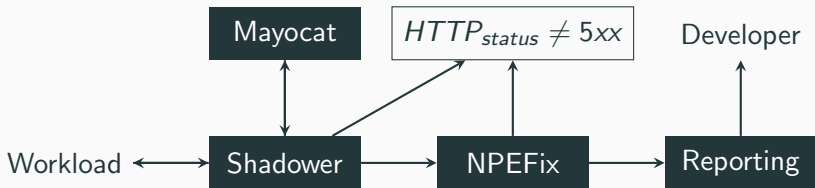
No milestone

Notifications

 **Subscribe**

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Itzal Evaluation



Mayocat of Patch

```
@@ FlatStrategyPriceCalculator.java
@@ -37,2 +37,5 @@
+   if (carrier.getPerItem() == null) {
+       return null;
+   }
    price = price.add(carrier.getPerItem().
        multiply(BigDecimal.valueOf(
            numberOfItems)));
```

How to create scenario?

How to create scenario?

- Reproduce the nominal scenario: nobody communicates production workload
- Reproduce the buggy scenario: very hard to create a scenario that reproduces an issue

Conclusion

Take Away

It is possible to use Runtime Contracts instead of Test Contracts for Automatic Program Repair

The reproduction of real workload and buggy scenario is really hard

Summary

