

Am I Breaking My Client's Code?

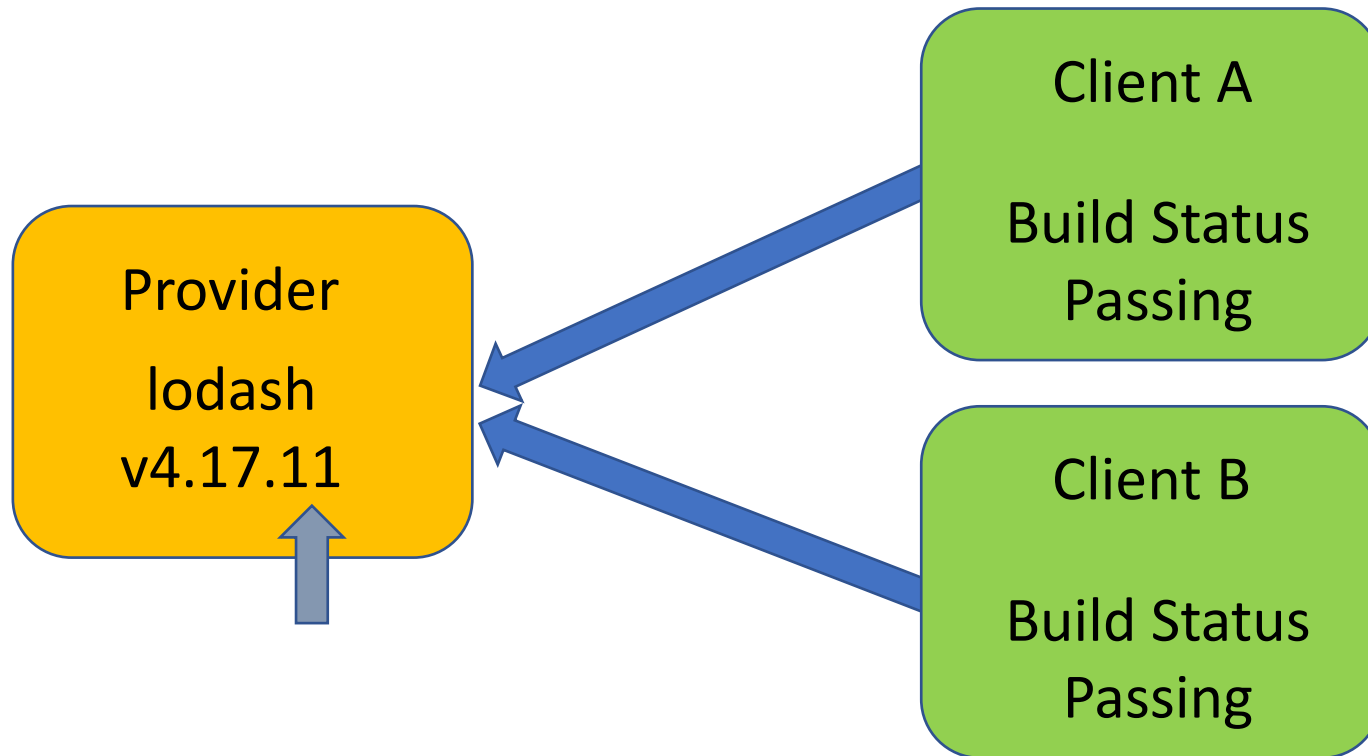
An Analysis of Breaking Changes in the npm Ecosystem



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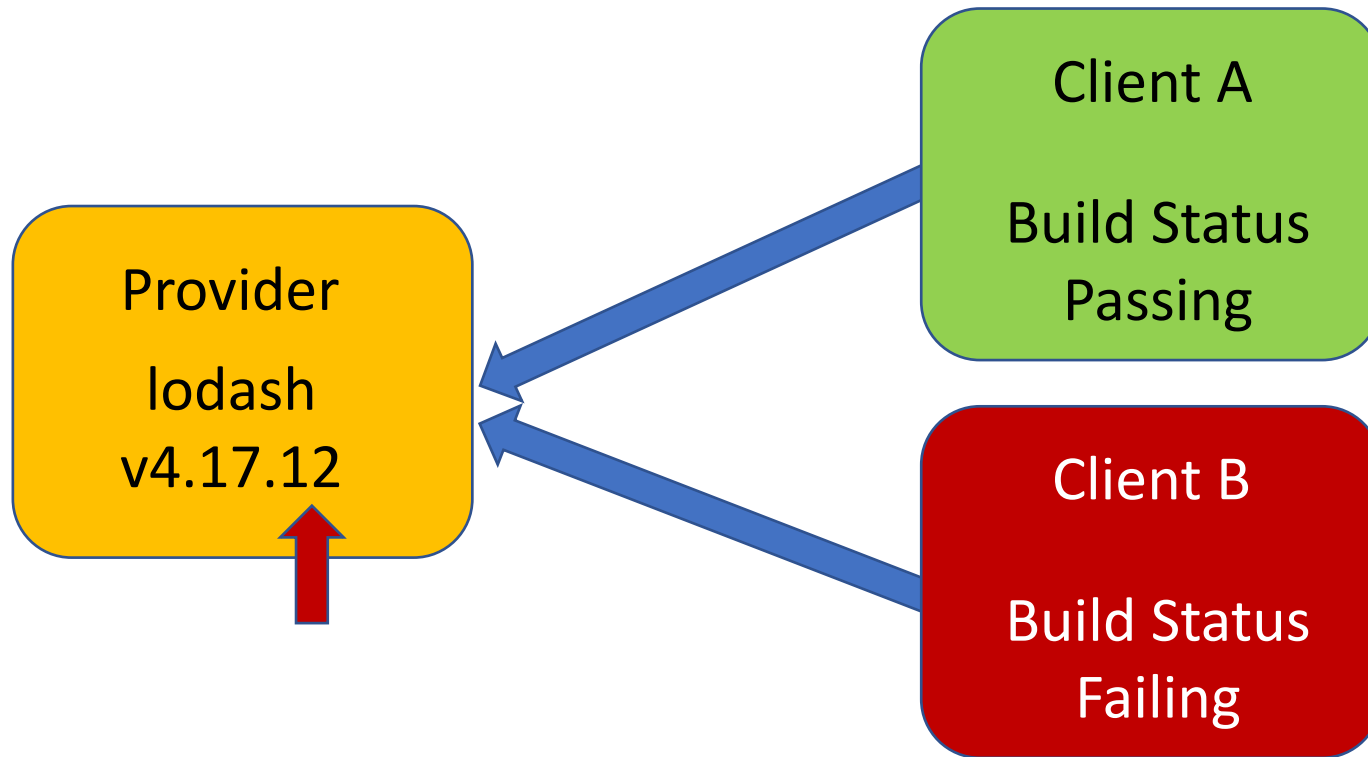


Software Dependency Relationships



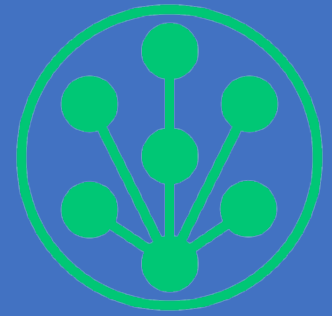
The dependency **lodash** was updated from **4.17.11** to **4.17.12** .

Software Dependency Relationships

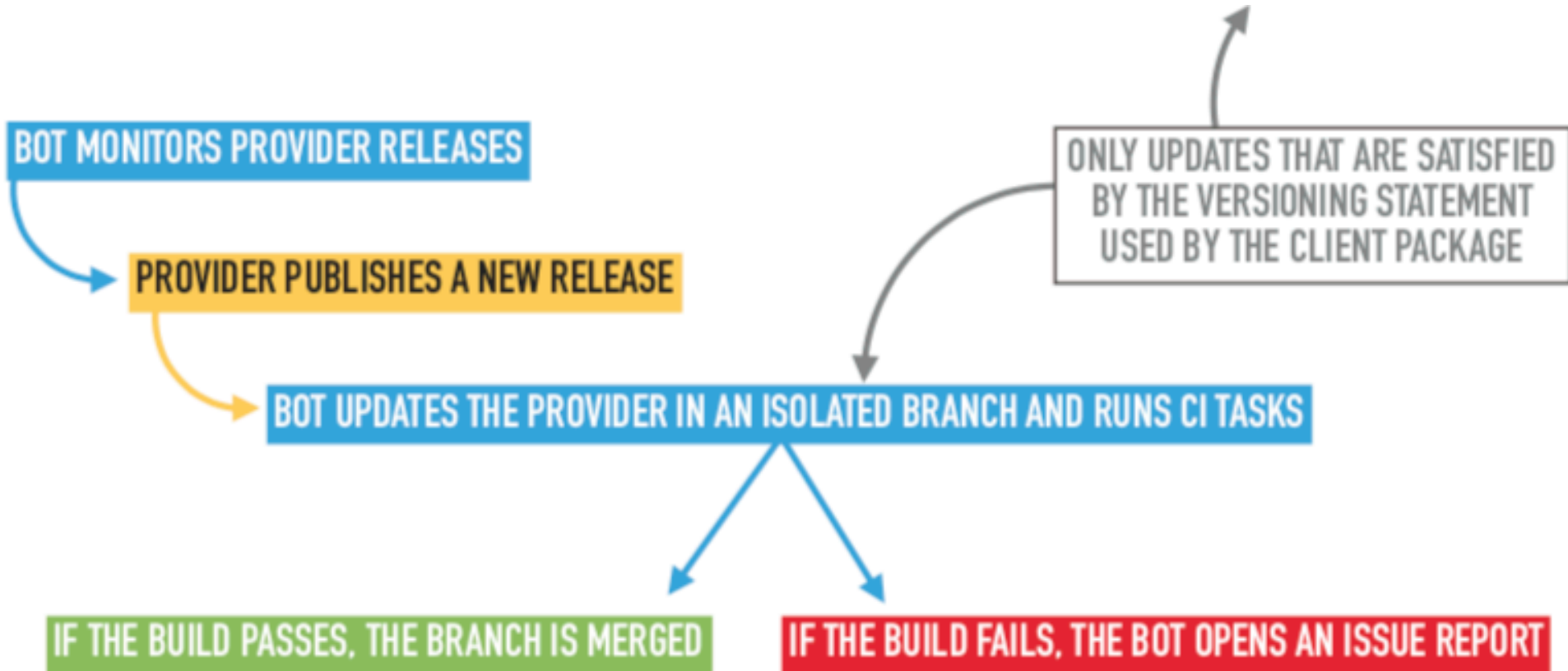


An in-range update of lodash is breaking the build 🚨

GREENKEEPER



How does Greenkeeper detect build breakages of **implicit** updates?



Examine Changes by Package Providers that Break a Client's Build

RQ1: *How often patch, minor, and major updates of the dependency break a client's build?*

RQ2: *What types of change do client packages need to perform to recover from a build breakage?*

RQ3: *To what extent do issue reports filed with a provider package originate from a broken build in a client?*

What Data Do We Have?

- Issue Reports (110,512)
- Comments on Issue Reports (365,625)
- Events associated with the issue reports (209,750)
 - Closed / Reopened (88,565 / 197)
- Commits with reference to the issue report (1,388)
- NPM package dependency information

Analyzing Issue Reports & Associated Data

An in-range update of postcss is breaking the build

 Open greenkeeper bot opened this issue on Jan 22 · 4 comments



greenkeeper bot commented on Jan 22

The devDependency **postcss** was updated from **7.0.13** to **7.0.14**.

 [View failing branch.](#)

This version is **covered** by your **current version range** and after updating it in your project the **build failed**.

postcss is a devDependency of this project. It **might not break your production code or affect downstream projects**, but probably breaks your build or test tools, which may **prevent deploying or publishing**.

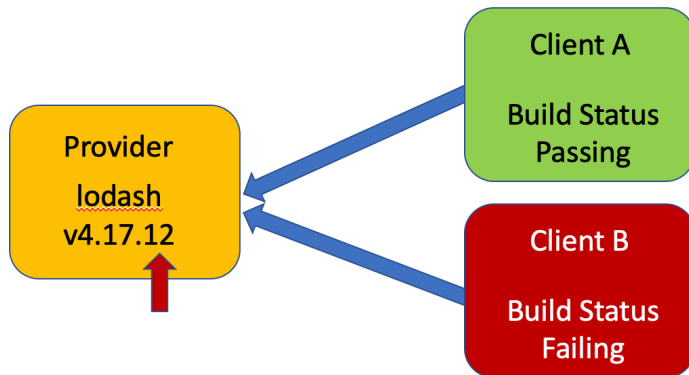
Versions

Dependency

More information in
issue body and
comments

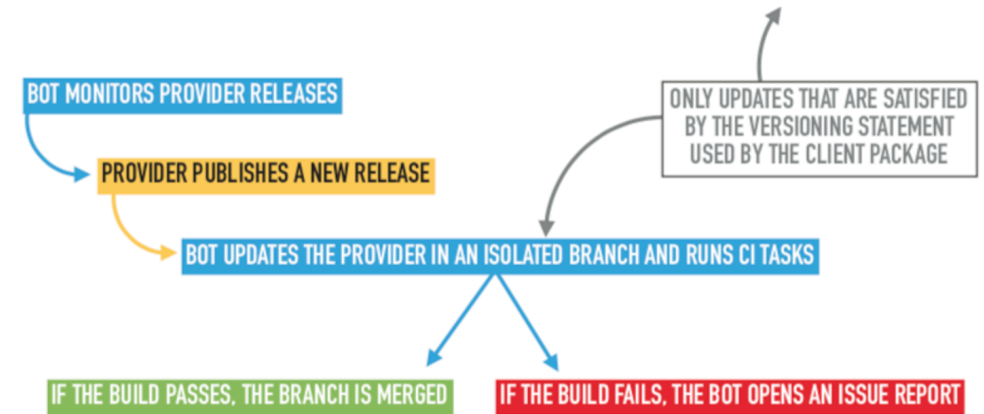
Related Papers

- Historical and Impact Analysis of API Breaking Changes: A Large-Scale Study
 - Xavier et al. 2017
 - API breaking changes in Java ecosystem
- An Empirical Study of Dependency Downgrades in the npm Ecosystem
 - Cogo et al. 2020
 - Breaking a client's build can cause them to downgrade
- Can Automated Pull Requests Encourage Software Developers to Upgrade Out-of-Date Dependencies?
 - Mirhosseini et al. 2017
 - PR notifications help keep dependencies up to date



An in-range update of lodash is breaking the build 🚩

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