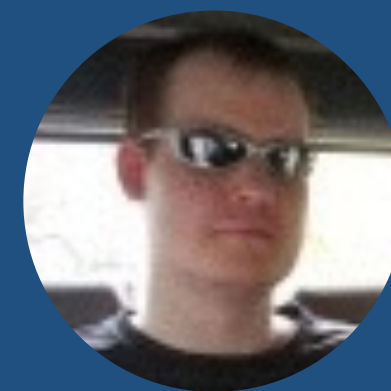




Simplifying your releases by automation

How Atlassian does it



CINTIA DEL RIO • JOSHUA HANSEN • ATLASSIAN

Scaling is hard.



**CI tool can be your
best friend.**

**It does more than
running unit tests.**



Atlassian in numbers - Building

- +500 developers (products with +90 developers)
- 5 developments offices, different timezones
- 4 browsers, 4 Java versions, 4 database, 2 OS
- +10 products, with deep integration
- 130k CI builds per month

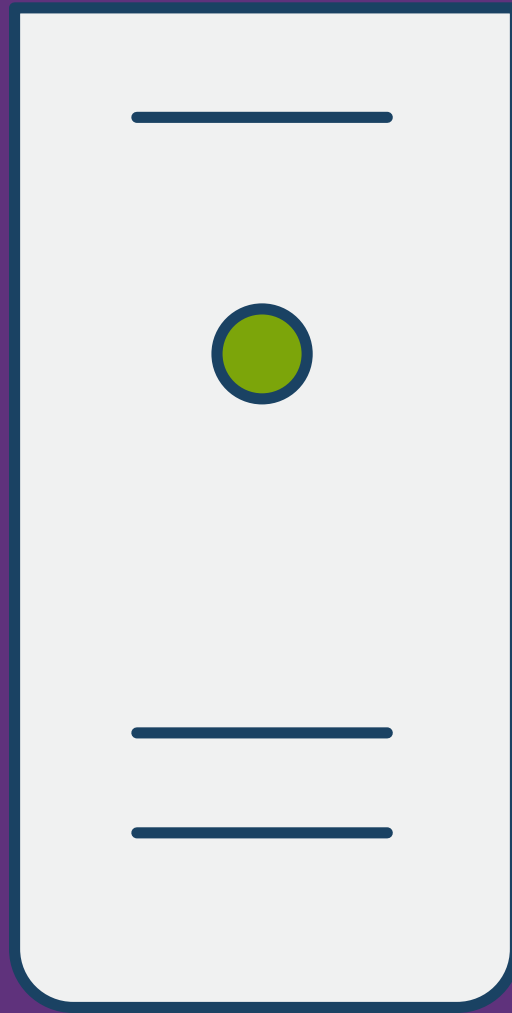




70k

**Cloud instances updated
weekly**





+50

On-Premises releases in a year



Developing Process

DEVELOPING PROCESS

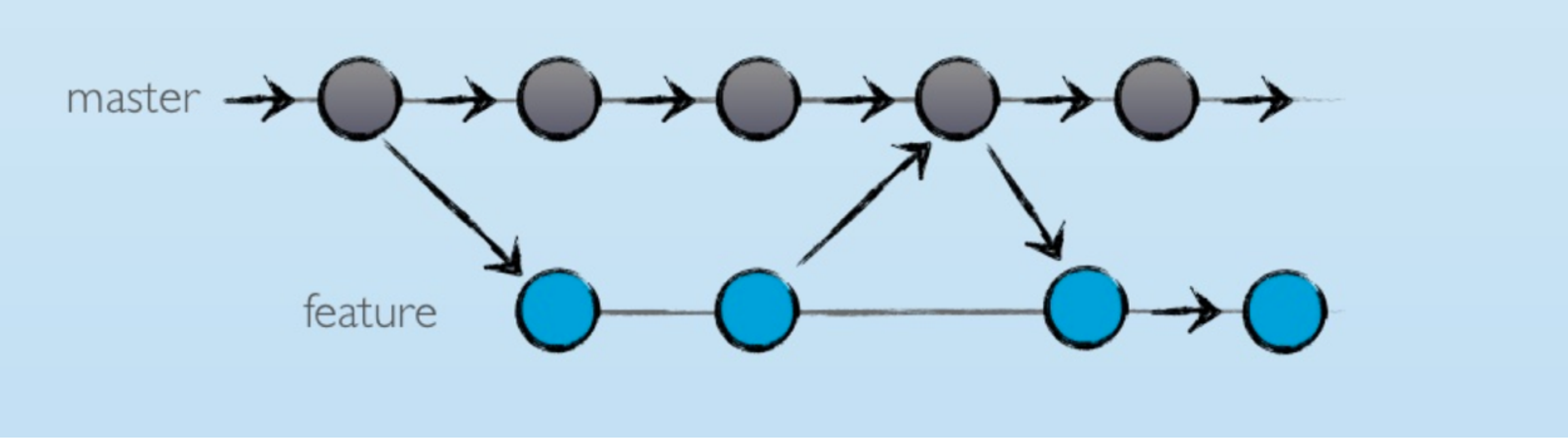
RELEASING FOR ON-PREMISES


RELEASING FOR CLOUD

LESSONS





Developing at Atlassian - Workflow



 **Merge** Decline Edit Approve

You cannot merge this pull request while it has failed builds.

2 Reviewers  

 1 build failed 



Developing at Atlassian - CI Build Isolation



Releasing for On-Premises

DEVELOPING PROCESS

RELEASING FOR ON-PREMISES

RELEASING FOR CLOUD

LESSONS



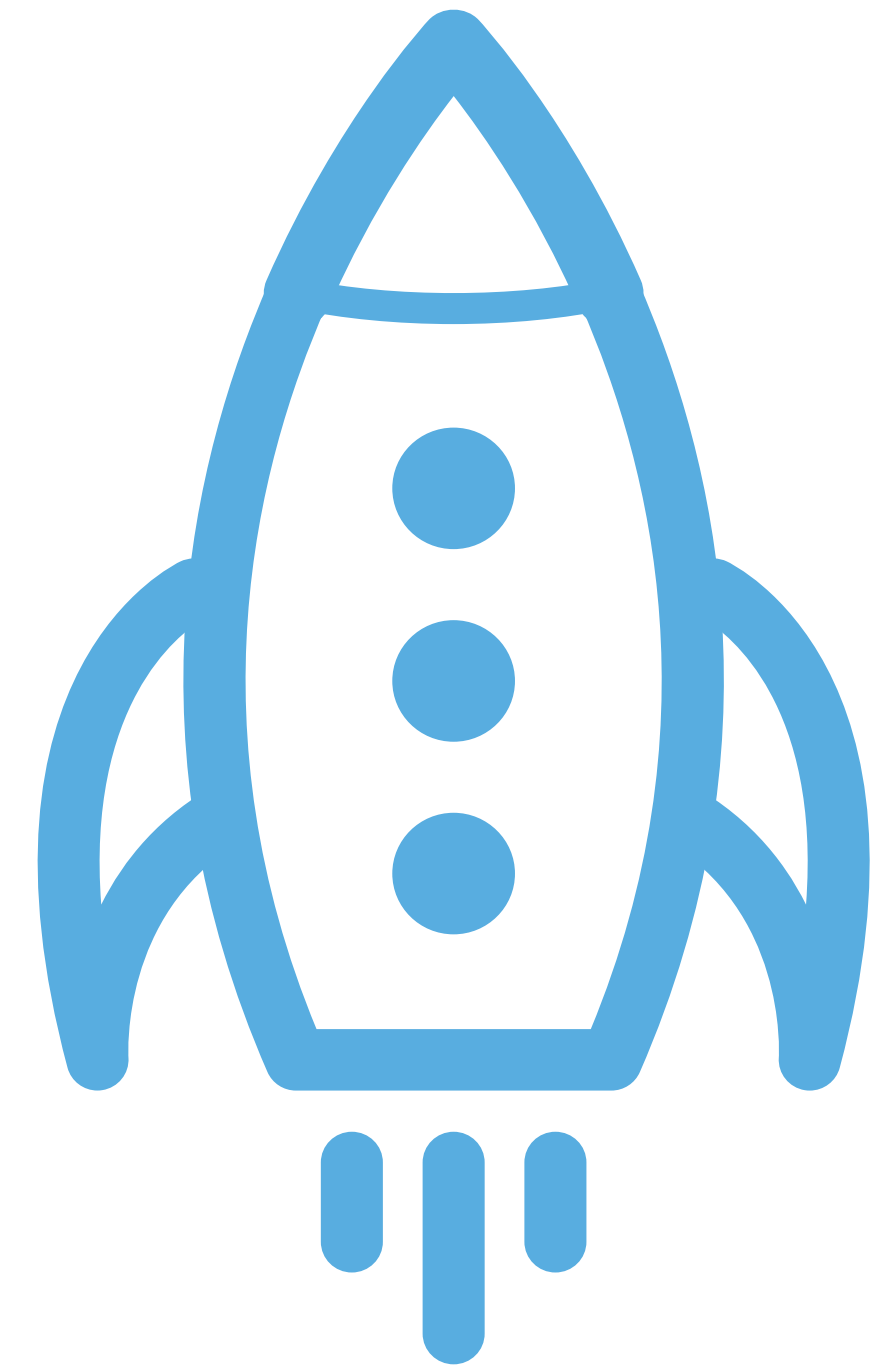
Releasing Process - On-Premises

- Create the release/stable branch
- Cut internal release (milestone)
- Dogfooding + QA
- Bug fixes
- Rinse and repeat until ready to go



Anatomy of a Release

- Repository Tagging (git, hg, svn, ...)
- Binaries upload (nexus, artifactory, ...)
- Interface with other systems
 - Add new version in issue tracker
 - Upload documentation
 - Make new version available for download
 - Change artifacts in Amazon
 - ...



Releasing On-Premises

| | | |
|--|----------------------------|--|
| WAC and developer.AC deployment | 3.9.2 |  Logs |
| Make Release latest on developer.AC | 3.9.2 |  Logs |
| Create version on MPAC | Publish MPAC version | 3.9.2 |
| Upload to checkup.a.c | Unload installer to AWS S3 | 3.9.2 |
| Create version on WAC | 3.9.2 |  Logs |
| Stash Staging (stash.stg.i.a.c) | 3.9.1 |  Logs |
| Stash Prod (stash.a.c) | | Never deployed |
| Mark the version as released in the SSP project on support.atlassian.com | 3.9.2 |  Logs |
| Mark the version as released in the STASH project on jira.atlassian.com | 3.9.2 |  Log |
| Mark the version as released in the STASHDEV project on jira.atlassian.com | 3.9.2 |  Log |

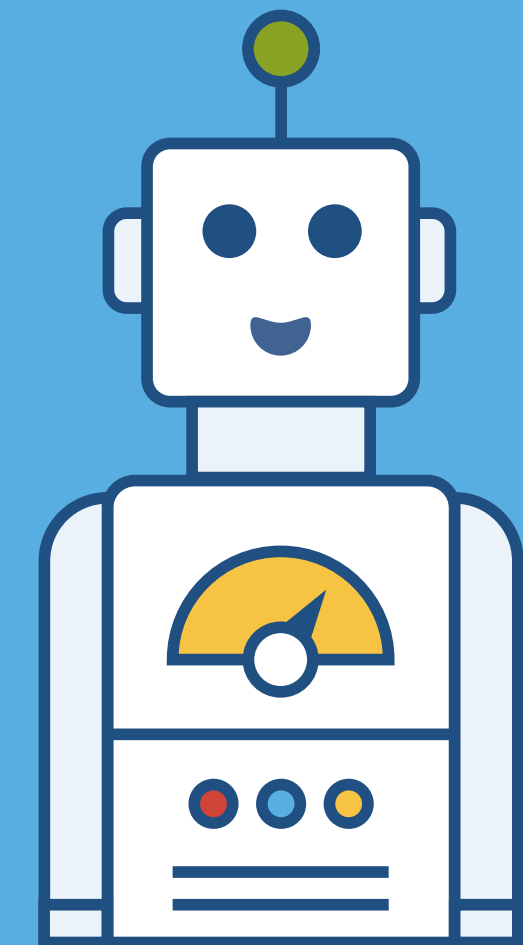


**Automation is the
key for repeatable,
reliable releases.**



How?

CI + Bot accounts



Anatomy of a Release - Summary

- Repository Tagging (git, hg, svn, ...)
- Binaries upload (nexus, artifactory, ...)
- Interface with other systems



Repository Tagging

1. Generate a SSH key pair and deploy to all build agents/slaves.
2. Configure SSH on the agents/slaves to accept connections with your repository
3. Create a bot account on your repository. Associate the SSH key.

4.



Account

5.

6.

Account settings

<scm>

<connection>

<developerCo

<url>https://atlassian.com/browse/bamboo/trunk</url>

<tag>HEAD</tag>

</scm>

```
$ cat .gitconfig
[user]
  name = bambooagent
  email = bambooagent@buildeng.atlassian.com
[push]
  default = simple
```

nection>



Anatomy of a Release - Summary

- Repository Tagging (git, hg, svn, ...)
- Binaries upload (nexus, artifactory, ...)
- Interface with other systems



Binaries upload

- Create a new bot account on the remote server
- Make the credentials available on the build agents/slaves

```
$ cat ~/.m2/settings.xml
<settings>
  <pluginGroups>
    <pluginGroup>com.atlassian.maven.plugins</pluginGroup>
  </pluginGroups>
  <servers>
    <server>
      <id>maven-atlassian-com</id>
      <username>build-agent</username>
      <password>[REDACTED]</password>
    </server>
  </servers>
</settings>
```



Anatomy of a Release - Summary

- Repository Tagging (git, hg, svn, ...)
- Binaries upload (nexus, artifactory, ...)

- Interface with other systems



Interface with other systems

- REST apis / curl
- build tooling plugins with API
- webdriver test

```
curl -X POST --data @json.input \  
-u ${bamboo.buildeng.jira.username}:${bamboo.buildeng.jira.password} \  
-H "Content-Type: application/json" \  
https://extranet.atlassian.com/jira/rest/api/2/issue/ | tee json.out pac -B \  
-Dproduct.version=${bamboo.#versionvariable} \  
-Dproduct.buildNumber=$(<buildnumber.txt) \  
-Dcredentials.pac.serverid=mpac \  
-Dproduction=#production
```



Releasing for Cloud

DEVELOPING PROCESS

RELEASING FOR ON-PREMISES

RELEASING FOR CLOUD

LESSONS



Scaling for the Cloud

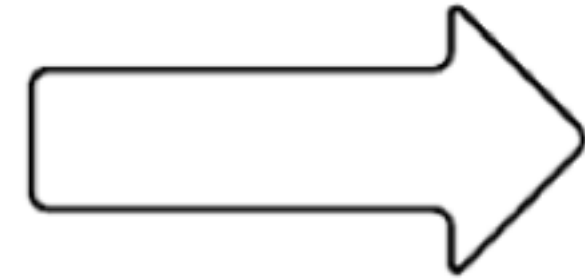
- 70k+ customer instances
- Multiple products per instance, all heavily integrated
- Multiple JVMs per instance
- Data centres in Australia and the US
- Releases every week



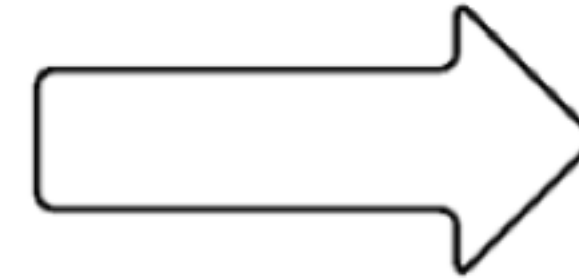
Pipeline Overview



Build



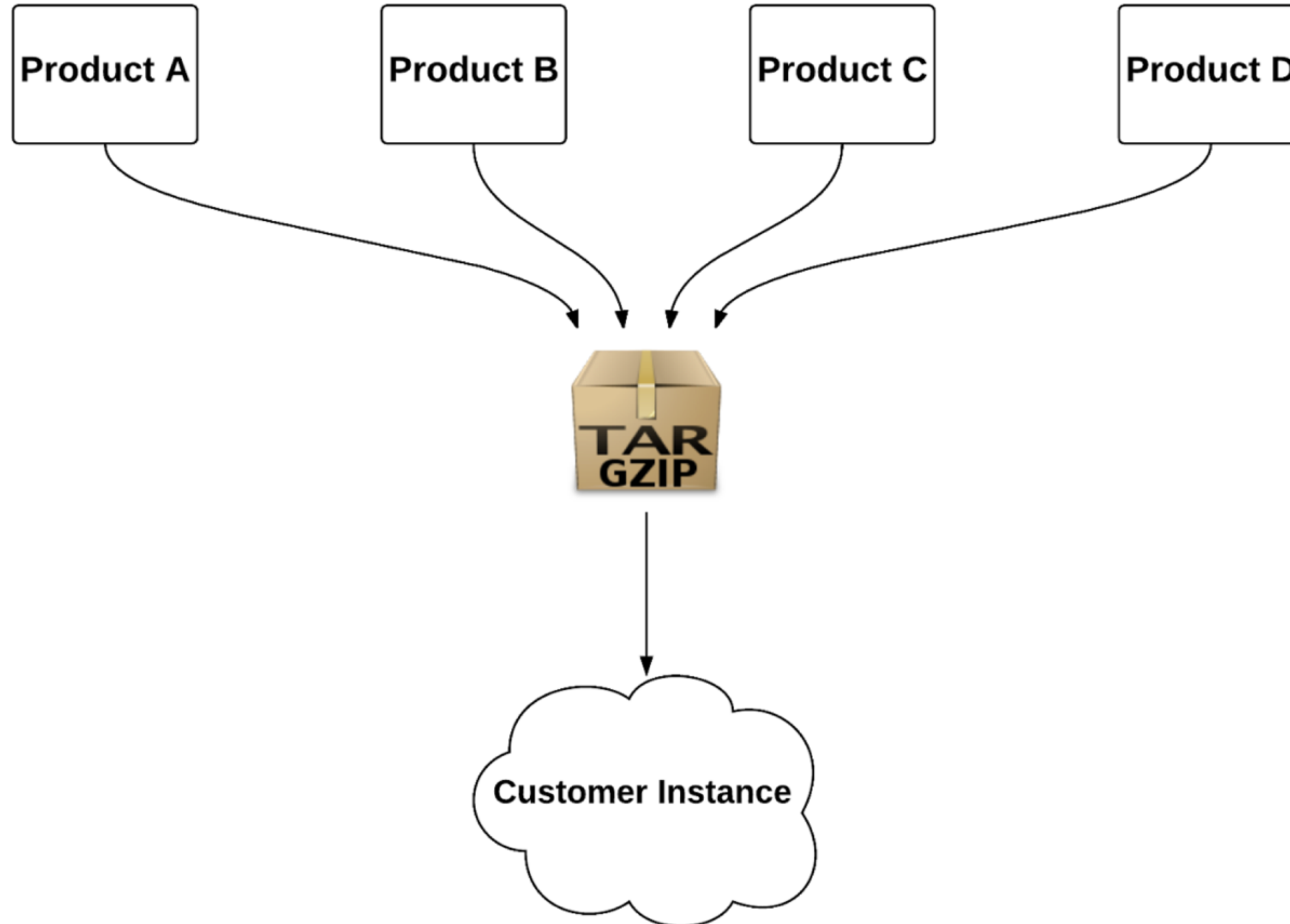
Test



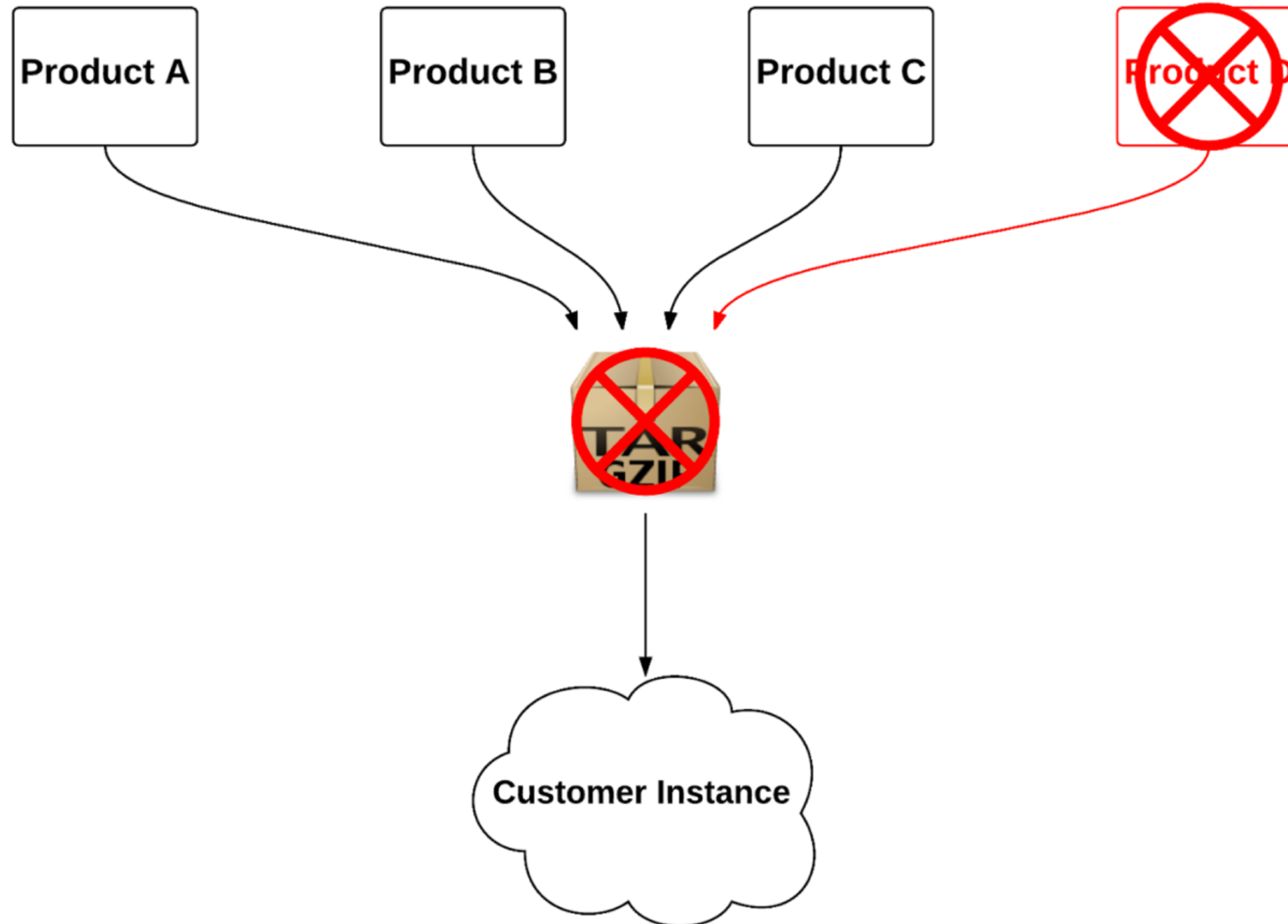
Deploy



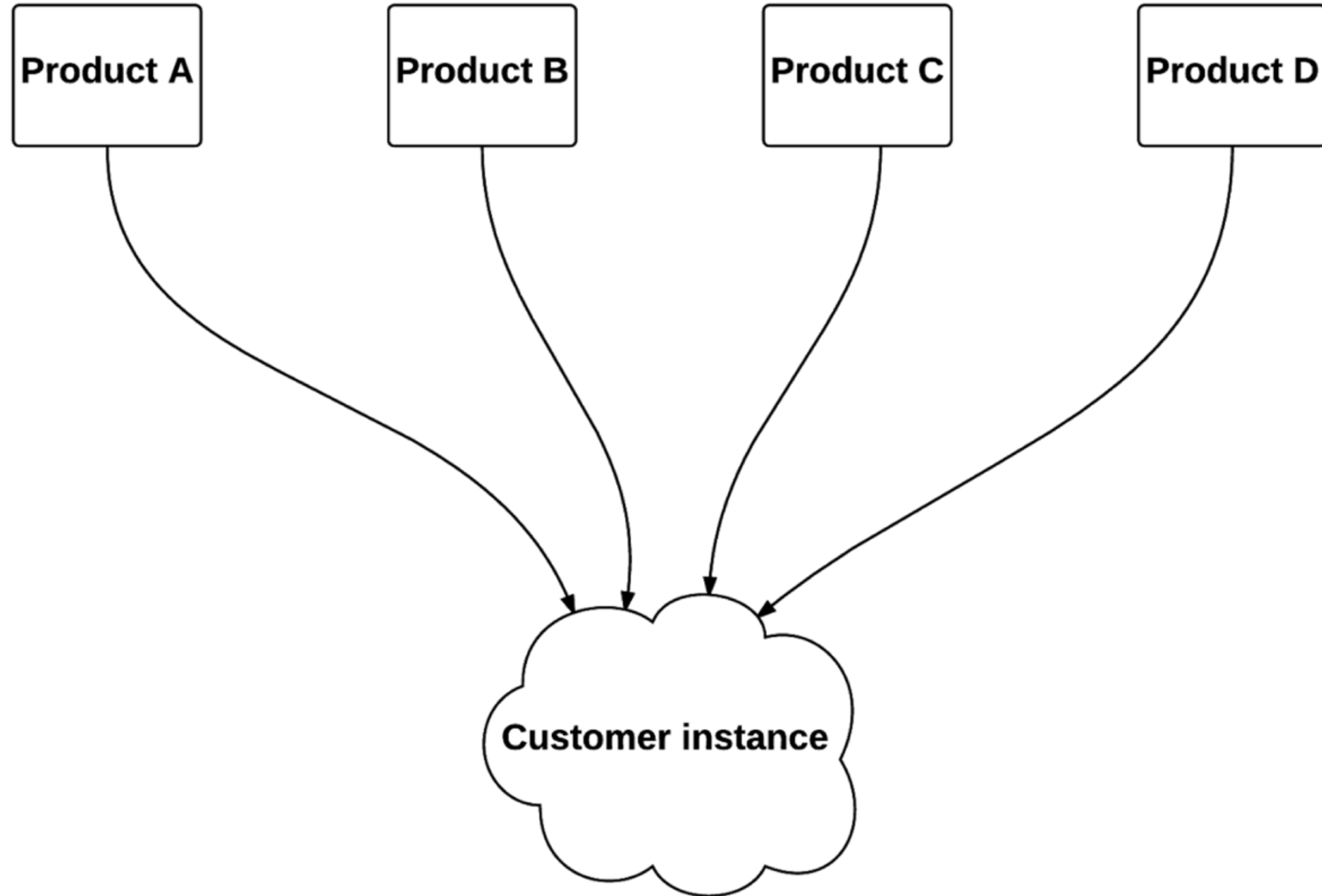
Version 1.0



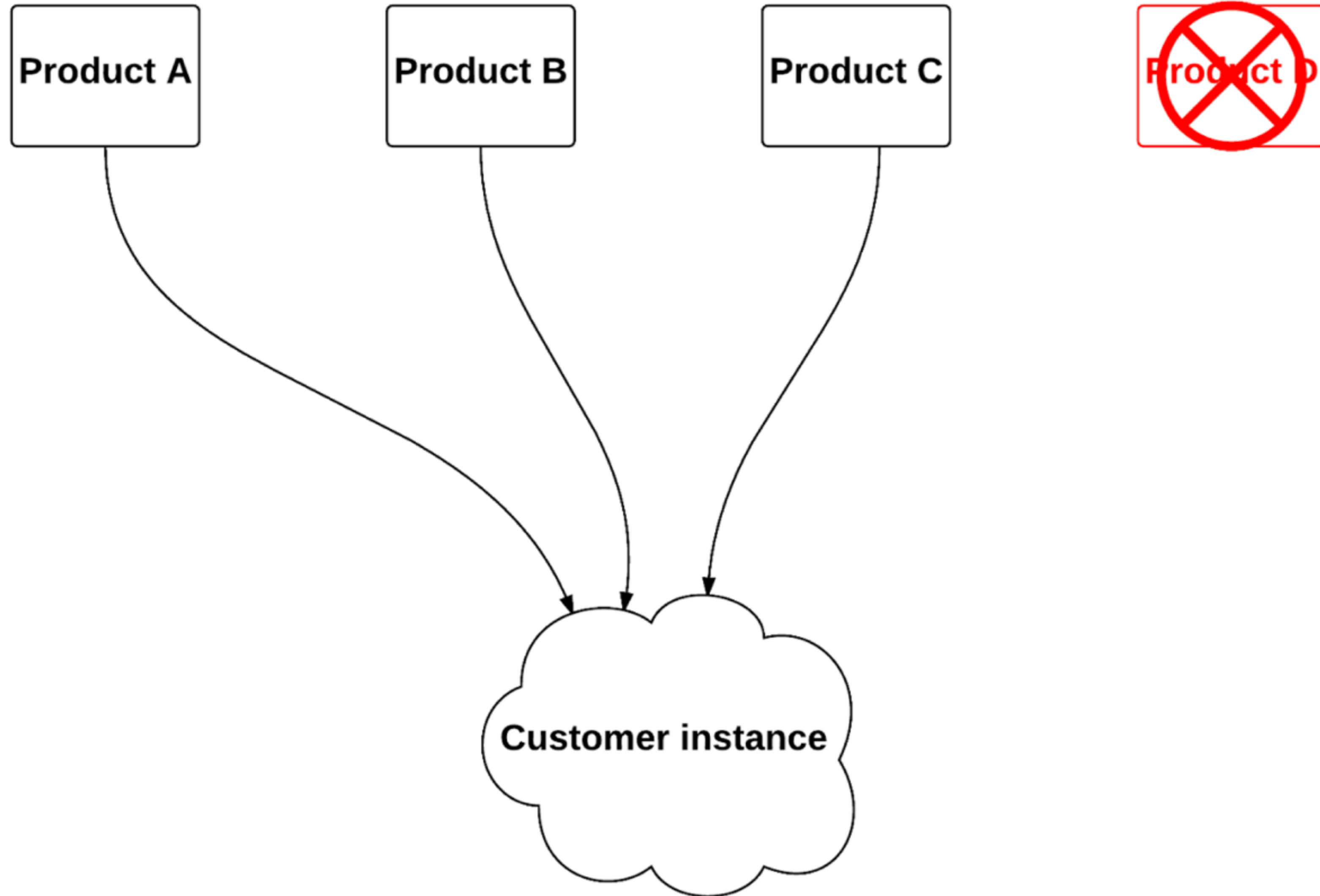
Version 1.0



Version 2.0



Version 2.0



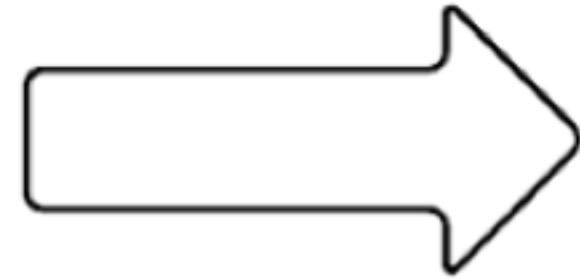
**How do you
automate beyond
CI?**



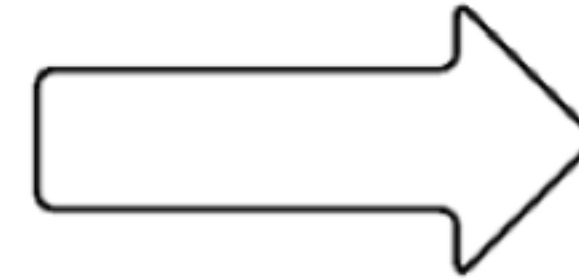
Pipeline Overview



Build



Test



Deploy



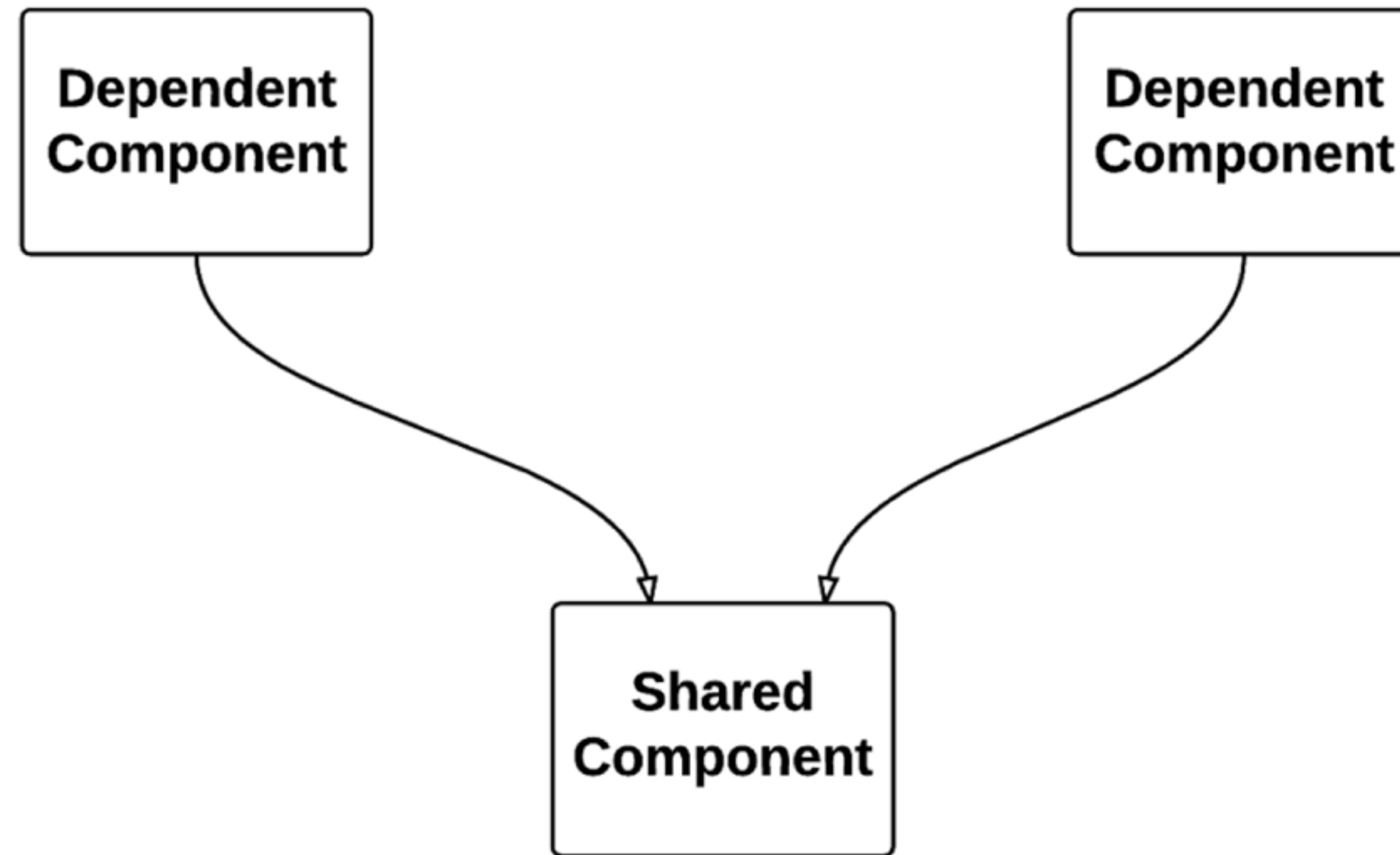
Build



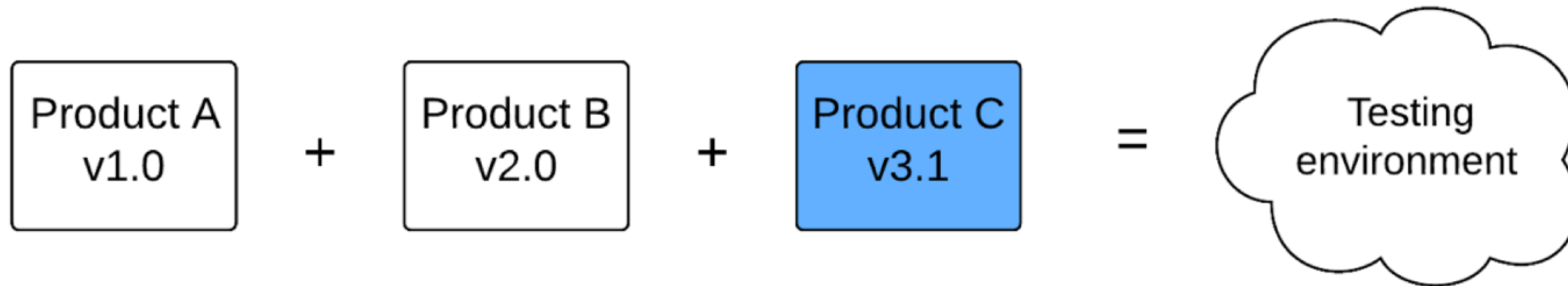
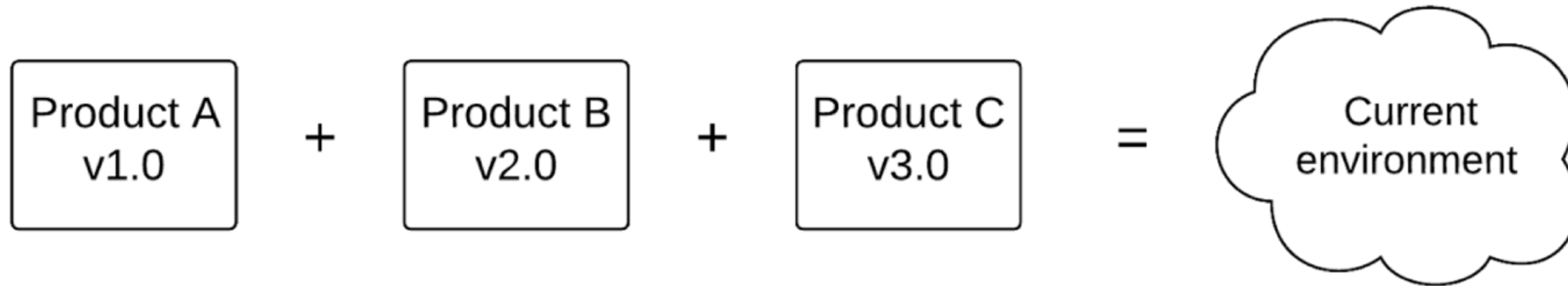
Test



Acceptance Testing



Creating a Test Instance



The Testing Environment

| JIRA | 6.5-OD-06-012 21 hours ago ★ |
|-------------------------------------|--|
| blobstore-migration-jira-plugin | 0.0.12-D20150324T102555 3 months ago ★ |
| flowdock-jira-plugin | 1.60.1 a year ago |
| hipchat-for-jira-plugin | 6.26.10-D20150527T103340 14 days ago |
| jira-agile-connect-plugin | 1.0.2-D20150416T093545 2 months ago |
| jira-bamboo-plugin | 7.3.26-D20150604T071048 6 days ago |
| jira-calendar-plugin | 3.0.1-D20150427T202503 a month ago |
| jira-connector-plugin | 1.5.2 3 months ago |
| jira-development-integration-plugin | 3.3.3-D20150609T233550 4 hours ago ★ |
| jira-dnd-attachment-plugin | 3.3.3-D20150527T150853 9 days ago |
| jira-dvcs-connector-plugin | 3.3.5-D20150610T032842 2 hours ago ★ |
| jira-email-processor-plugin | 1.0.36-D20150528T151900 2 hours ago |
| jira-gliffy-plugin | 4.3.5-OD 20 hours ago |
| jira-greenhopper-plugin | 6.7.5-D20150604T150409 6 days ago ★ |
| jira-html5-attach-images | 2.0.10-D20150527T090121 14 days ago |

Deploy




Release Tracking

jira

| | jirastudio-dev adb0724d31928d14493acfc036c3d18ab08fd129 | jirastudio-dog ba1ee6ab49f6dc4b51a682af48b929179dd77b5d | jirastudio-prd-virtual 80976ad1e40f609b05475c0d8532e907af06faa1 | jirastudio-prd 6f2eaed041689d06eb84a93fee3f6f7b91bccddb |
|-------------------------------------|--|--|--|--|
| Confluence | 5.9.0-OD-55-011 15 hours ago ★ | 5.9.0-OD-54-004 7 days ago ★ | 5.9.0-OD-54-011 5 days ago ★ | 5.9.0-OD-54-011 a day ago |
| confluence-jira-content | 1.8.5-D20150507T102020 a month ago | | | |
| confluence-jira-metadata | 1.2.2 2 years ago | 1.2.2 a year ago | 1.2.2 a year ago | 1.2.2 a year ago |
| JIRA | 6.5-OD-06-008 12 days ago ★ | 6.5-OD-05-041 6 days ago ★ | 6.5-OD-05-041 5 days ago ★ | 6.5-OD-05-041 a day ago |
| blobstore-migration-jira-plugin | 0.0.12-D20150324T102555 2 months ago ★ | 0.0.12-D20150324T102555 2 months ago ★★ | 0.0.12-D20150324T102555 2 months ago ★ | 0.0.12-D20150324T102555 2 months ago |
| flowdock-jira-plugin | 1.60.1 a year ago | 1.60.1 a year ago | 1.60.1 a year ago | 1.60.1 a year ago |
| hipchat-for-jira-plugin | 6.26.10-D20150527T103340 6 days ago | 6.26.10-D20150527T103340 5 days ago ★ | 6.24.0-D20150429T050218 11 days ago ★ | 6.24.0-D20150429T050218 a month ago |
| jira-agile-connect-plugin | 1.0.2-D20150416T093545 2 months ago | 1.0.2-D20150416T093545 2 months ago | 1.0.2-D20150416T093545 a month ago | 1.0.2-D20150416T093545 a month ago |
| jira-bamboo-plugin | 7.3.24-D20150525T062015 8 days ago | 7.3.24-D20150525T062015 7 days ago ★ | 7.0.7 a year ago ★ | 7.0.7 a year ago |
| jira-calendar-plugin | 3.0.1-D20150427T202503 a month ago | 3.0.1-D20150427T202503 a month ago ★ | 3.0.1-D20150427T202503 a month ago ★ | 3.0.1-D20150427T202503 a month ago ★ |
| jira-connector-plugin | 1.5.2 3 months ago | 1.5.2 3 months ago | 1.5.2 3 months ago | 1.5.2 2 months ago |
| jira-development-integration-plugin | 3.3.2-D20150527T022509 6 days ago ★ | 3.3.2-D20150525T003708 8 days ago ★ | 3.3.2-D20150525T003708 6 days ago ★ | 3.3.2-D20150525T003708 a day ago ★ |
| jira-dnd-attachment-plugin | 3.3.3-D20150527T150853 12 hours ago | 3.3.3-D20150526T140451 6 days ago ☆ | 3.3.2-D20150429T082325 a month ago ☆ | 3.3.2-D20150429T082325 a month ago ☆ |
| jira-dvcs-connector-plugin | 3.3.2-D20150527T012248 6 days ago ★ | 3.3.2-D20150527T012248 6 days ago ☆★ | 3.3.2-D20150527T012248 6 days ago ★ | 3.3.2-D20150527T012248 a day ago ★ |
| jira-email-processor-plugin | 1.0.34-D20150515T043342 18 days ago | 1.0.34-D20150515T043342 14 days ago ★ | 1.0.34-D20150515T043342 14 days ago ★ | 1.0.34-D20150515T043342 8 days ago |
| jira-gliffy-plugin | 4.3.3 12 days ago | 4.3.3 8 days ago | 4.2 4 months ago | 4.2 4 months ago |
| jira-greenhopper-plugin | 6.7.3-D20150526T101348 7 days ago ★ | 6.7.3-D20150525T082003 7 days ago ☆★ | 6.7.3-D20150525T082003 6 days ago ★ | 6.7.3-D20150525T082003 a day ago ★ |
| jira-html5-attach-images | 2.0.10-D20150527T090121 6 days ago | 2.0.10-D20150420T012152 6 days ago | 1.5.27-D20150219T153345 3 months ago ☆ | 1.5.27-D20150219T153345 3 months ago |
| jira-importers-bitbucket-plugin | 1.0.3 a year ago | 1.0.3 a year ago | 1.0.3 a year ago | 1.0.3 a year ago |
| jira-importers-github-plugin | 2.0.8-D20150422T134821 a month ago | 2.0.8-D20150422T134821 a month ago | | |
| jira-importers-plugin | 7.0.14-D20150527T094457 6 days ago | 6.3.2-D20150330T133415 2 months ago | 6.0.26 a year ago | 6.0.26 a year ago |

Deployment Tracking

 ae2197d4-17eb-429a-b733-b6692a0cff79

Manifesto [11ed843d-f21a-4b27-905b-7bc7b3bdc54f]: jira:jira-servicedesk 2.5.1-OD-03-002-D20150527T030742 to jirastudio-dog



Failed 0 / 272 (0%)

Deployment report:

| | ash1 | sc1 | sm1 | Total |
|------------|------|-----|-----|-------|
| Successful | 43 | 162 | 67 | 272 |


Deployment failures:

| Failure reason | Total |
|---|-------|
| Insight into failure reasons Full list of host failures | 0 |

Total failures: 0



Failure Tracking

 5631a152-ee77-4e65-a279-5bee4dd6167c

Manifesto [bb252865-8105-4515-984f-ae739d8e73dc]: confluence:atlassian-connect-plugin 1.1.33 to jirastudio-prd

100%
33562 / 33562

Failed 86 / 33562 (< 1%)

Aborted 44 / 33562 (< 1%)

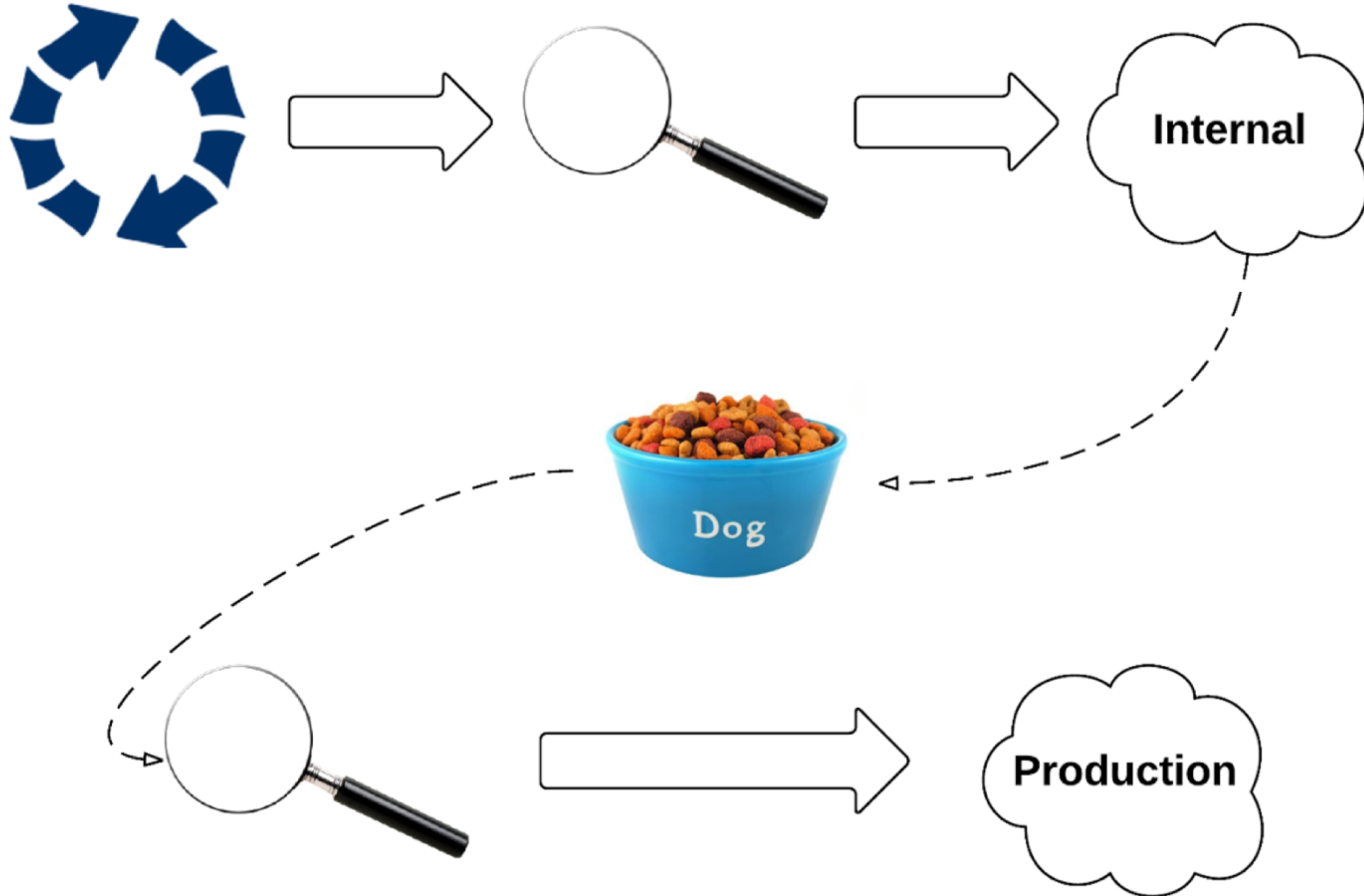
Deployment report:

| | ash1 | sc1 | sm1 | Total |
|------------|-------|-------|------|-------|
| Successful | 10164 | 15929 | 7339 | 33432 |
| Aborted | 4 | 19 | 21 | 44 |

Deployment failures:

| Failure reason ▾ | ash1 | sc1 | sm1 | Total |
|--|------|-----|-----|-------|
| com.atlassian.hops.deployment.api.exception.DeploymentException: Plugin did not install properly: Authentication failure (401 Unauthorized) | 6 | 21 | 13 | 40 |
| com.atlassian.hops.deployment.api.exception.DeploymentException: Plugin did not install properly: Plugin enabled (false) state did not match the enabledByDefault (true) state. This could be an install | 9 | 9 | 0 | 18 |
| com.atlassian.hops.deployment.api.exception.DeploymentException: Plugin did not install properly: Unknown error (500) | 9 | 6 | 2 | 17 |
| com.atlassian.hops.deployment.api.exception.DeploymentException: Plugin did not install properly: UPM lost the pending taskId/UPM missing (404 Not Found) | 0 | 0 | 1 | 1 |
| com.atlassian.hops.deployment.api.exception.DeploymentException: Plugin install verification failed due to Unauthorized (401 Unauthorized). Retried 5 times | 0 | 0 | 3 | 3 |

The Release Pipeline



Lessons

DEVELOPING PROCESS

RELEASING FOR ON PREMISES

RELEASING FOR CLOUD

LESSONS





<https://flic.kr/p/ogvPnb>

<https://flic.kr/p/ogvPnb>



**Avoid adding
unnecessary
complexity.**

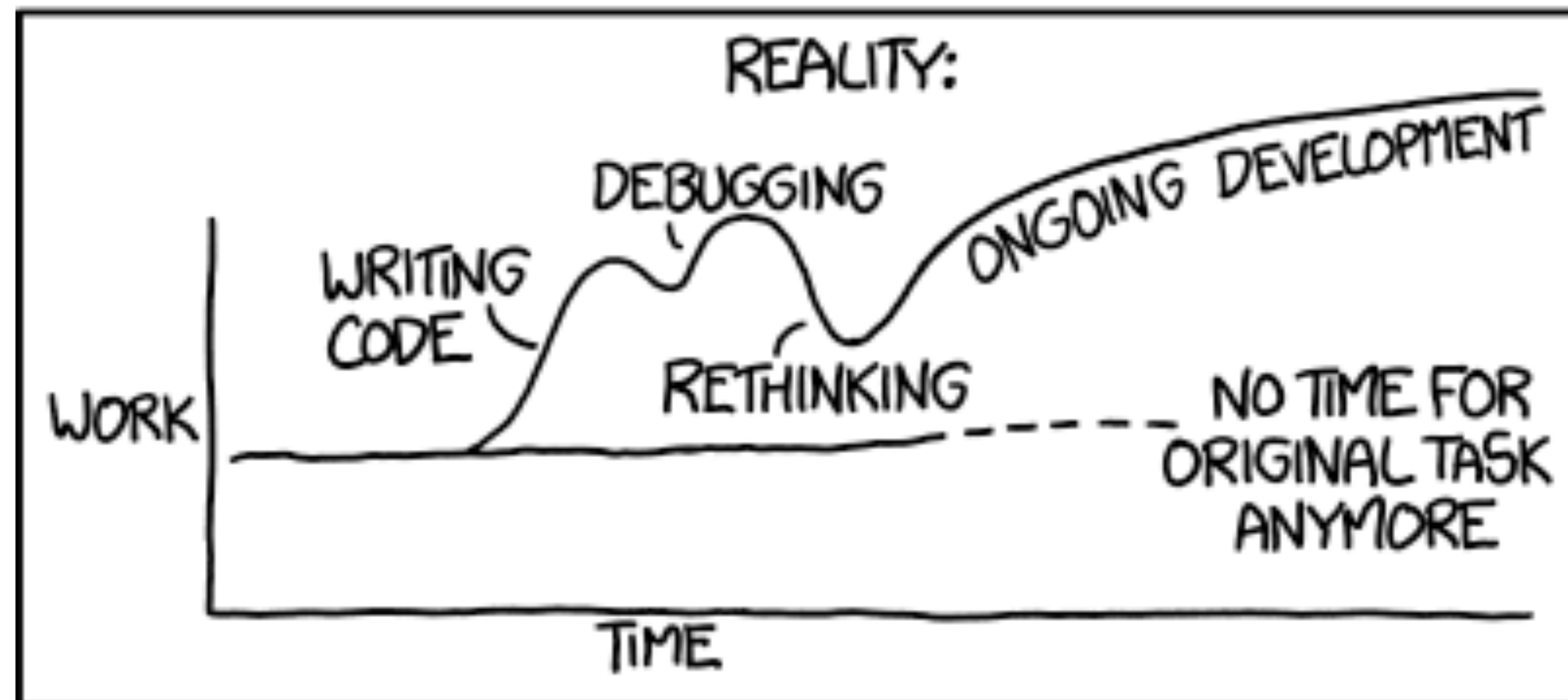
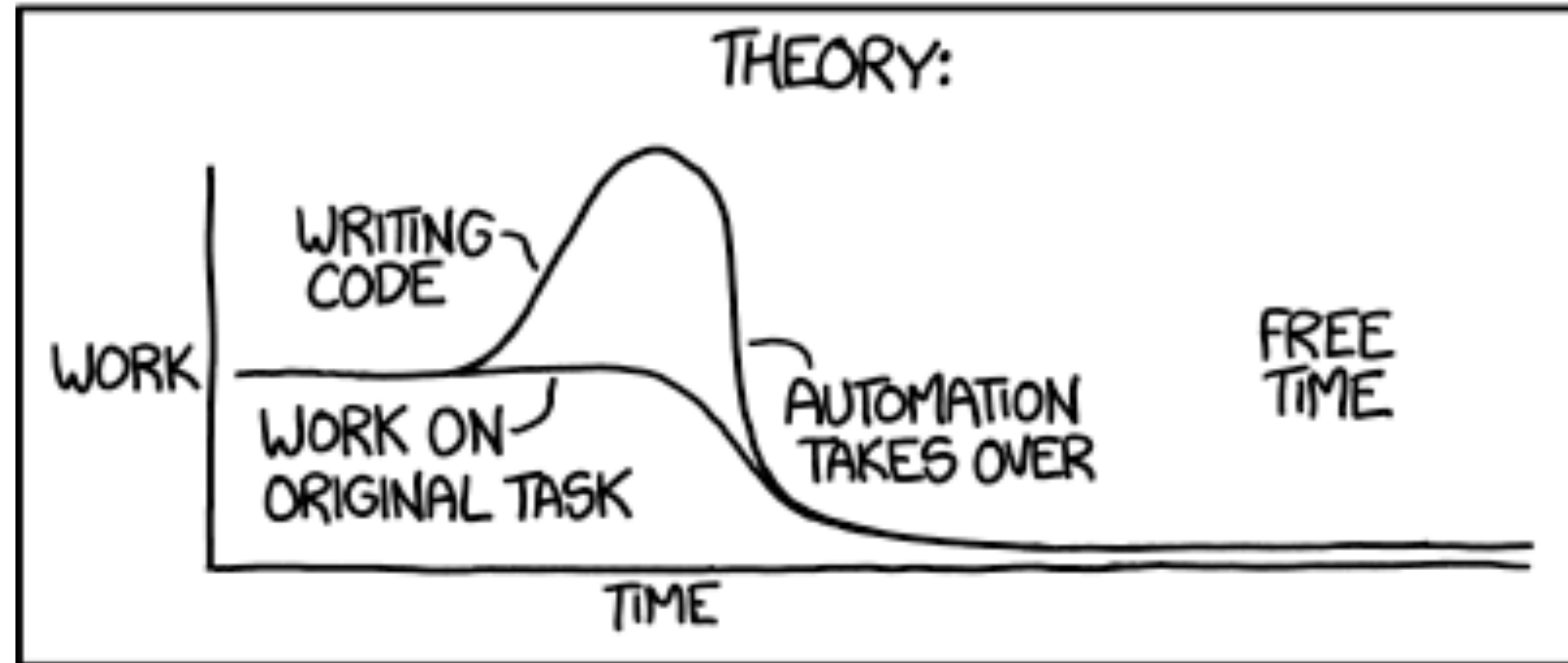




**Things will break,
so prepare for it.**



"I SPEND A LOT OF TIME ON THIS TASK.
I SHOULD WRITE A PROGRAM AUTOMATING IT!"



**Automation
requires ongoing
investment.**





**Simple and reliable
tests are key.**





**Don't forget your
customers.**





Thank you!



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