



# git in the Enterprise

Jens Schumacher • Group Product Manager • Atlassian • @jensschumacher





1

**Efficient Workflows**

2

**Code Quality**

3

**Security**

4

**Traceability**



# Efficient Workflows

Can we still fix a bug for the  
upcoming **Release**?

How do we do **Hotfix**  
for the current version?



Is the code for that  
**Feature**  
complete?

Has everyone **Reviewed**  
the code for this feature?

# The perfect Git workflow



There are many

**Design** your own

**Workflows**

# Master (Trunk) based



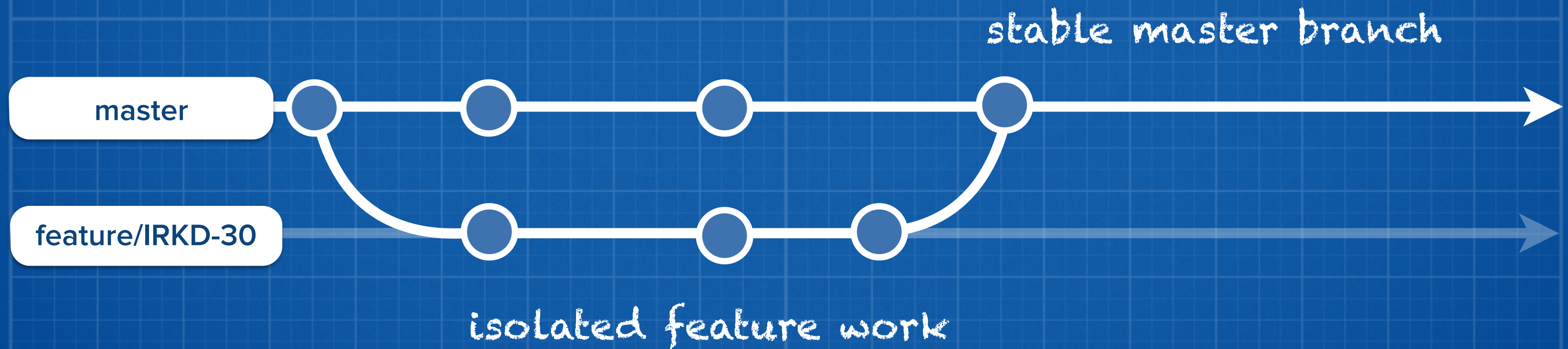
A photograph of a building's roofline, showing a dark, possibly damaged or unfinished section. A handwritten note in white text is overlaid on the image, with a white arrow pointing to a specific area on the roof. The background is a clear, light sky.

Can't be released right now

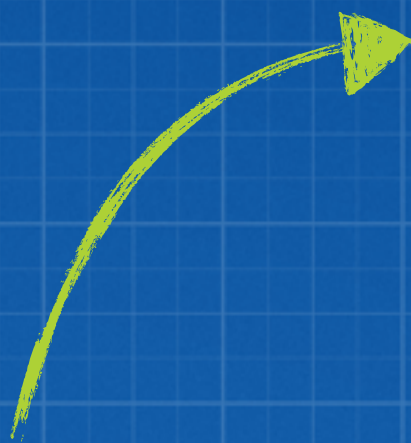
Unfinished features in your trunk / master branch



# Branch per issue



SaaS Workflow



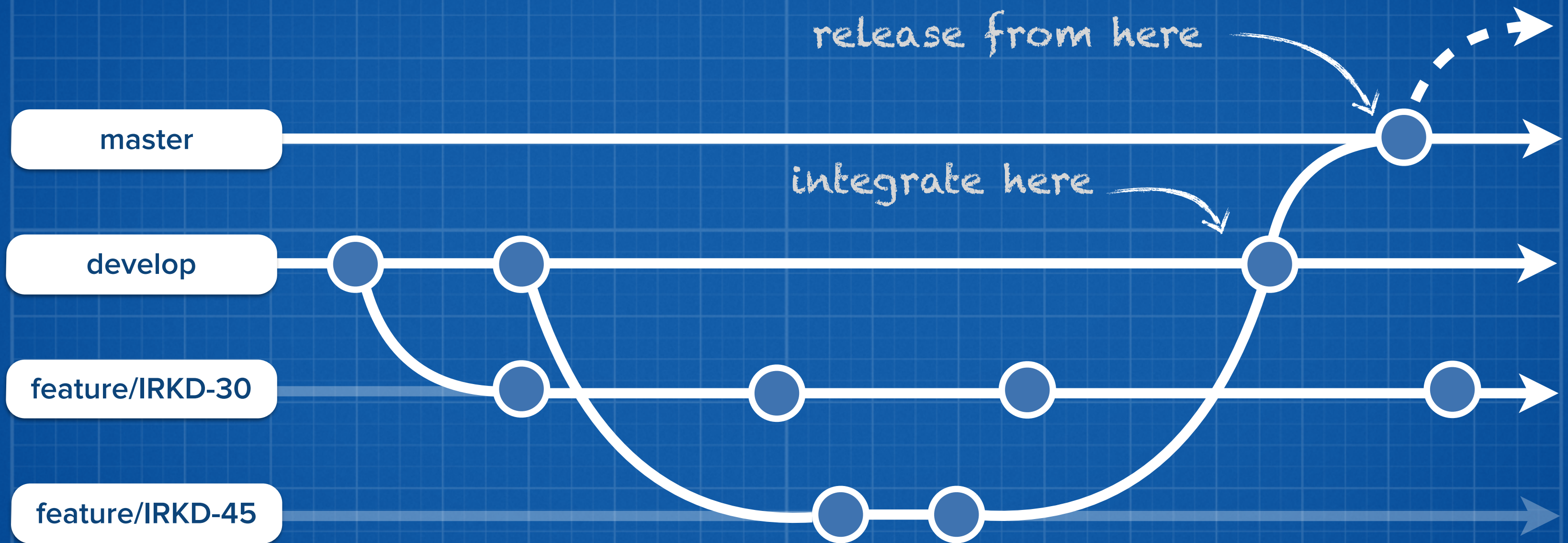
# ① Atlassian Marketplace

Workflow

# Simplest Workflow



# Integration Workflow

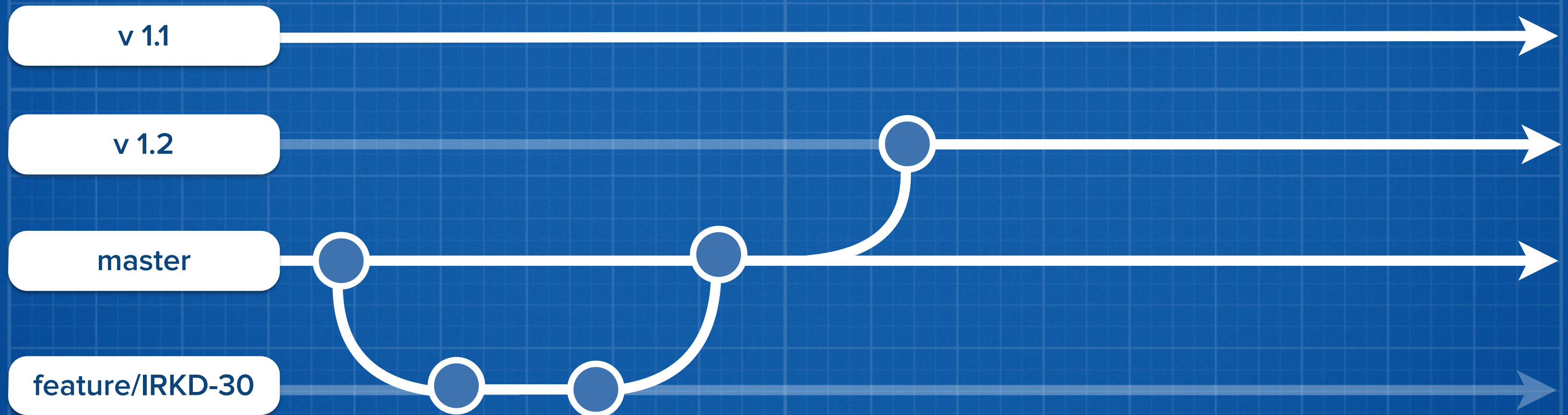


Installable software

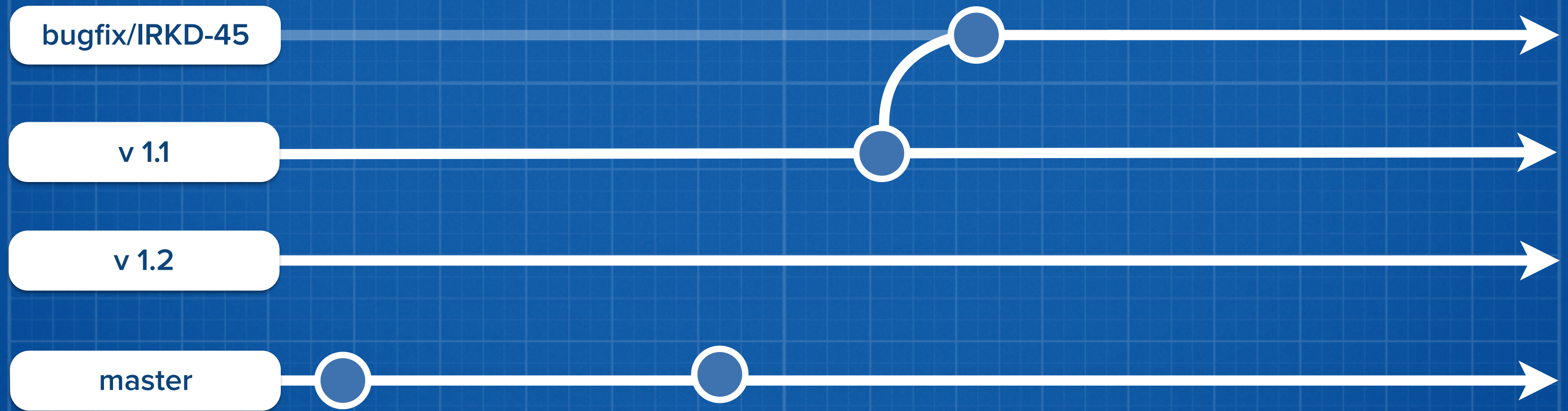
## ② Atlassian Stash

Workflow

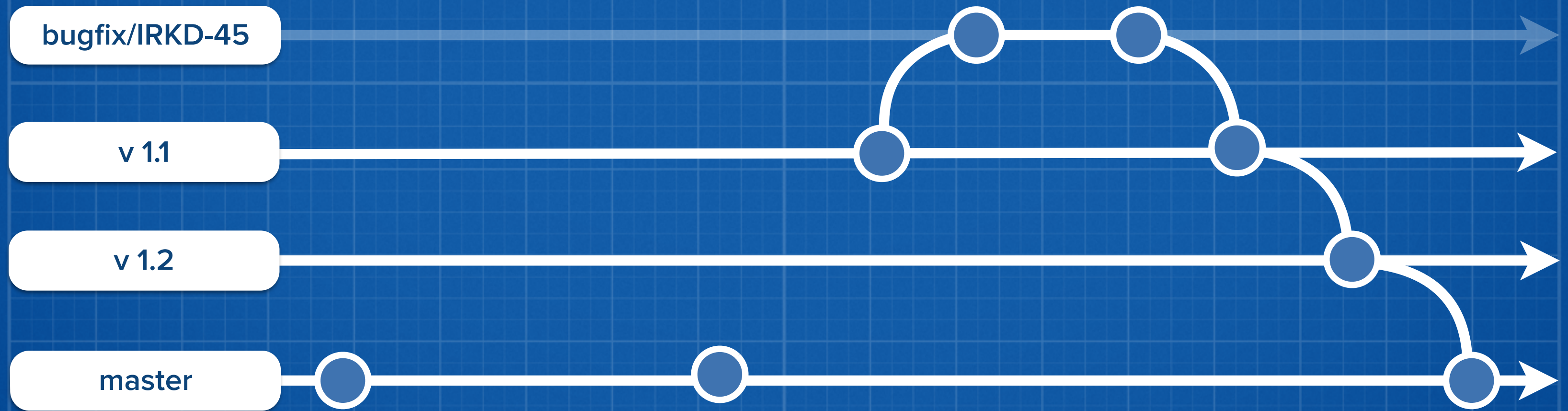
# Multiple Product Versions



# Multiple Product Versions

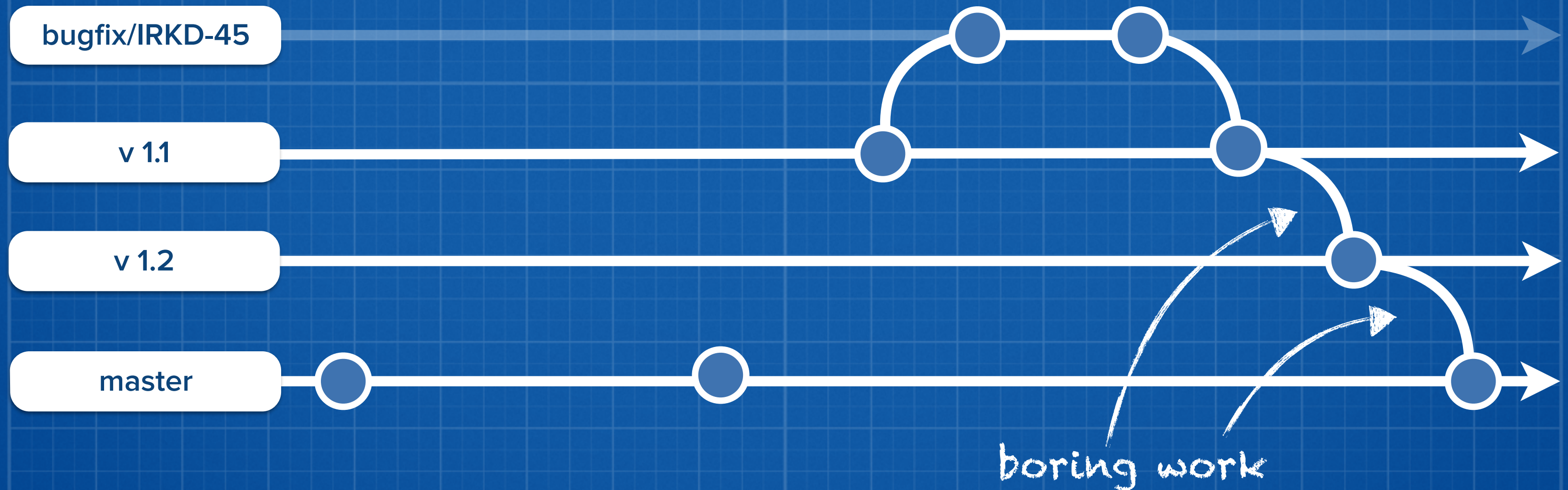


# Multiple Product Versions





# Multiple Product Versions



# Automatic merges

## with Stash

The screenshot shows the Stash web interface with a 'Merge Pull Request' dialog box open. The dialog title is 'Merge Pull Request'. The main text reads: 'Merge pull request #2783 in STASH/stash from bugfix/STASHDEV-5614-use-git-checkout-force-in-git to release/2.7'. Below this is a commit graph showing a blue branch 'bugfix/STASHDEV-5614-use-git-checkout-force-in-git' merging into a grey branch 'release/2.7'. Other branches shown are 'release/2.8', 'release/2.9', and 'master'. At the bottom of the dialog, there is a checked checkbox 'Delete source branch after merging' and two buttons: 'Merge' and 'Cancel'. The background shows the Stash repository page for 'Bugfix/STASH-3836 rest' with an 'OPEN' status and '2 Reviewers'.

# Branch per issue



# Teams in Space - Mobile

Plan Work Report Board ▾

SPRINT: Sprint 5 - Mobile ▾ QUICK FILTERS: Only My Issues Recently Updated

To Do In Progress In Review Done

- CIS-24**  
↑ An attendee wants to RSVP to the event 4
- CIS-20**  
↑ Visual design for mobile web 5
- CIS-22**  
↑ A user wants to view the latest updates via the dashboard 3
- CIS-23**  
↑ A manager wants to view updates in a calendar for planning 7
- CIS-1**  
↑ Unable to login via Google Apps - null pointer exception
- CIS-3**  
↑ Create booking/reservation screen
- CIS-6**  
↑ Reservation confirmation page

- CIS-21**  
↑ A user wants to sign up via Facebook 3

- CIS-5**  
↑ Payment details

- CIS-4**  
↑ Create booking/reservation screen
- CIS-19**  
↑ Create a survey to identify Facebook usage

Teams in Space - Mobile / **CIS-21** ⋮ ×

A user wants to sign up via Facebook

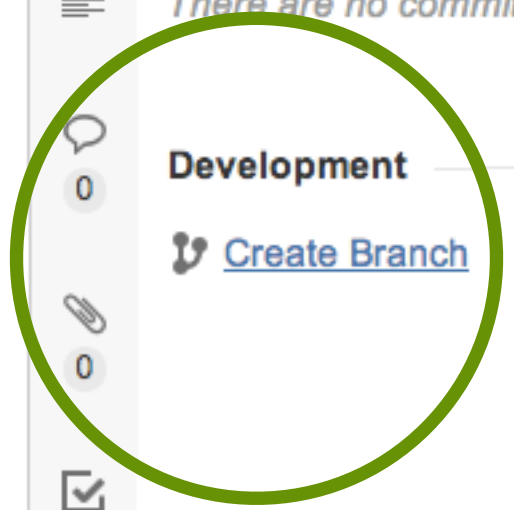
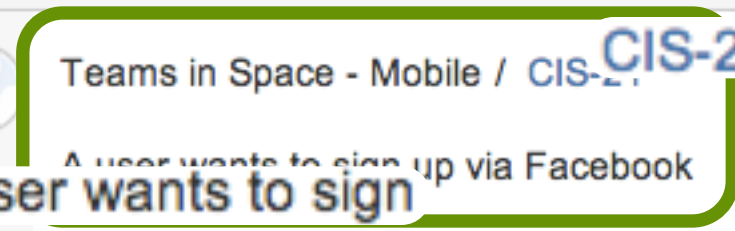
Estimate: 3

**Commits**

*There are no commits*

**Development**

[Create Branch](#)



### Create branch for CIS-21

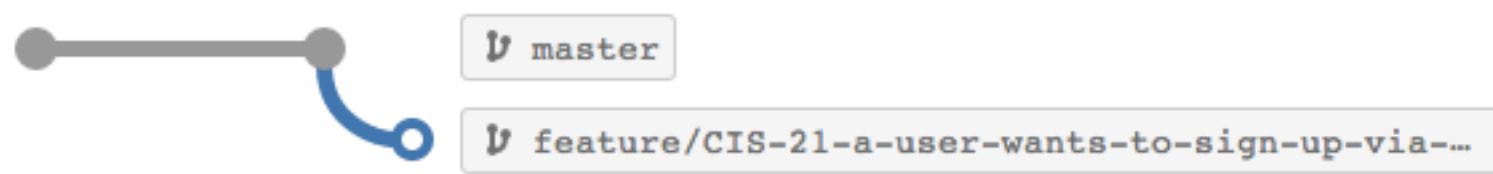
Repository Teams in S... / Mobile TIS

Branch type Feature

[Learn about branch types](#)

Branch from master

Branch name feature/ CIS-21 A user wants to sign



Create branch Cancel

Git repository management for enterprise teams powered by Atlassian Stash

### Create branch for CIS-21

Repository Teams in S... / Mobile TIS

Branch type Feature

[Learn about branch types](#)

Branch from master

Branch name feature/ CIS-21-a-user-wants-to-sign-up-via-fe



Create branch Cancel

Git repository management for enterprise teams powered by Atlassian Stash

### Create branch for CIS-21

Repository Teams in S... / Mobile TIS

Branch type Feature

- Bugfix
- Feature
- Hotfix
- Release
- Custom

Branch from

Branch name CIS-21-a-user-wants-to-sign-up-via-fe



Create branch Cancel

Git repository management for enterprise teams powered by Atlassian Stash



### Create branch for CIS-21

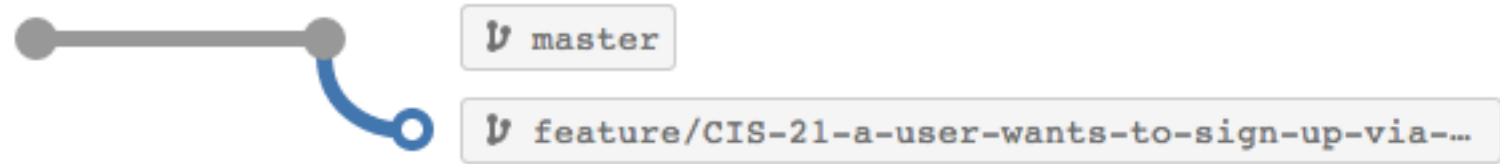
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Create branch Cancel

Git repository management for enterprise teams powered by Atlassian Stash



### Create branch for CIS-21

Repository Teams in S... / Mobile TIS

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Create branch Cancel

Git repository management for enterprise teams powered by Atlassian Stash

### Create branch for CIS-21

Repository Teams in S... / Mobile TIS

Branch type Feature

[Learn about branch types](#)

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Create branch Cancel

Git repository management for enterprise teams powered by Atlassian Stash



Design your workflow

# Good for

stable branches

less error prone



## Code

&

transparency

better understanding



easier onboarding

## Team

# Code Quality

Better Quality

Find errors

# Code Reviews

Learn

# Code Reviews

part of your daily work

asynchronously

less painful

# Code Reviews



Code *after* changes are on trunk



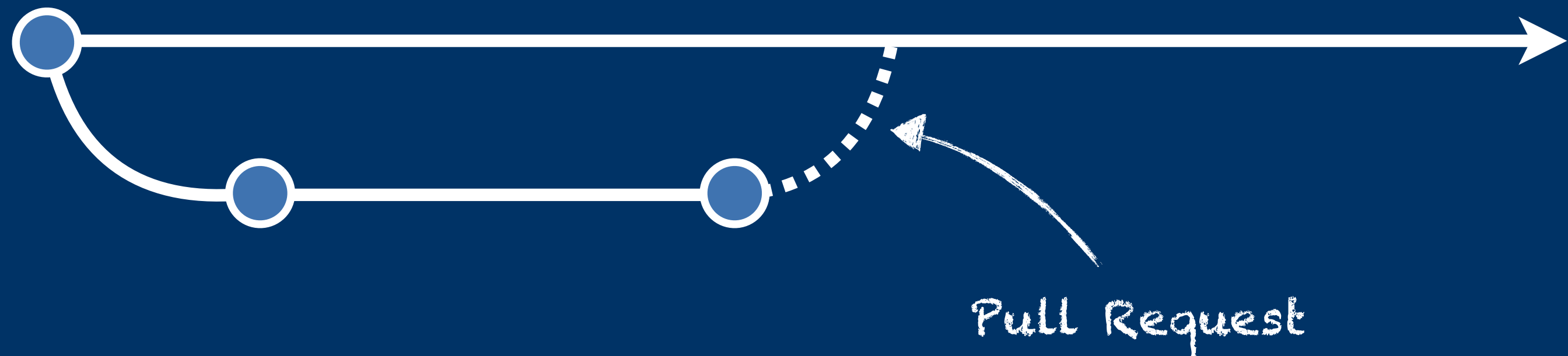
# Pull Requests

part of your daily workflow

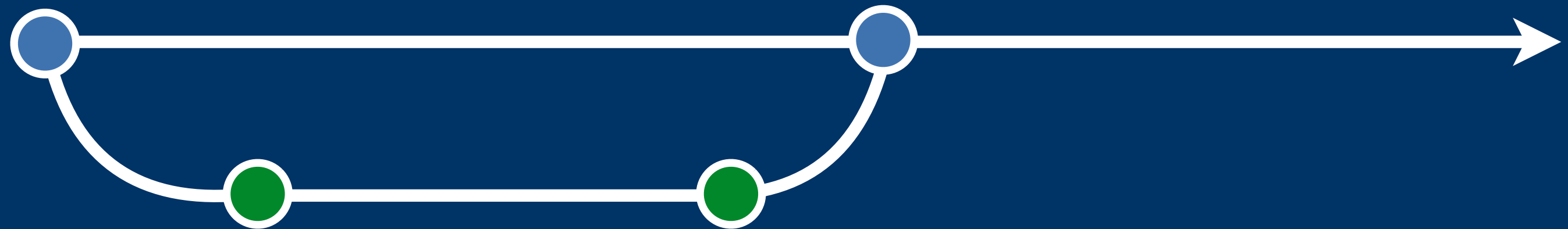
Part of your daily work



Part of your daily work



Part of your daily work



# Create Pull Request

## Source

Teams in S... / Mobile TIS

feature/CIS-21-a-user-want...

Kevin Campbell committed a981f16 8 mins ago  
CIS-21 implemented facebook login for mobile app



## Destination

Teams in S... / Mobile TIS

master

Kevin Campbell committed 7ccee94 3 hours ago  
Merge

## Pull request details

Title\* Feature/CIS-21 a user wants to sign up via facebook

Description CIS-21 implemented facebook login for mobile app

Reviewers

Suggestions: Max Taylor, admin, William Smith, Alana Grant



# Create Pull Request

## Source

Teams in S... / Mobile TIS

feature/CIS-21-a-user-want...

Kevin Campbell committed a981f16 8 mins ago  
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## Destination

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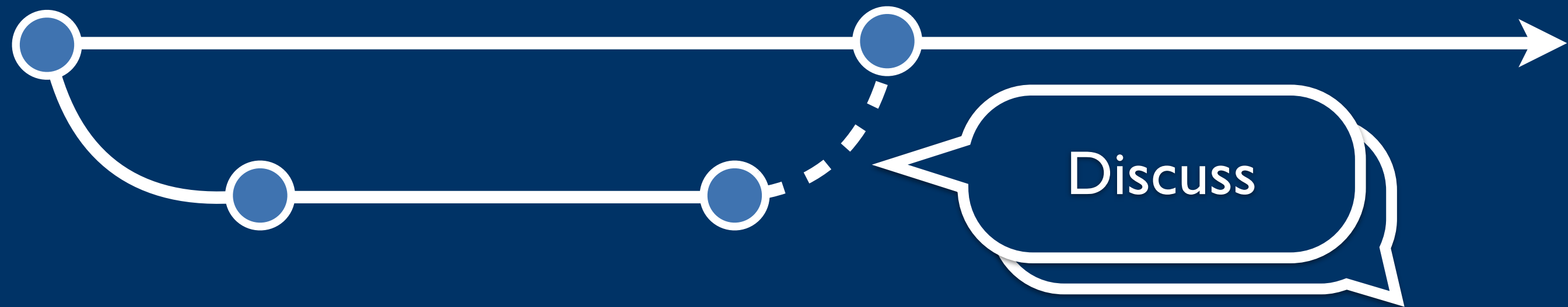
Description CIS-21 implemented facebook login for mobile app



Reviewers Max Taylor × Alana Grant ×

Suggestions: admin, William Smith

Be respectful!





# Be respectful!

facebook\_client.js /

```
7      7
8      8  /* gets the authorize url
9      9  *
10     10  * @param {Object} options
11     11  * @return {String}
12     12  */
13     13  CLIENT.getAuthorizeUrl = function (options) {
14     14  options = options || {};
- 15     return _facebook_graph_url + '/oauth/authorize?' + querystring.stringify(op
+ 15
+ 16     if (AUTO_TEST) {
+ 17         return mockURL();
+ 18     } else {
+ 19         return _facebook_graph_url + '/oauth/authorize?' + querystring.stringif
+ 20     }
16     21  };
17     22
18     23  /* Does an API call to facebook and callbacks
19     24  * when the result is available.
20     25  *
21     26  * @param {String} method
```

# Be respectful!

facebook\_client.js /

```
7      7
8      8  /* gets the authorize url
9      9  *
10     10  * @param {Object} options
11     11  * @return {String}
12     12  */
13     13  CLIENT.getAuthorizeUrl = function (options) {
14     14  options = options || {};
- 15     return _facebook_graph_url + '/oauth/authorize?' + querystring.stringify(op
+ 15
+ 16     if (AUTO_TEST) {
```



**Max Taylor**

Love that you were finally able to mock the Facebook API.

Reply · Delete · 4 days ago



**Alana Grant**

Took a while but well worth it. Bamboo servers IP keeps getting banned by facebook.

Reply · Delete · 4 days ago

# Side by side diff

compare like a pro

```
auiplugin / src / demo / soy / appheader-demo.soy MODIFIED
```

```
31         </div>
32     </li>
33     <!-- You can also use a split button in this location, if more than one prima
34     <li><a class="mui-button mui-button-primary" href="http://example.com/">Actio
35 </ul>
36 </div>
37 <div class="mui-header-secondary">
38     <ul class="mui-nav">
39 -     <li>
40 -         <form action="/foo" method="post" class="mui-quicksearch">
41 -             <label for="quicksearchid" class="assistive">Search</label>
42 -             <input id="quicksearchid" class="search" type="text" placeholder="Sea
43 -         </form>
44 -     </li>
45     <li><a href="#dropdown2-header7" aria-owns="dropdown2-header7" aria-haspopup=
46     <div class="mui-dropdown2 mui-style-default mui-dropdown2-in-header" id="dr
47     <div class="mui-dropdown2-section">
48         <ul>
49             <li><a href="http://example.com/" class="active">Online help</a>
50             <li><a href="http://example.com/">Keyboard shortcuts</a></li>
51 -         <li><a href="http://example.com/">About</a></li>
52         </ul>
53     </div>
54 </li>
55 </li>
56 <li><a href="#dropdown2-header9" aria-owns="dropdown2-header9" aria-haspopup=
57     <div class="mui-avatar mui-avatar-small">
58 -     <div class="mui-avatar-inner">
59         </img>
60     </div>
61 </div>
62 </a>
63 <div class="mui-dropdown2 mui-style-default mui-dropdown2-in-header" id="dr
64 <div class="mui-dropdown2-section">
```

```
25         <div class="mui-dropdown2-section">
26             <ul>
27                 <li><a href="http://example.com/">Item 6</a></li>
28                 <li><a href="http://example.com/">Item 7</a></li>
29             </ul>
30         </div>
31     </div>
32 </li>
33     <!-- You can also use a split button in this location, if more than one prima
34     <li><a class="mui-button mui-button-primary" href="http://example.com/">Actio
35 </ul>
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37 <div class="mui-header-secondary">
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39     <li><a href="#dropdown2-header7" aria-owns="dropdown2-header7" aria-haspopup=
40     <div class="mui-dropdown2 mui-style-default mui-dropdown2-in-header" id="dr
41     <div class="mui-dropdown2-section">
42         <ul>
43             <li><a href="http://example.com/" class="active">Online help</a>
44             <li><a href="http://example.com/">Keyboard shortcuts</a></li>
45 +         <li><a href="http://example.com/">About Teams in Space</a></li>
46 +         <li><a href="http://example.com/">Submit feedback</a></li>
47 +         <li><a href="http://example.com/">API documentation</a></li>
48 +         <li><a href="http://example.com/">Privacy policy</a></li>
49     </ul>
50     </div>
51 </li>
```

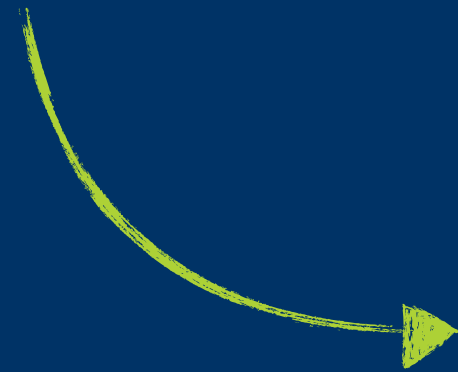
**Kostya Marchenko**  
Are you sure this should be added here? I thought we were going to review this after the next release.  
Reply · Edit · Delete · A moment ago

Reviewers



Approvals

2



**Go merge!**

# Minimum of approvals

## Pull requests

Requires  approvers

At a minimum, pull requests must be approved by the number of users above before it can be merged

Requires a minimum of  successful builds

If there are more than the specified number of builds, all of them will have to be successful in order to merge the pull request

Who would be

**the best to review**

my code?



# Auto Suggest Reviewers



### Create Pull Request

**Source**

STASH / stash

STASHDEV-5102-uppercas...

Charles O'Farrell committed 9a613ae 4 days ago  
STASHDEV-5102 Add missing upgrade.xml

→

**Destination**

STASH / stash

master

Xu-Heng Tjhin committed 944e2de 2 days ago  
Merge pull request #2344 in STASH/stash from STASHDEV-5061-copybranch-noflash-fallback to master \* commit '5fdd21b88072911ee4ebacc3de29c40b44e...

### Pull request details

Title: STASHDEV-5102 uppercase jira key

Description: \* STASHDEV-5102 Uppercase indexed JIRA keys for performance  
\* STASHDEV-5102 Use Locale US when converting to uppercase  
\* STASHDEV-5102 Add missing upgrade.xml

Reviewers: Michael Heemskerk

Suggestions: Charles O'Farrell, Bryan Turner, Pierre Etienne-Poirot, Michael Studman

[Create pull request](#) [Cancel](#)

Previously contributed to files that were modified.

# Auto Suggest Reviewers

Free Add On  
@Stash

### Create Pull Request

**Source**

STASH / stash

STASHDEV-5102-uppercas...

Charles O'Farrell committed 9a613ae 4 days ago  
STASHDEV-5102 Add missing upgrade.xml

→

**Destination**

STASH / stash

master

Xu-Heng Tjhin committed 944e2de 2 days ago  
Merge pull request #2344 in STASH/stash from STASHDEV-5061-copybranch-noflash-fallback to master \* commit '5fdd21b88072911ee4ebacc3de29c40b44e...

### Pull request details

Title: STASHDEV-5102 uppercase jira key

Description: \* STASHDEV-5102 Uppercase indexed JIRA keys for performance  
\* STASHDEV-5102 Use Locale US when converting to uppercase  
\* STASHDEV-5102 Add missing upgrade.xml

Reviewers: Michael Heemskerk

Suggestions: Charles O'Farrell, Bryan Turner, Pierre Etienne-Poirot, Michael Studman

Create pull request Cancel

Previously contributed to files that were modified.

suggestions

why?



**Pull request details**

Title

Description

Reviewers

Suggestions: [Charles O'Farrell](#), [Bryan Turner](#), [Pierre Etienne-Poirot](#), [Michael Studman](#)

Previously contributed to files that were modified.

**Commits to be merged**

[best:7000/stash/projects/STASH/repos/stash/pull-requests?create#](#)

Suggestions:



committed code to this  
Pull Request

contributed files that  
were modified

# Code Reviews

part of your daily workflow

asynchronously

painless

**Security**



Control access to your repositories

# Permissions for Repositories



Users & Groups

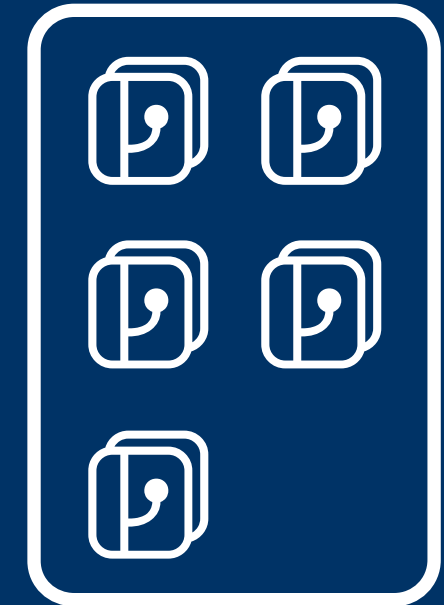


Repositories

# Permissions for Repositories

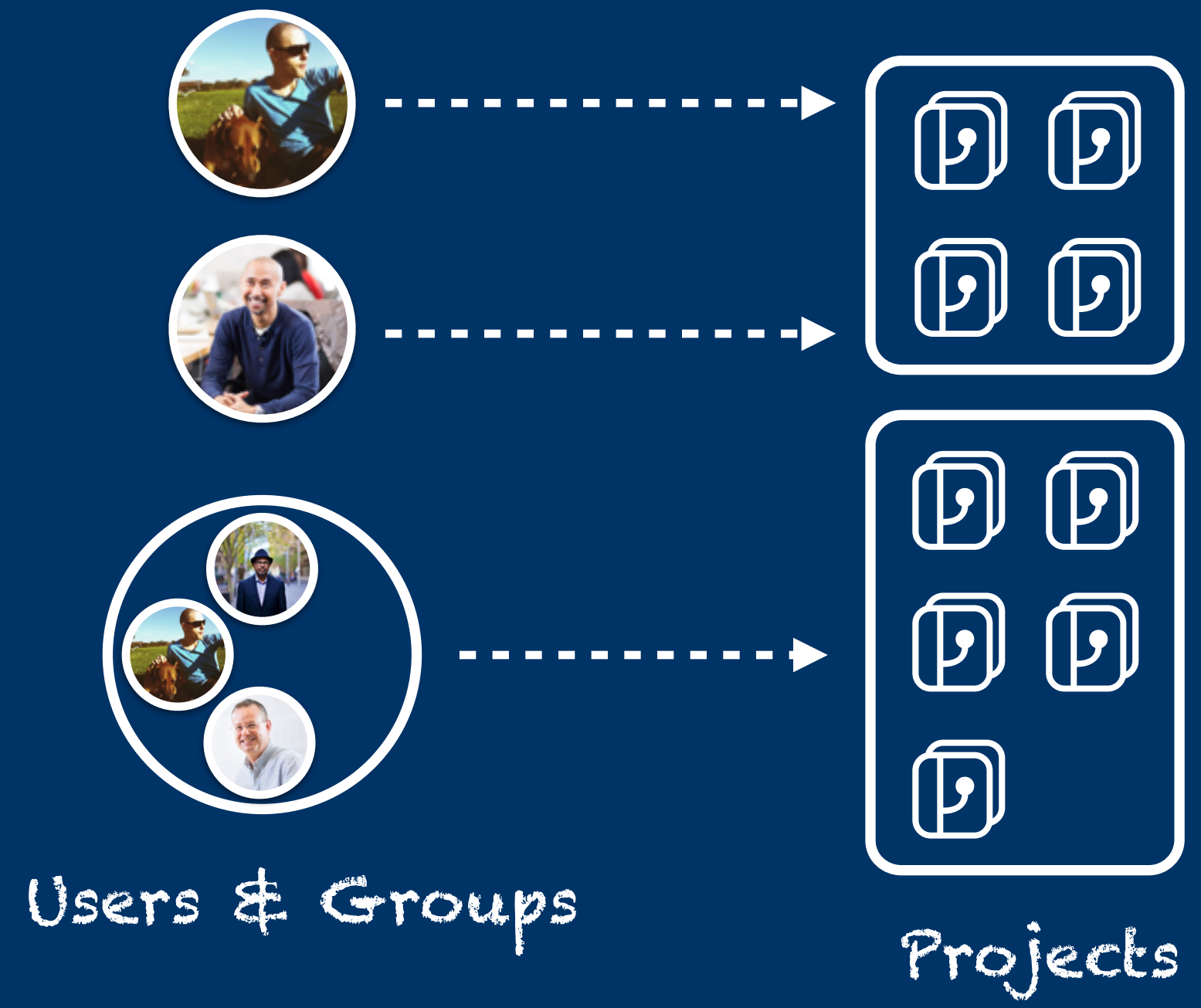


Users & Groups

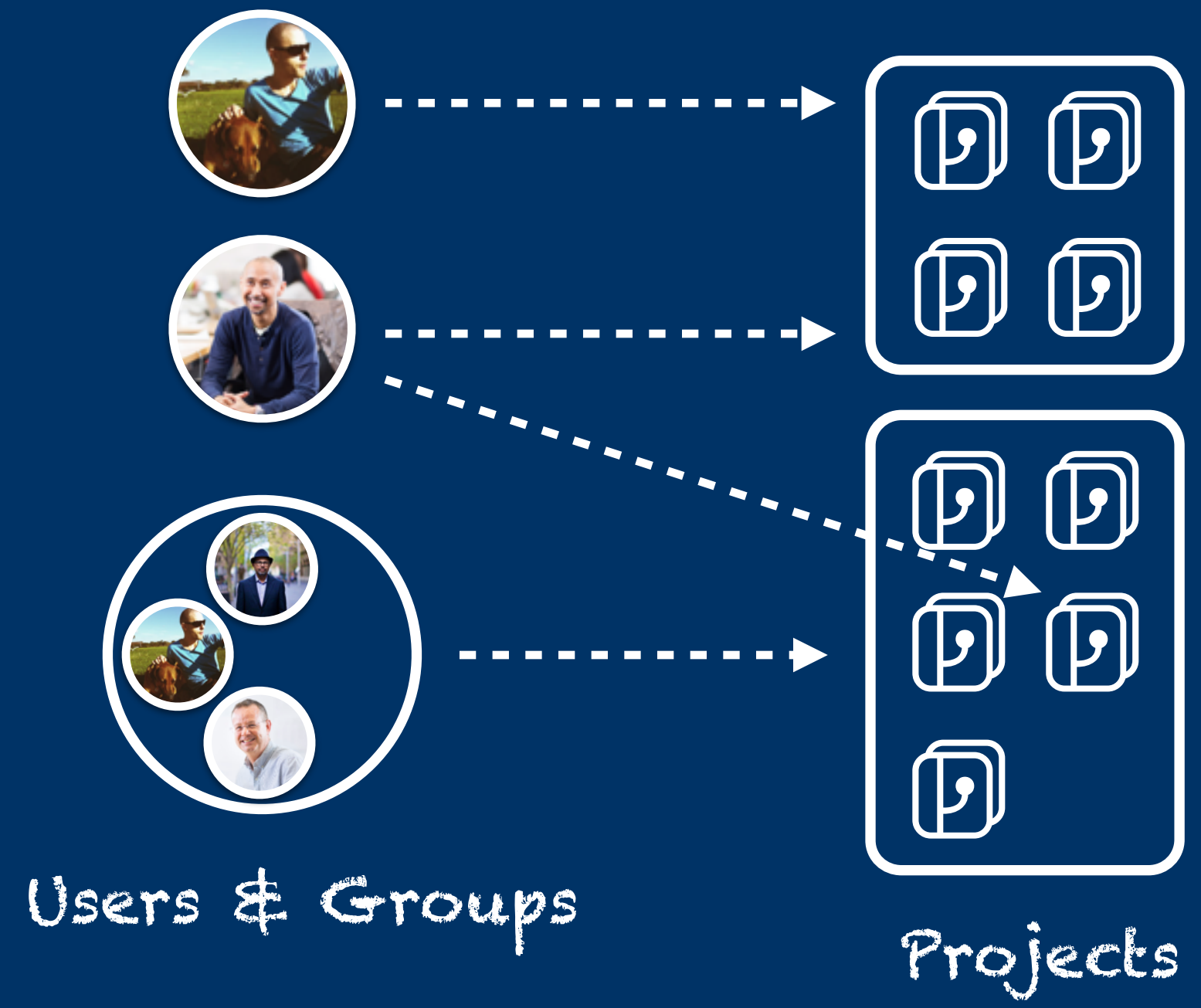


Projects

# Permissions for Repositories



# Permissions for Repositories







**Forks**

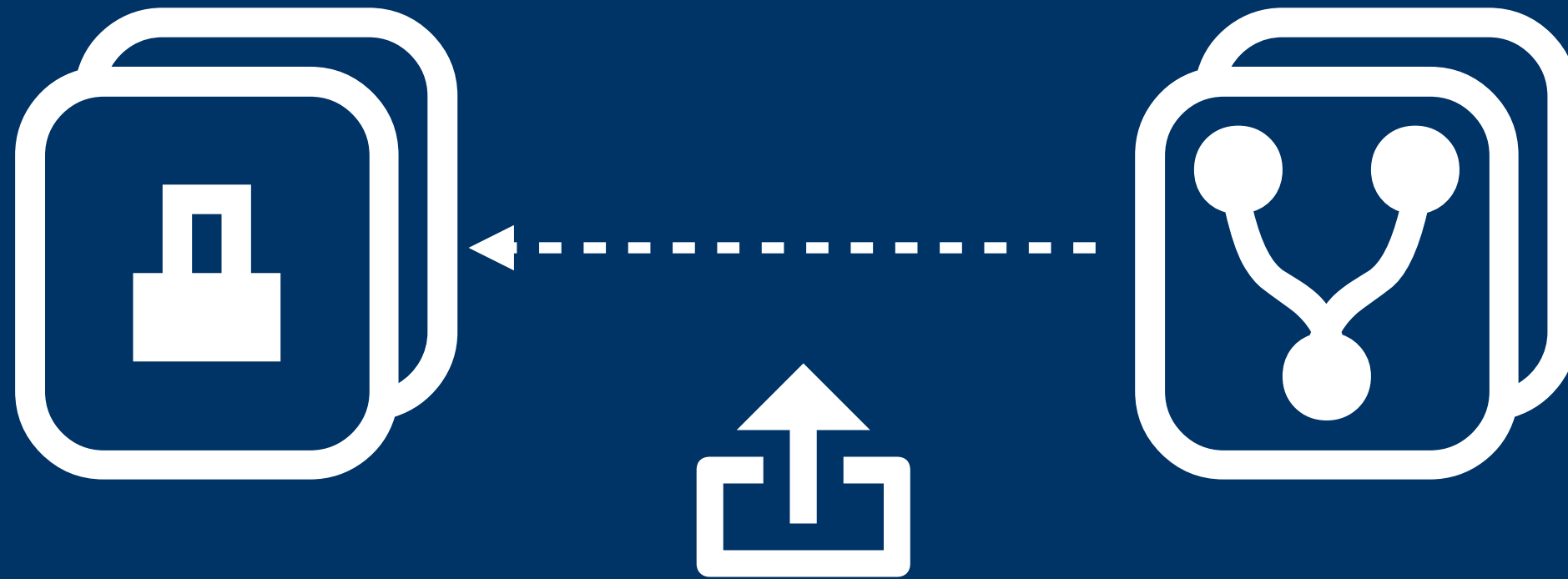
# Server side clone of the repository



# Server side clone of the repository



# Pull request to contribute changes



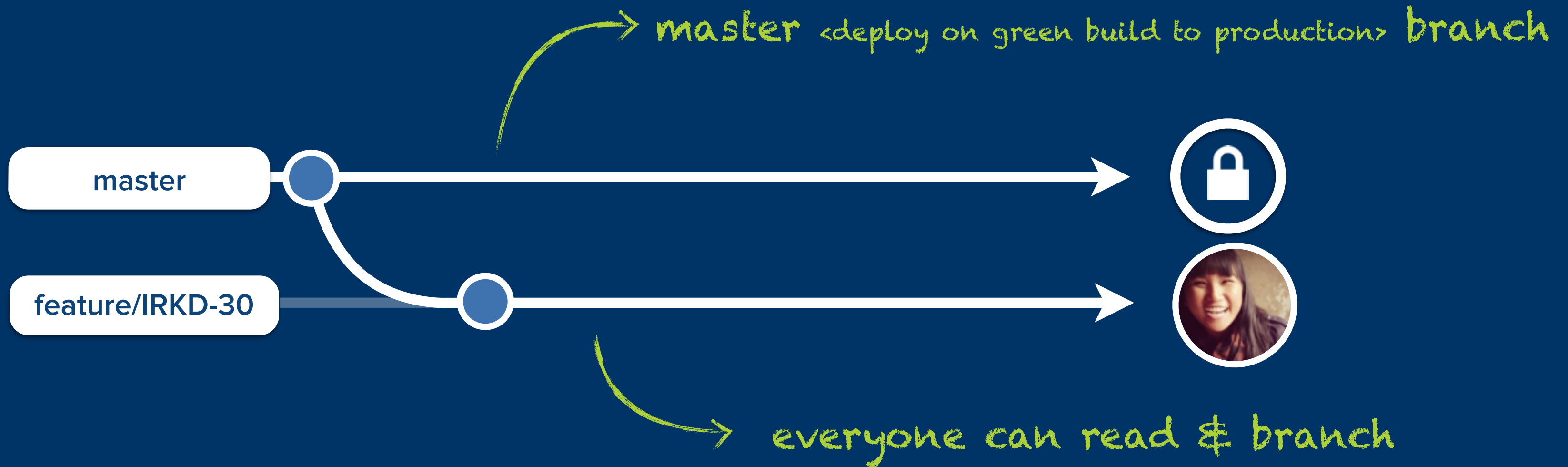


**Branches**

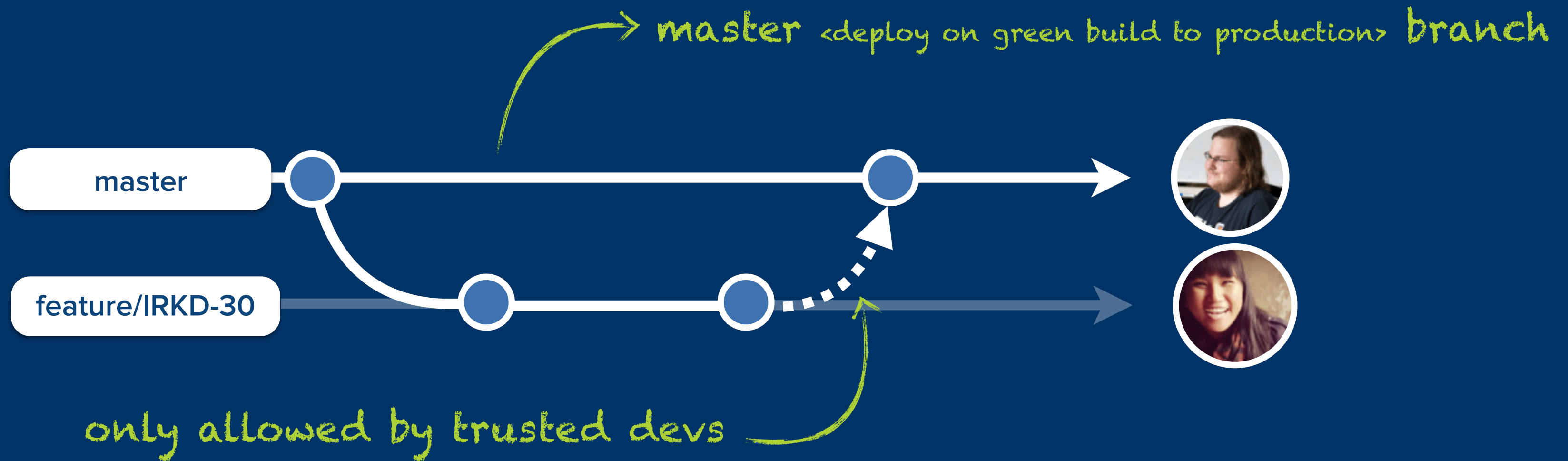


The apprentice

# Branch Permissions with Stash



# Branch Permissions with Stash





Know your priorities



**Security**

**DevSpeed**

# Traceability

Every **line of code** starts with

a **Real Life Problem**



Every **line of code** starts with  
an **Issue**



Every **line of code** should be connected to  
an **Issue**



# Issues



# Code



# Issues



# Code



# Issues



# Code



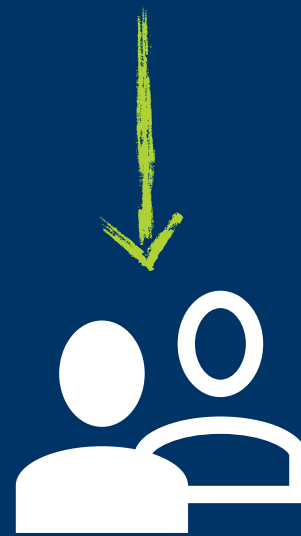


# Track your development

→ 2013 style



Issue



People

**IN PROGRESS**

Status



Code

# Track your development



Issue

→ 2014 style



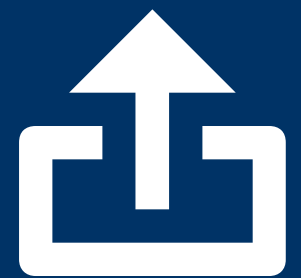
Sprint



Build



Branch



Pull Request





Teams in Space / TIS-67

# Developer Toolbox does not display by default

Edit

Comment

Assign

More ▾

Back to in progress

Code Review Passed

Admin ▾



Export ▾

## Details

Type:	<input checked="" type="checkbox"/> Bug	Status:	<b>CODE REVIEW</b>
Priority:	↑ Major		<a href="#">(View Workflow)</a>
Affects Version/s:	None	Resolution:	Unresolved
Component/s:	None	Fix Version/s:	None
Labels:	None		

## Description

*Click to add description*

## Issue Links

### Bamboo Branches

[Teams In Space ▸ Developer Toolbox ▸ bugfix-TIS-67-patch-for-un-auth-users](#)

[Teams In Space ▸ Developer Toolbox ▸ bugfix-TIS-67-developer-toolbox-doesnt-show-on-login](#)

## Activity

All

Comments

History

**Activity**

Commits

Source

Reviews

## > People

## > Dates

## Development

3 branches

Updated a day ago

3 commits

Latest a day ago

1 pull request **OPEN**

Updated a day ago

1 build

Latest a day ago

[Create branch](#)



## Agile

Active Sprint:

[Sprint 1 ends 18/Feb/14](#)

[View on Board](#)



Teams in Space / TIS-67  
**Developer Toolbox does not display by default**

Edit Comment Assign More ▾ Back to in progress Code Review Passed Admin ▾ Export ▾

**Details**

Type:	<input checked="" type="checkbox"/> Bug	Status:	<b>CODE REVIEW</b>
Priority:	↑ Major		<a>(View Workflow)</a>
Affects Version/s:	None	Resolution:	Unresolved
Component/s:	None	Fix Version/s:	None
Labels:	None		


> **People**

> **Dates**

**Description**

*Click to add description*

**Development**

- 3 branches  
Updated a day ago
- 3 commits  
Latest a day ago
- 1 pull request **OPEN**  
Updated a day ago
- 1 build   
Latest a day ago

Create branch

**Issue Links**

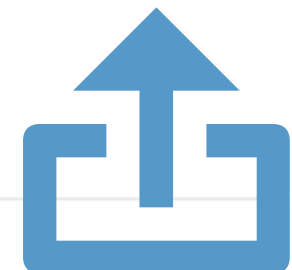
Bamboo Branches	
Teams In Space > Developer Toolbox > bugfix-TIS-67-patch-for-un-auth-users	
Teams In Space > Developer Toolbox > bugfix-TIS-67-developer-toolbox-doesnt-show-on-login	

**Activity**

All Comments History **Activity** Commits Source Reviews

**Agile**

Active Sprint:  
Sprint 1 ends 18/Feb/14  
View on Board





**git & CI**

# Running builds on feature branches

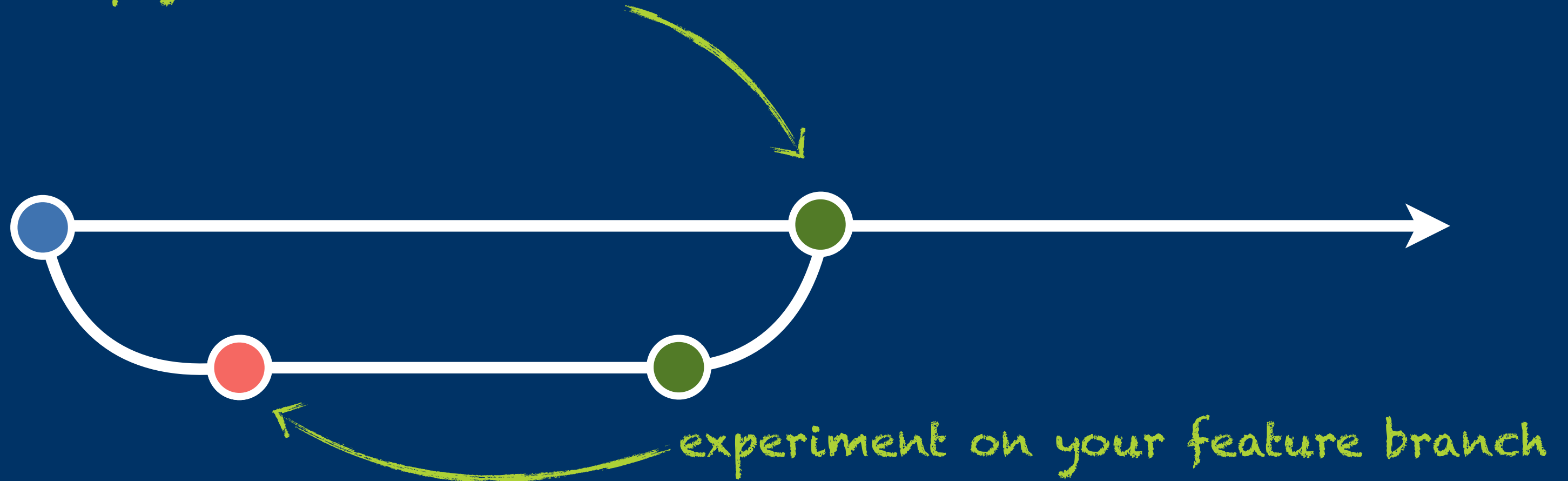


# Running builds on feature branches



# Running builds on feature branches

keep your master branch green





**Clone** master's CI **config**



all active branches are under test

Build Name	Status	Build ID	Branch	Time	Tests	Changes
CI Tests	Success	#10898		56 minutes ago	3073 passed	Changes by Przemek Bruski
Deploy	Failure	#150	Canary	11 hours ago	No tests found	Scheduled with changes by 4 people
	Failure	#36	fusion2-build-related			
Federa	Success	#49	CI Tests - 5.2	1 hour ago	9 passed	Changes by Przemek Bruski
Integra	Failure	#1	BDEV-3517	9 hours ago	No tests found	Changes by Przemek Bruski and Tardigrade <tardigrade@atlassian.com>
	Success	#1	ROTP-1655-fix-bamboo-users			
JDK 7	Success	#3	BDEV-3744_PG	8 hours ago	No tests found	Scheduled with changes by 5 people
License	Failure	#3	ROTP-1453-remove-OD-usermanagement-link	1 hour ago	No tests found	Changes by Przemek Bruski
MERCU	Failure	#8	atlassian_bamboo_5_0_branch	3 months ago	No tests found	Changes by Marek Parfianowicz
OpenJ	Failure	#45	CI-TEST5.0.x	1 hour ago	2899 passed	Scheduled with changes by 6 people



Clone

Fork

Pull Request

## Builds



Stash - Pull Request Build - feature-STASHDEV-6135-clustered-...

1 hour ago

#1 successful (with 4763 tests) in 8 minutes

Close

watch this pull request



Learn more

## Activity



What do you want to say?



Charles O'Farrell annoyed the pull request... 25 mins ago

👍 #1 was successful – First build for this plan

Stages & jobs

Default Stage

- ☑️ Checks
- ☑️ Distribution Build and Test
- ☑️ JsHint checks
- ☑️ Unit Tests

Func-Tests ▶️

- 🎯 Func Test slice 0
- 🎯 Func Test slice 1
- 🎯 Func Test slice 2
- 🎯 Migration Tests
- 🎯 Qunit Tests
- 🎯 Rest and Hosting Tests
- 🎯 Setup Tests

- Branch summary Tests Commits Artifacts Logs Metadata Build Times Issues Sandbox

## Build result summary

### Details

Completed 11 Mar 2014, 12:12:27 AM – 1 hour ago

Duration 8 minutes

Labels None ✎

Show more

0

New failures

0

Existing failures

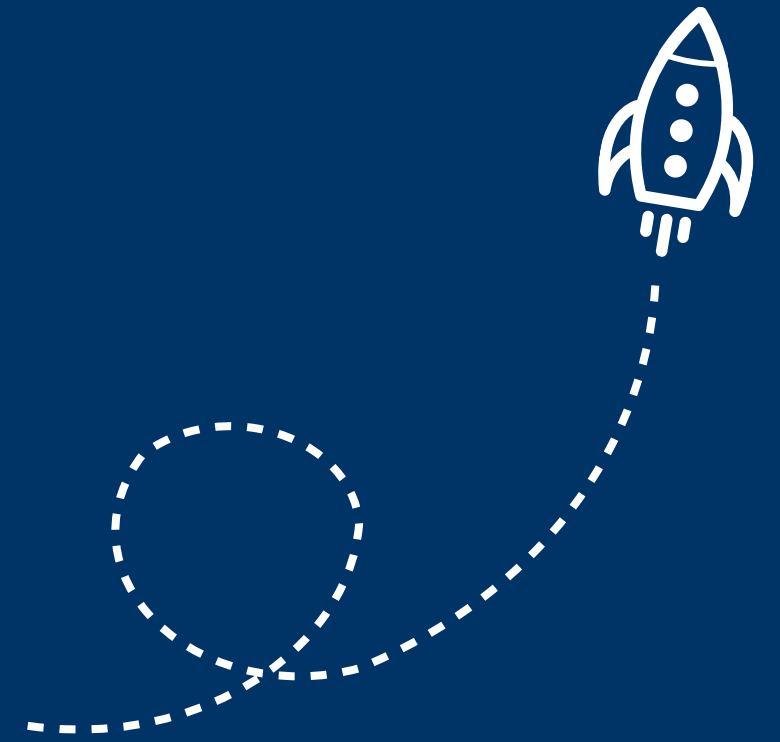
0

Fixed



Write a comment...

Less time **configuring**  
more time to **code**

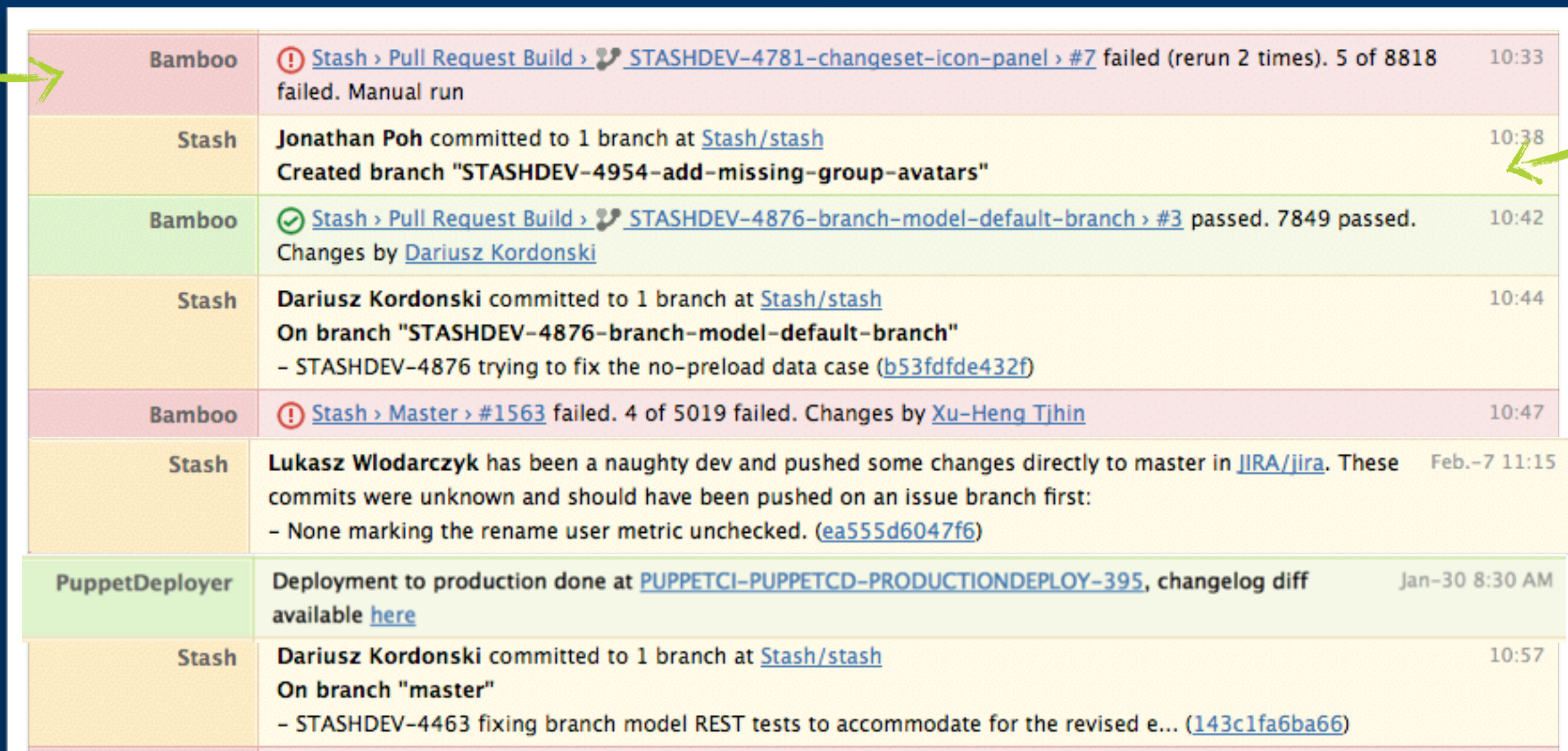





# See what's going on

with  HipChat

Builds




Commits  
New branches  
Pull Requests



Bamboo	 <a href="#">Stash &gt; Pull Request Build &gt; STASHDEV-4781-changeset-icon-panel &gt; #7</a> failed (rerun 2 times). 5 of 8818 failed. Manual run	10:33
Stash	Jonathan Poh committed to 1 branch at <a href="#">Stash/stash</a> Created branch "STASHDEV-4954-add-missing-group-avatars"	10:38
Bamboo	 <a href="#">Stash &gt; Pull Request Build &gt; STASHDEV-4876-branch-model-default-branch &gt; #3</a> passed. 7849 passed. Changes by <a href="#">Dariusz Kordonski</a>	10:42
Stash	Dariusz Kordonski committed to 1 branch at <a href="#">Stash/stash</a> On branch "STASHDEV-4876-branch-model-default-branch" - STASHDEV-4876 trying to fix the no-preload data case ( <a href="#">b53fdfde432f</a> )	10:44
Bamboo	 <a href="#">Stash &gt; Master &gt; #1563</a> failed. 4 of 5019 failed. Changes by <a href="#">Xu-Heng Tjhin</a>	10:47
Stash	Lukasz Wlodarczyk has been a naughty dev and pushed some changes directly to master in <a href="#">JIRA/jira</a> . These commits were unknown and should have been pushed on an issue branch first: - None marking the rename user metric unchecked. ( <a href="#">ea555d6047f6</a> )	Feb.-7 11:15
PuppetDeployer	Deployment to production done at <a href="#">PUPPETCI-PUPPETCD-PRODUCTIONDEPLOY-395</a> , changelog diff available <a href="#">here</a>	Jan-30 8:30 AM
Stash	Dariusz Kordonski committed to 1 branch at <a href="#">Stash/stash</a> On branch "master" - STASHDEV-4463 fixing branch model REST tests to accommodate for the revised e... ( <a href="#">143c1fa6ba66</a> )	10:57

# See what's going on with HipChat




Deployment info

Bamboo	 <a href="#">Stash &gt; Pull Request Build &gt; STASHDEV-4781-changeset-icon-panel &gt; #7</a> failed (rerun 2 times). 5 of 8818 failed. Manual run	10:33
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# See what's going on with HipChat

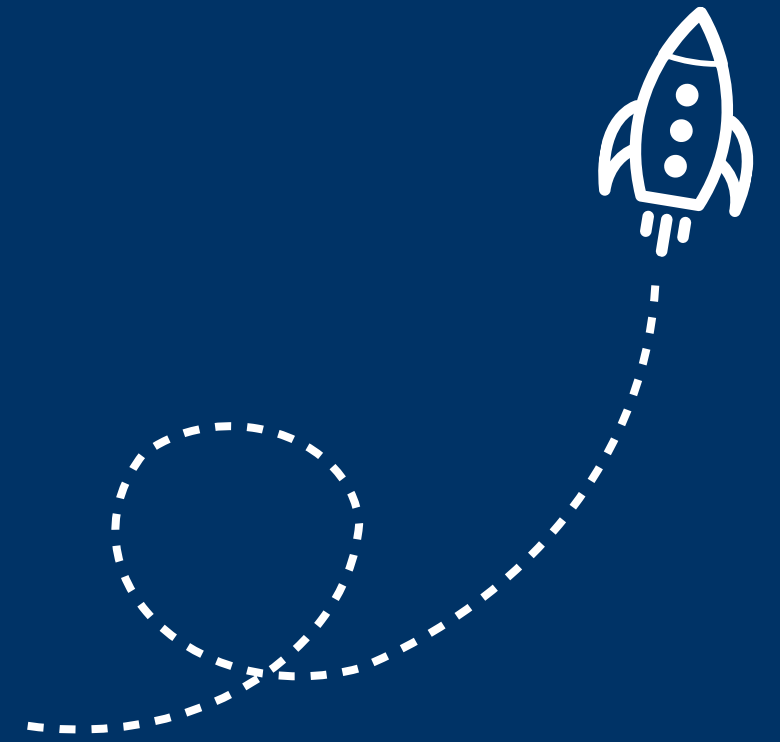
Warnings



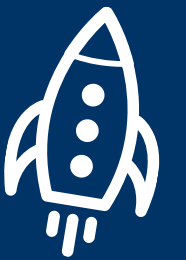
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Less time **context switching**  
more time to **code**



Less time **answering questions**  
more time to **code**





**Ship software faster & smarter**





**git** in the Enterprise

Q & A