## **Code Reviews and How To Improve Them.**

Improving the process of improving

Lee Stone 🔰 @leesto

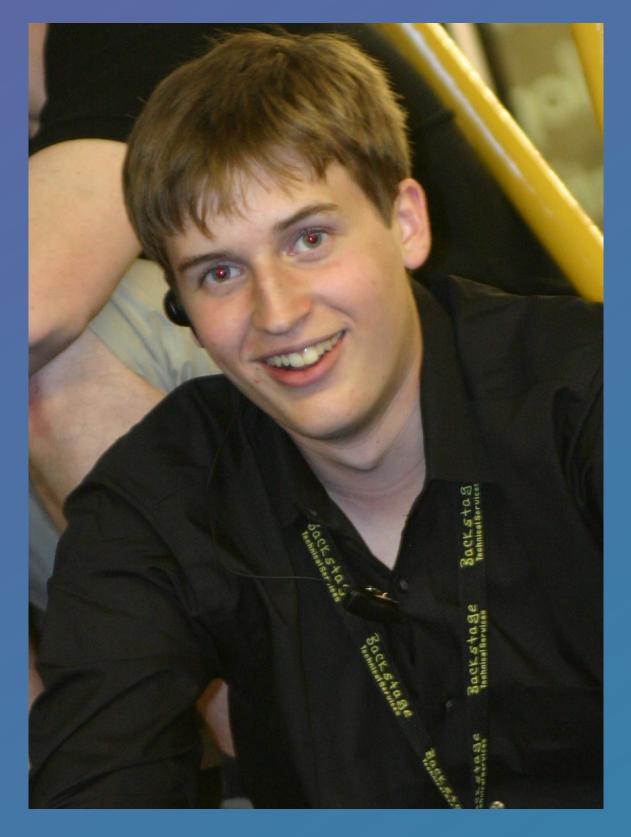
## I

## **Reviewing Code Review.**

Improving the process of improving







## ••• Hi. I'm Lee.

#### Organiser of PHPSW

One of a great team to make sure nights like tonight happen



#### Web Team Lead at Gradwell Lead a team producing web applications for selling & managing Gradwell services



**Theatre Technician** Local Amdram, Glastonbury, edFringe



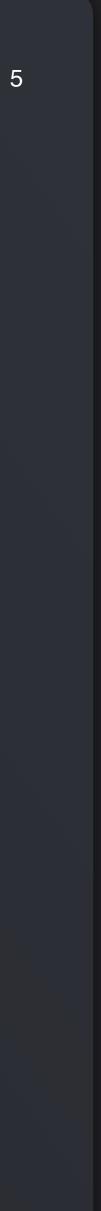
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## What is Code Review?

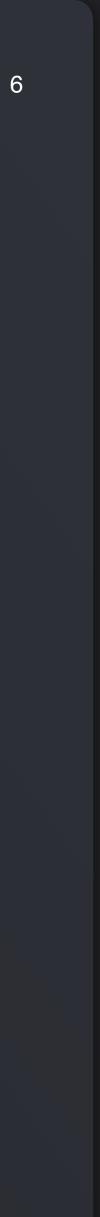
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## The activity of checking another developer's code for defects and improvement opportunities



## Checking code through a dedicated tool prior to merge upstream



## Why Should We Review Code?





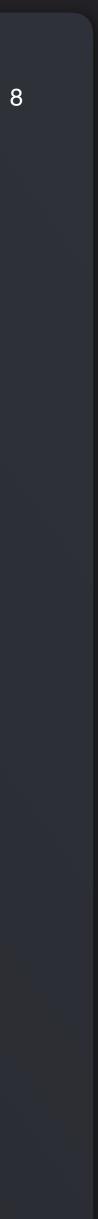
## ••• Prevent Bugs Reaching Production.

Security

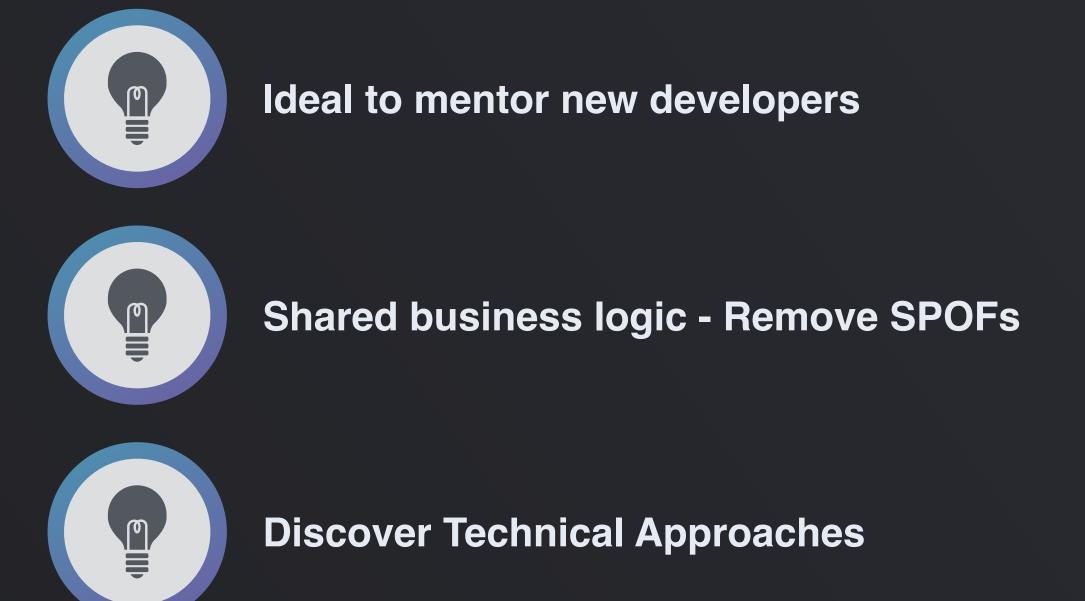
**Business Logic** 

**Coding Standards** 

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## ••• Knowledge Share







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## ••• Other Benefits.

**Improve Estimates** 

Making Sure Solutions Meet Requirements

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## What Code Review Isn't

#### 11

## It does not replace training



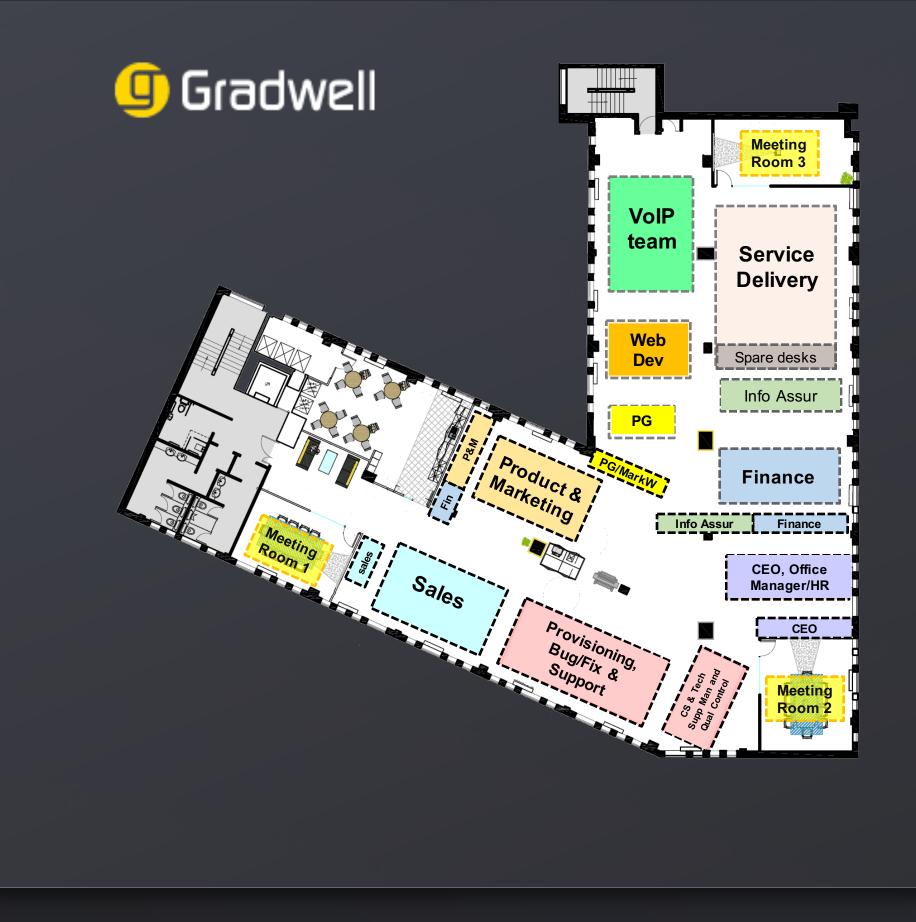
It does not replace demos

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## My Environment

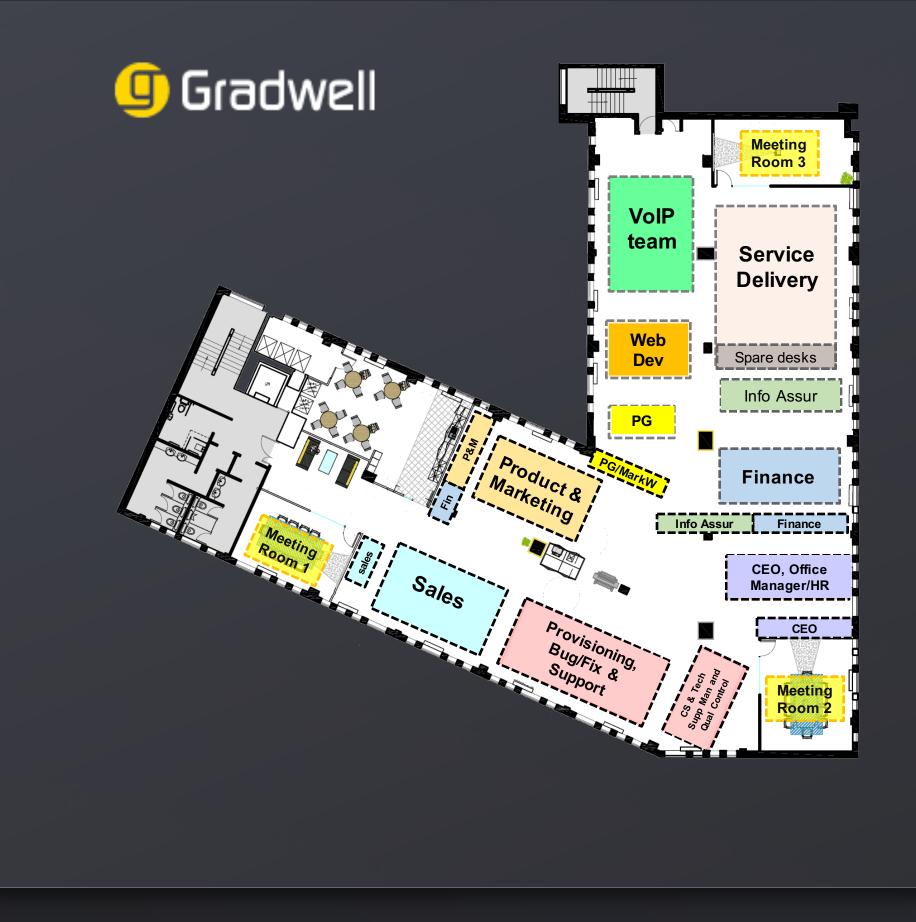
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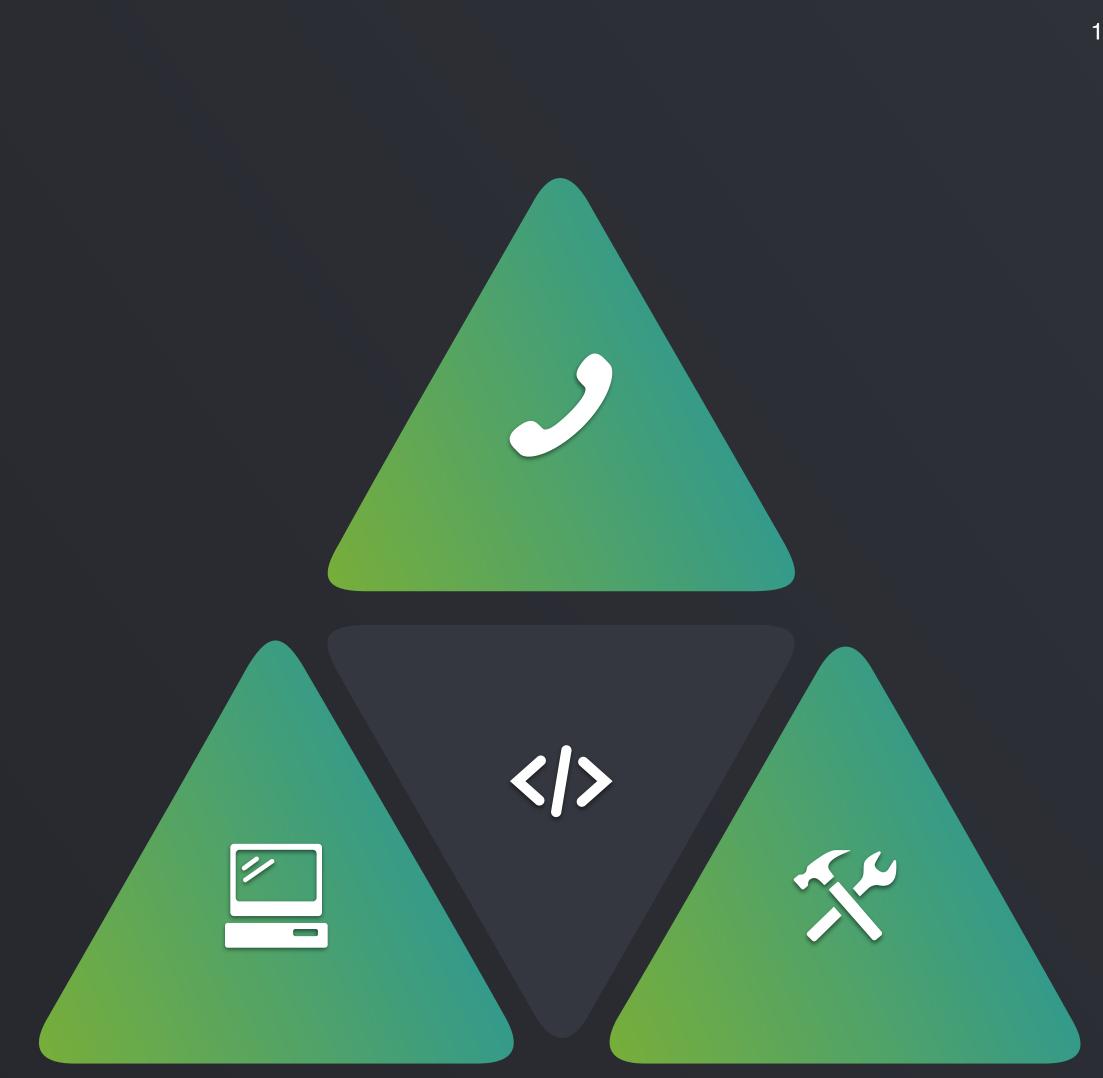


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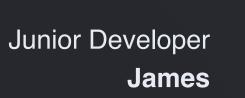






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## How We Complete Code Reviews



## ••• Crucible.



### Links with Atlassian Suite

See the reviews on Jira tickets 'One Stop Shop' for us



#### **Indicate Defects** On a comment, can mark it is a defect which is shown separately



**Easily See Differences Between Commits** Highlights added/removed lines Can drag between commits to see history

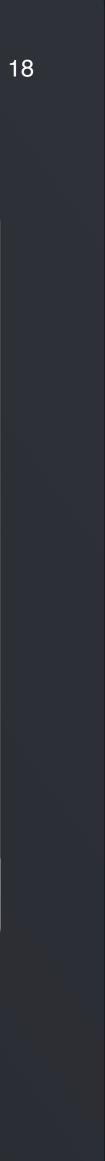


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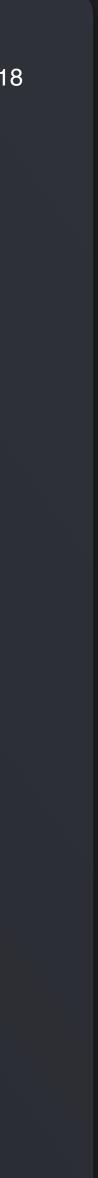


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## ••• Crucible.



### Links with Atlassian Suite

See the reviews on Jira tickets 'One Stop Shop' for us



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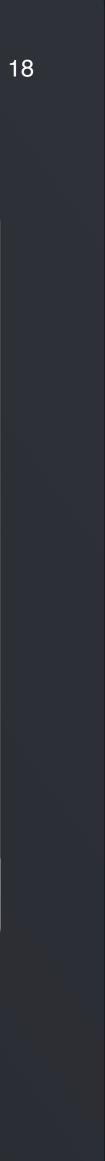


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## ••• Crucible.



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**Indicate Defects** On a comment, o is shown separa

Development

- 2 branches
- 8 commits
- 2 reviews CLOSED
- 1 build failing 🕕

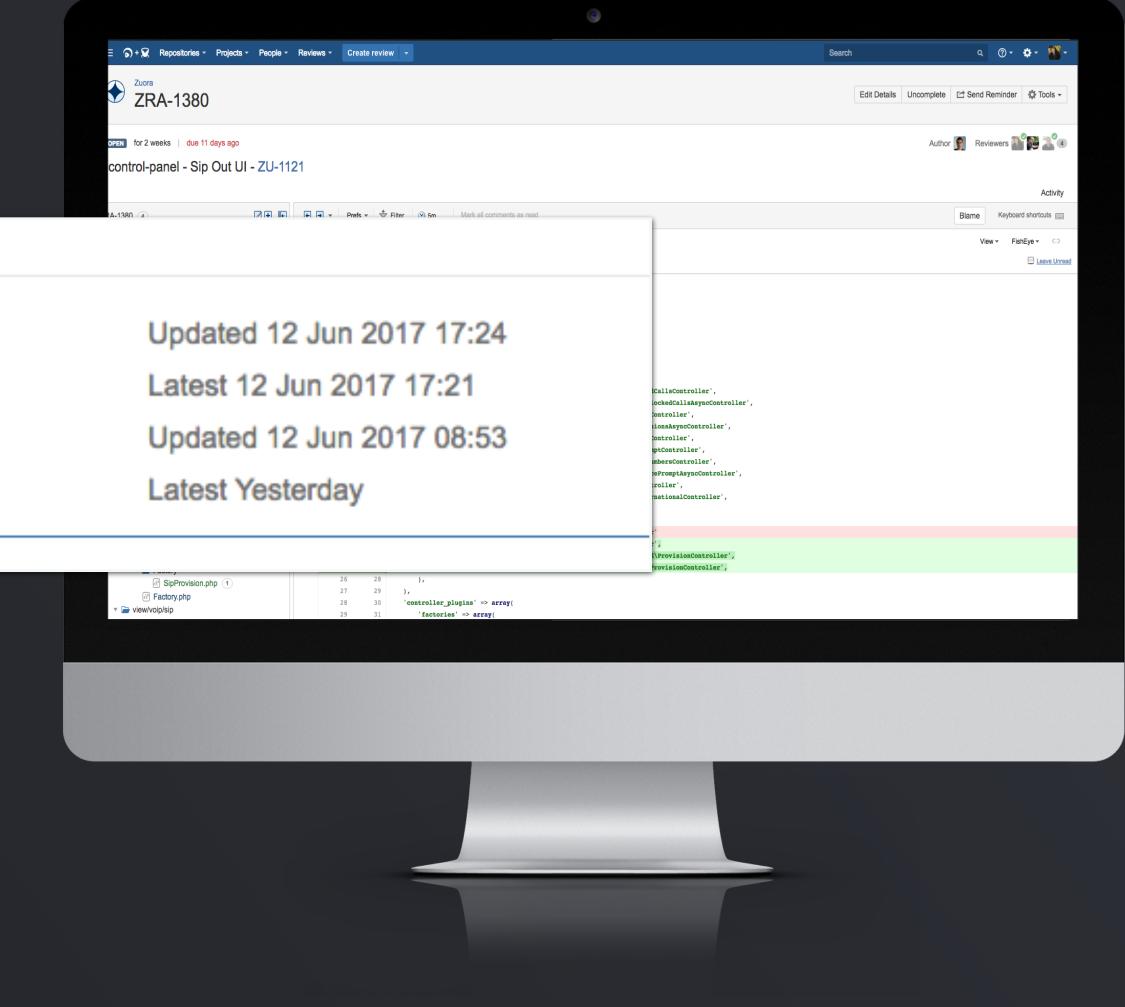


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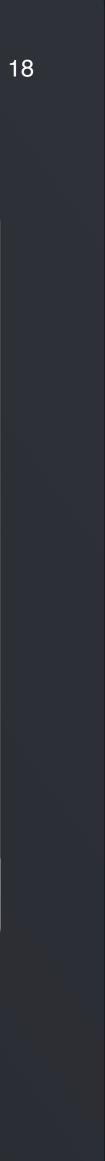


Auto Update for Changes on Branch

Developer doesn't have to update review on making changes & can't forget



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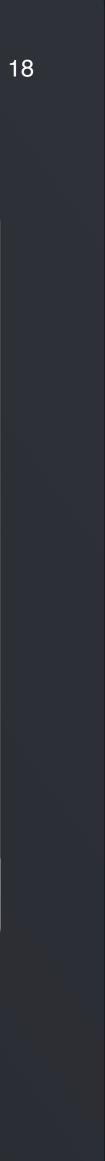


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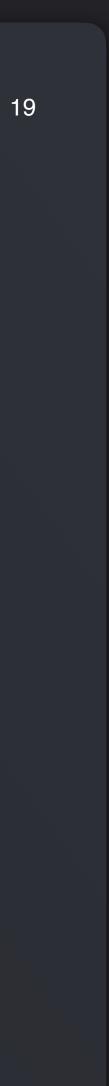


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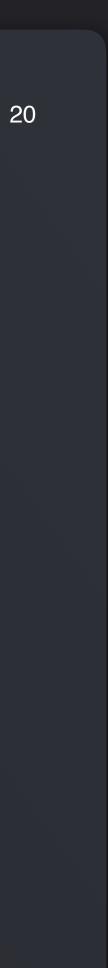
## Everything is Reviewed.

Lee Stone 🔰 @leesto



## Everything Should be Reviewed Within 2 Days

Lee Stone 🔰 @leesto



# Everyone is invited to the review



## Everyone is invited to the review



## 1 x Senior must sign off

Lee Stone 🕑 @leesto



# Everyone is invited to the review

## 1 x Ser 1 x Oth

1 x Senior must sign off

1 x Other must sign off

Lee Stone 🔰 @leesto



# Everyone is invited to the review

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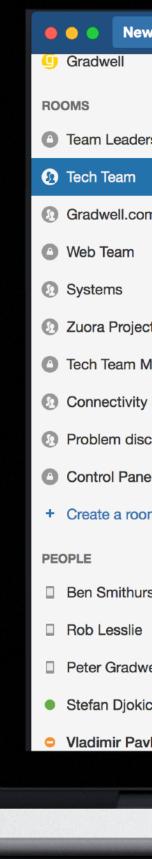
No defects

Lee Stone 🔰 @leesto





Because we all forget



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	Tech Team	,
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	Review Checker · Jan-5 1:51 PM david.cw Close https://fecru.gradwell.com/cru/ZRA-1031 (everyone has reviewed) Add new letsencrypt cert for notify.dev.gradwell.net	
0	Review Checker · Jan-5 1:56 PM          @2EØEOL       @ben       @DeanGreen       @JD       @Rob       @review https://fecru.gradwell.com/cru/INFRA-750 for         @MarcinSompolinski       @?         puppet-manifests - datadog needs to access keyserver while install, rule has to be added	



## **Effective Code Reviews**



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#### WHAT WE SAY

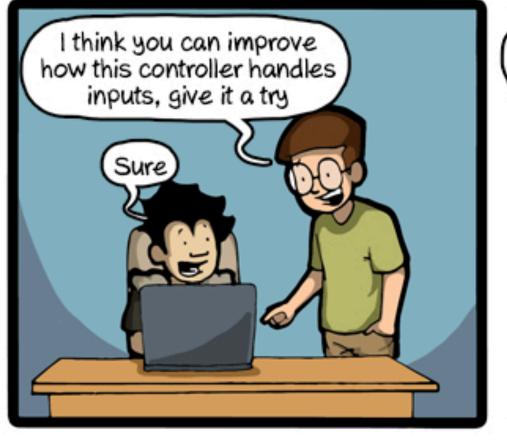


#### WHAT WE THINK



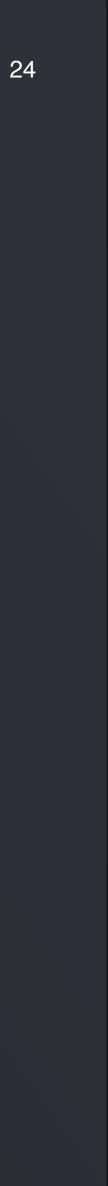
WHAT WE SAY

#### WHAT WE THINK





## ••• Don't Make it Personal.



#### WHAT WE SAY

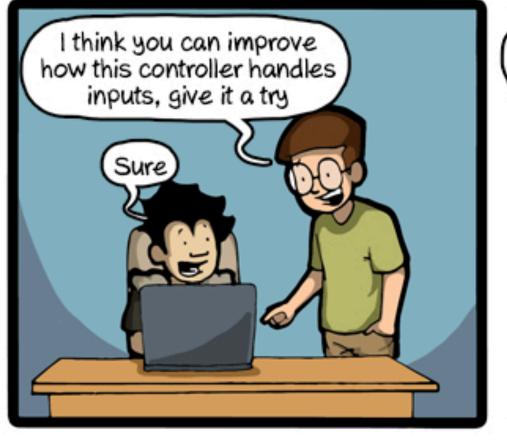


#### WHAT WE THINK



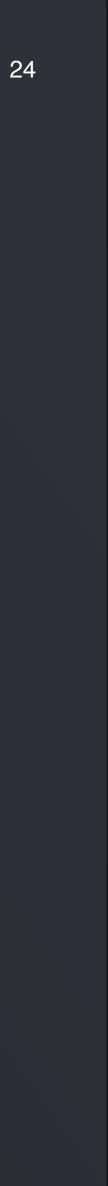
WHAT WE SAY

#### WHAT WE THINK





## ••• Don't Take it Personally.



## I find using "we" rather than "I" or "You" helps

<b>*</b> *	15	<pre>require_once "hardware_manage.php";</pre>
	16	error_reporting(E_ALL & ~E_STRICT & ~E_I



#### Lee Stone

Seeing this in code is usually a bit of a smell to me. What were we trying to hide / get to be quiet so the tests completed? Add to favourites · Create issue · 07 Dec 16

DEPRECATED);

Lee Stone 🔰 @leesto



## **Provide Solutions**

Don't just point out the error or problem and move on



#### Lee Stone

We'll need to add some access control to this page to match the restrictions (not just security through the obscurity of it not showing on the menu). e.g. add something like

```
if (!is_gradwell()) {
        die("Access denied");
```

as can be seen on some of the other staff pages

Reply · Edit · Delete · Mark as needs resolution · Add to favourites · Create issue · 23 Nov 16

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Lee Stone 🔰 @leesto

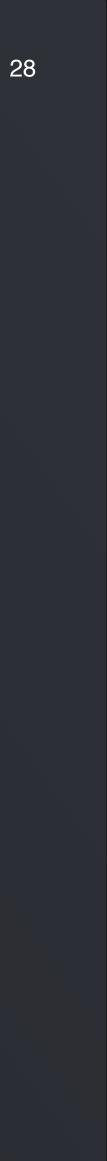


## Put whitespace only changes into separate commits



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## Put 'library' code and 'application' code into separate reviews



## What Has Gone Well For Us?

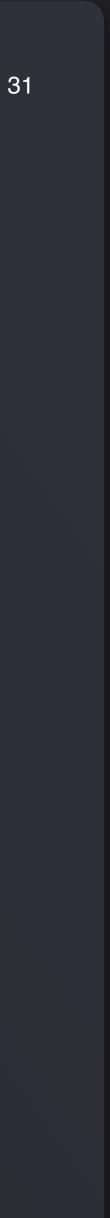


 $\bullet$ 

## Increased knowledge of similar work at sprint planning sessions.

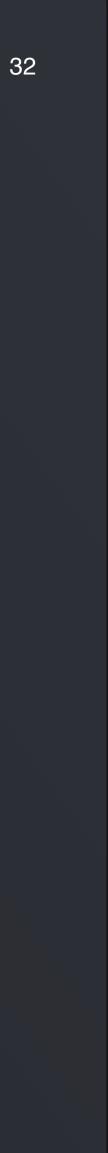


# Tended towards standard approaches in a quicker fashion.

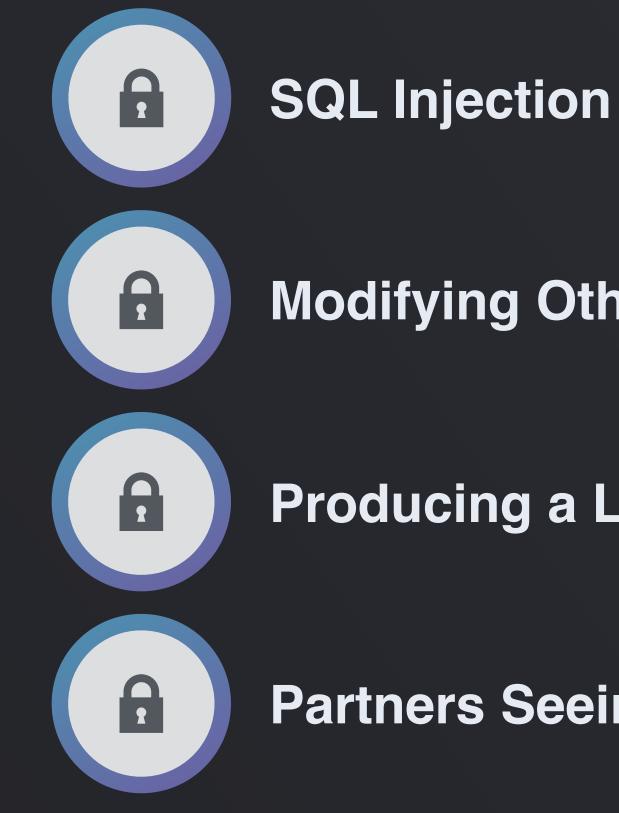


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## Seen opportunities to refactor and produce more generic libraries earlier.



## Caught Security Issues Before Hitting Production



Modifying Other Customer's Settings

**Producing a List of Customer Emails** 

Partners Seeing Gradwell Only Pages

Lee Stone 🕑 @leesto



## Improved In-line Documentation

Lee Stone 🔰 @leesto



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## The business is completely on-board



## Increased Confidence From The Rest of The Business

Lee Stone 🕑 @leesto



## Given Individual Developers More Freedom



## Where Do I Have To Encourage The Team?



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## What are the most difficult reviews to get feedback on?







## Anything by

## This Guy



Lee Stone 🔰 @leesto



## How to Encourage Newer Developers.

A new developer to the team is more cautious about commenting on anyone else's code.

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Lee Stone 🔰 @leesto



## How to Encourage Newer Developers.

A new developer to the team is more cautious about commenting on anyone else's code.



### Start Small.

Typos and coding styles are still important and are 'less risky' to comment on.

000

Lee Stone 🔰 @leesto



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### Ask Why.

Code reviews don't have to be just for pointing out problems.

Asking why an approach was taken can be a good learning opportunity.

000

Lee Stone 🔰 @leesto



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## Say If You Don't Understand.

We all have to maintain the code and readability is one of our most important considerations.

If you don't understand what is happening, we have probably done something wrong. Even if the code works.

Lee Stone 🔰 @leesto



• 0 0

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### **Bring Fresh Ideas**

Everyone can bring different experiences and suggest new and improved ways of approaching something.



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## Move Beyond Coding Standards



## Move Beyond Coding Standards

2221	public function getBou
2222	{
2223	<pre>if(\$this-&gt;_bounceL</pre>



### **Danijel Bjelancevic**

Add to favourites · Create issue · 21 Nov 16

	104	
<pre>\$stmt-&gt;bindValue(':email_to</pre>	105	
<pre>\$stmt-&gt;bindValue(':template</pre>	106	
<pre>\$stmt-&gt;bindValue(':formatte</pre>	107	

### **Vladimir Pavlis**

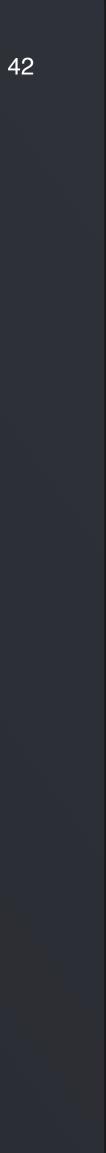
I see a mixture of snake case and camel case.

We prefer camel case.

Reply · Leave unread · Mark as needs resolution · Add to favourites · Create issue · 08 Dec 16

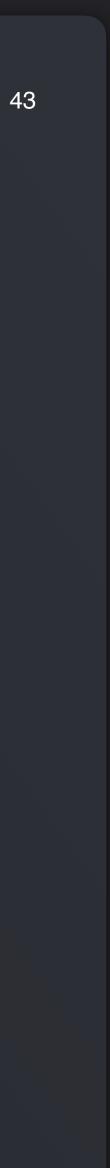
```
unceListService()
                                           ListService === null) {
I don't want to be PITA, but you should have a space between if and opening parenthesis.
                                            $logEntry->getEmailTo());
                                            $logEntry->getTemplate());
                                            ate', $formattedDate);
```

Lee Stone 🔰 @leesto



## Don't stick to giving the same feedback

## Especially on a 'minor benefit' point



## What Do We Need To Improve?

## 44

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## Introduce Code Coverage Reports



#### **Ben Smithurst**

Comparing f/201608-bs-maint-window against develop

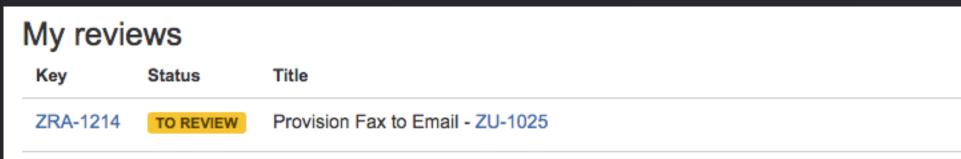
File	stmt	bran	cond	sub	pod	time	total
/LSM/Automation/Puppet.pm	100.0	100.0	n/a	100.0	25.0	0.1 >> 0.0	95.8
Gradwell/Infra/Misc/HG.pm	100.0	87.5	66.6	100.0	100.0	1.4 >> 1.9	96.4
Infra/Misc/IssueLogger.pm	100.0	100.0	n/a	100.0	0.0	5.2 >> 3.8	93.9
adwell/Infra/Misc/Jira.pm	96.7	75.0	n/a	100.0	0.0	0.4 >> 0.5	87.1
ell/Infra/Misc/Command.pm	94.1	62.5	80.0	100.0	0.0	57.1 >> 42.8	83.9
ell/Infra/Misc/HipChat.pm	100.0	100.0	n/a	100.0	0.0	6.1 >> 5.2	95.7
ion/BlockSipAttackerIp.pm	96.5	91.6	100.0	100.0	25.0	5.2 >> 7.3	94.0
ra/LSM/Automation/Base.pm	95.5 >> 96.6	88.4 >> 90.0	77.7 >> 83.7	100.0	9.0 >> 33.3	7.8 >> 7.9	90.7 >> 92.5
tion/DeploymentProfile.pm	100.0	90.0	83.3	100.0	16.6	3.3 >> 2.5	93.0
tomation/DebianPackage.pm	100.0	100.0	97.2	100.0	87.5	13.0 >> 27.7	99.3

Old report: http://docs.dev.gradwell.net/coverage/gw-infra-lsm-automation-develop-a8748a409556-1049/coverage.html New report: http://docs.dev.gradwell.net/coverage/gw-infra-lsm-automation-f-201608-bs-maint-window-4539bf5e95e0-1049/coverage.html Reply Mark as unread Mark as needs resolution Add to favourites Create issue 23 Aug 16

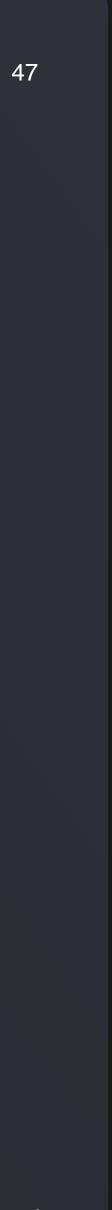


## Get Reviews Completed Quicker





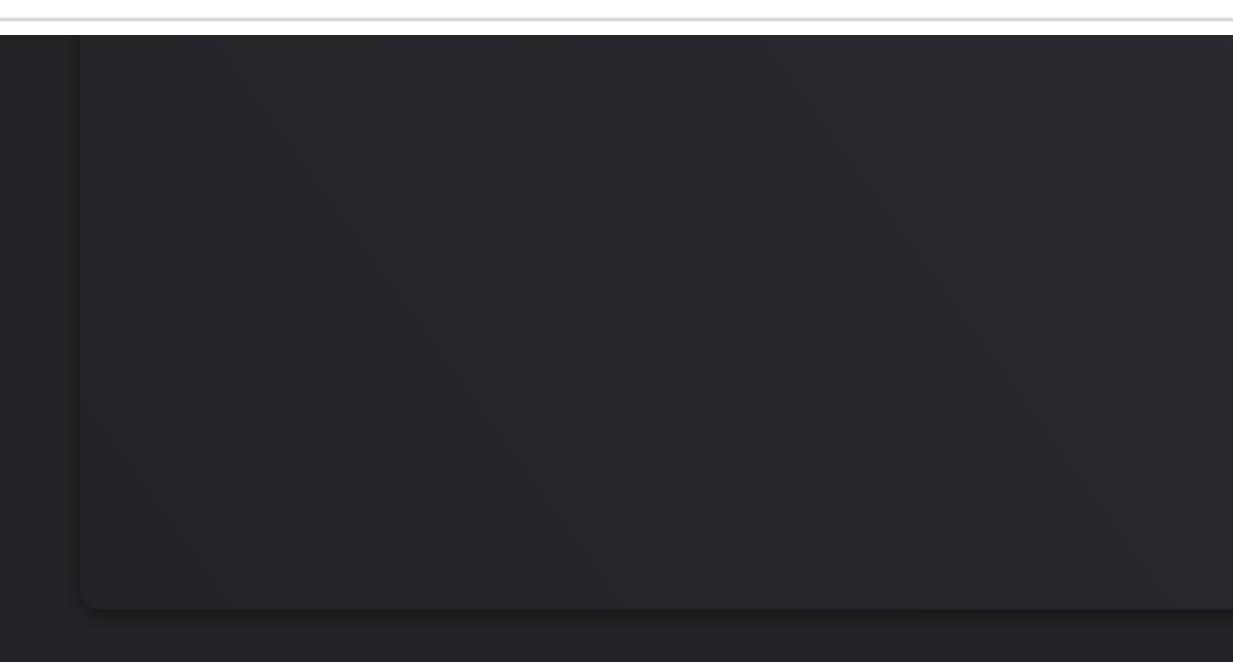
Author	
🍶 Stefan Djokic	Due 45 days ago



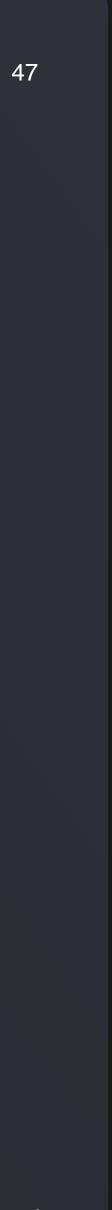
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Author





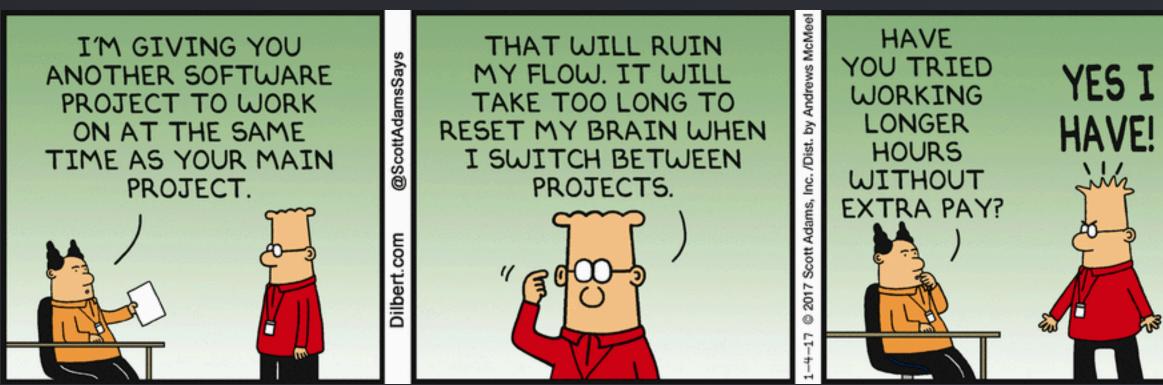
## Due 45 days ago

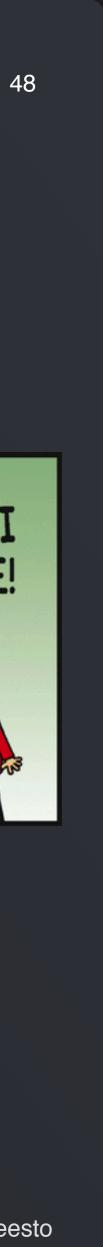




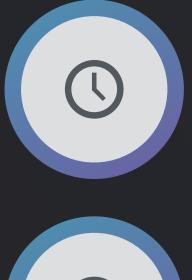


**Reviewers Don't Want to Interrupt Flow** Other developers don't look until they have finished their task, or at an ideal break point





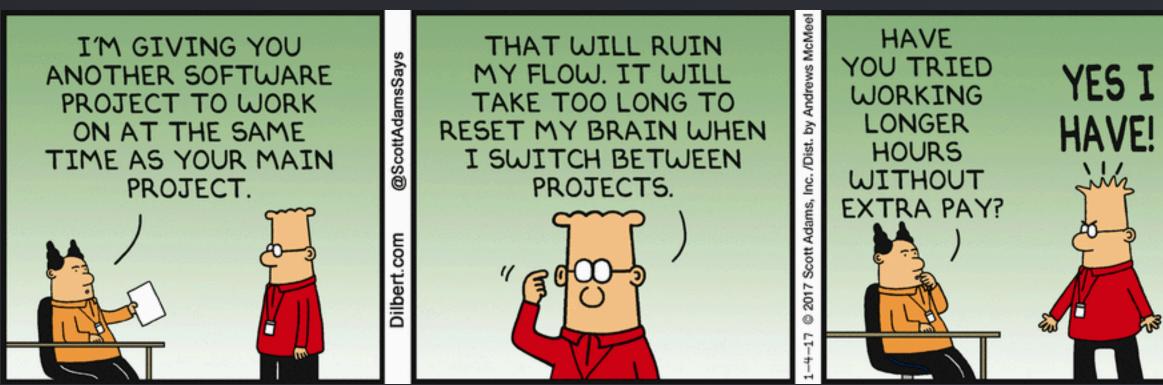
## ••• Why so Long?

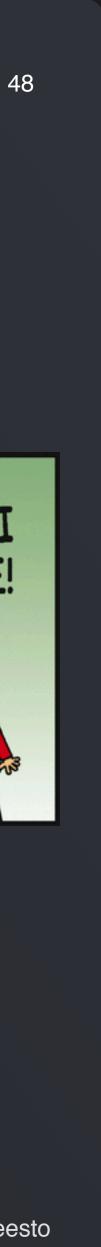


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**Developers Move on to Something New** Resistant to context switch back to make any suggested changes





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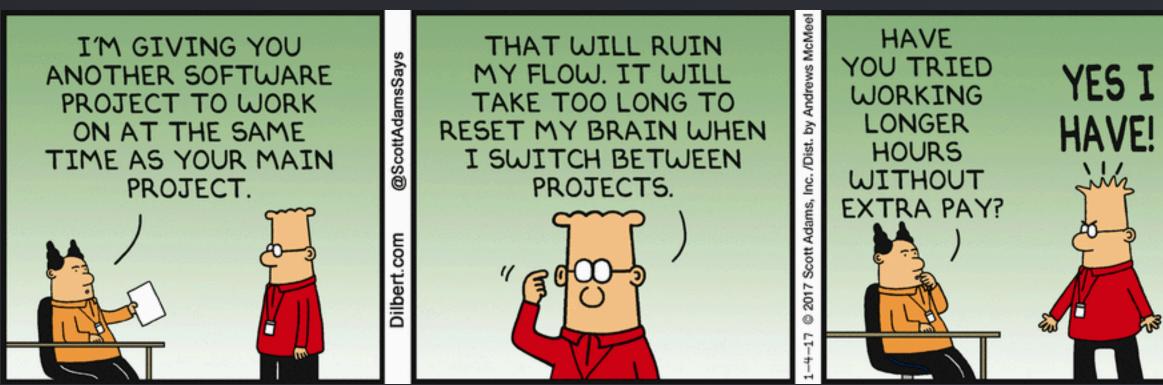


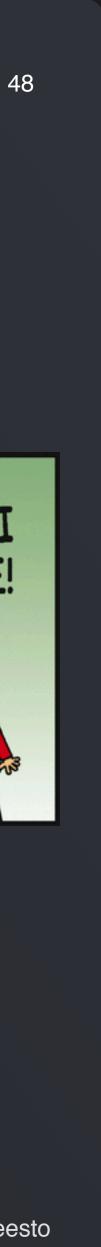
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Large Reviews are Harder to Start People see '67 files changed' and delay





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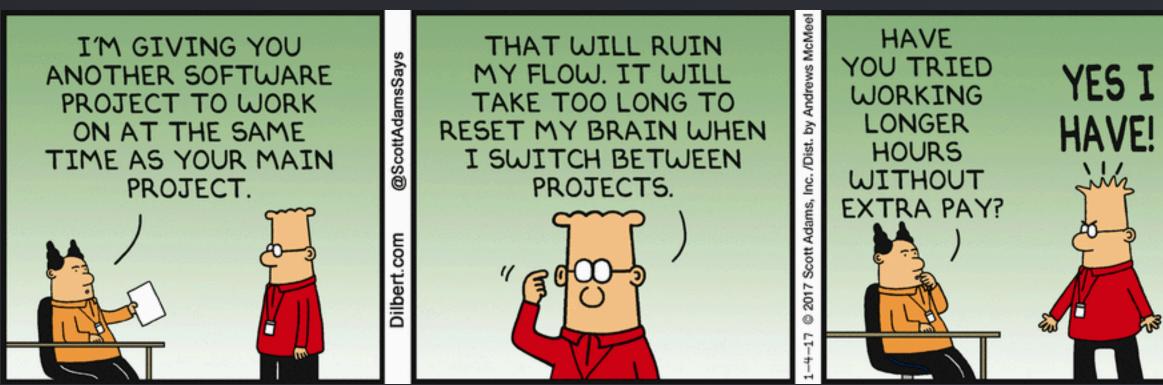


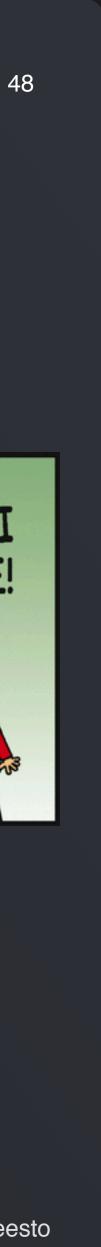
Large Reviews are Harder to Start People see '67 files changed' and delay



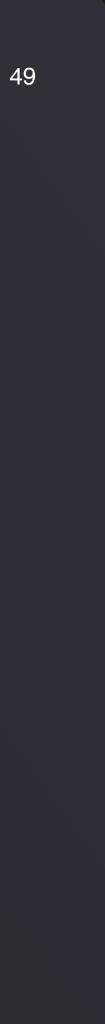
### It Gets Worse

The more cycles, the longer since the code was written, the longer it takes to switch





## These Delays Hurt Our Release Pace



## ••• How to Speed Up?



- **Encourage Smaller Reviews**
- More partial reviews early on
- Fundamentally create smaller stories to work on



#### Lee Stone 🔰 @leesto



## ••• How to Speed Up?



## **Encourage Smaller Reviews**

- More partial reviews early on
- Fundamentally create smaller stories to work on -



### **Encourage Use of Small Time Periods**

- Before / after meetings -
- Before / after lunch.
- End of day -



#### Lee Stone 🕑 @leesto



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- More partial reviews early on
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### **Encourage Use of Small Time Periods**

- Before / after meetings -
- Before / after lunch. -
- End of day -



### **'Fixed' Review Times**

I want to avoid this



#### Lee Stone 🕑 @leesto



## ••• How to Speed Up.... Completion?



## **Ownership of Work**

- Although we work as a team, we need a 'champion'
- Encouraging others to do reviews & acting on feedback

Lee Stone 🔰 @leesto



## ••• How to Speed Up.... Completion?



## **Ownership of Work**

- Although we work as a team, we need a 'champion'
- Encouraging others to do reviews & acting on feedback



## Increase Recognition of Shipping

- Verbal Recognition
- How to handle for a remote team? -

Lee Stone 🔰 @leesto



## More Business Logic Feedback



## Lets Recap



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## In Summary...

Code reviews take time, but bring benefits to teams. Your approach needs to be customised to suit your team.

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Code reviews take time, but bring benefits to teams. Your approach needs to be customised to suit your team.



Think About....

What Do You Want To Get **Out Of The Reviews?** 

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## ?

Think About....

What Tooling Can Fit Into Your Workflow?

Lee Stone 🔰 @leesto



• 0 0

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What Do You Want To Get Out Of The Reviews? ?

Think About....

How Do You Get Buy In From The Team? 000



Think About....

What Tooling Can Fit Into Your Workflow?



Think About....

How Do You Not Considerably Slow Your Release Pace?



• 0 0

Any Questions?



Lee Stone 🔰 @leesto



## https://joind.in/talk/e62d8



