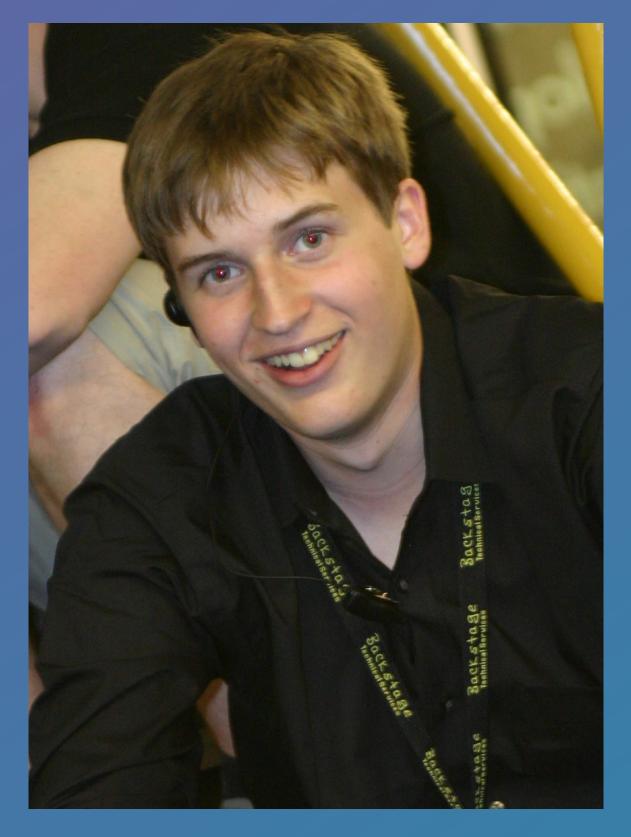
## **Reviewing Code Review.**

Improving the process of improving





### ••• Hi. I'm Lee.

#### Organiser of PHPSW

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

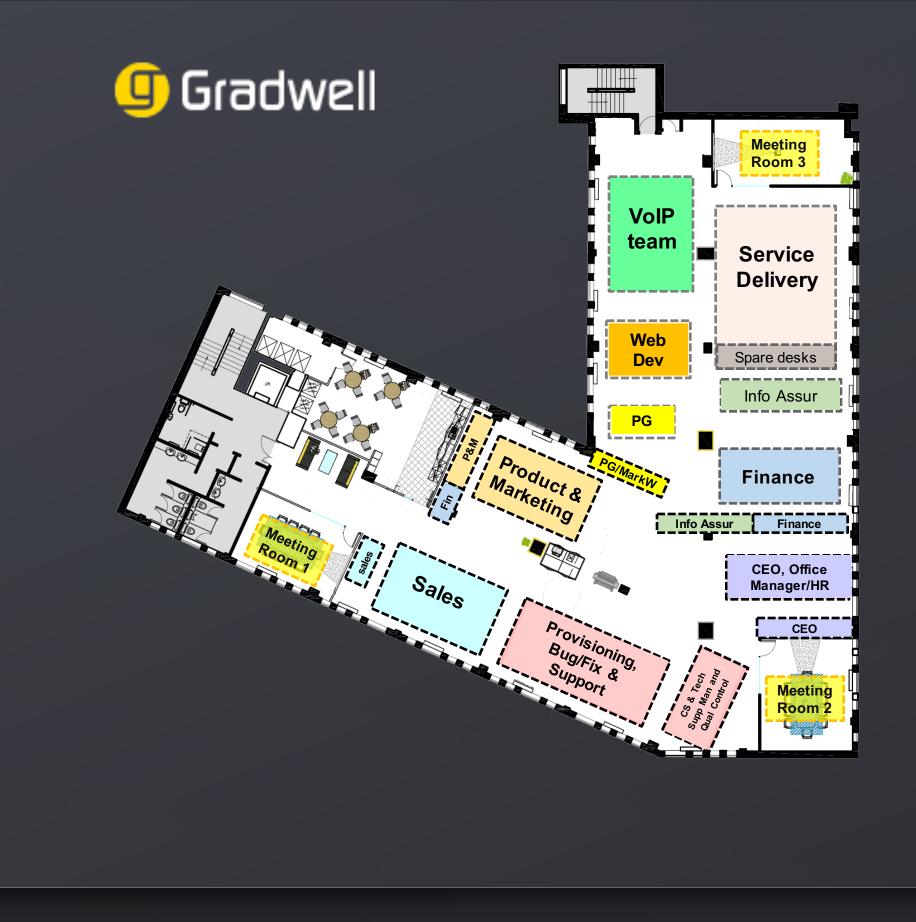


#### Web Team Lead at Gradwell Lead a team producing web applications for selling & managing Gradwell services

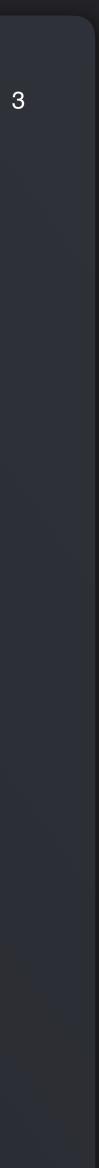


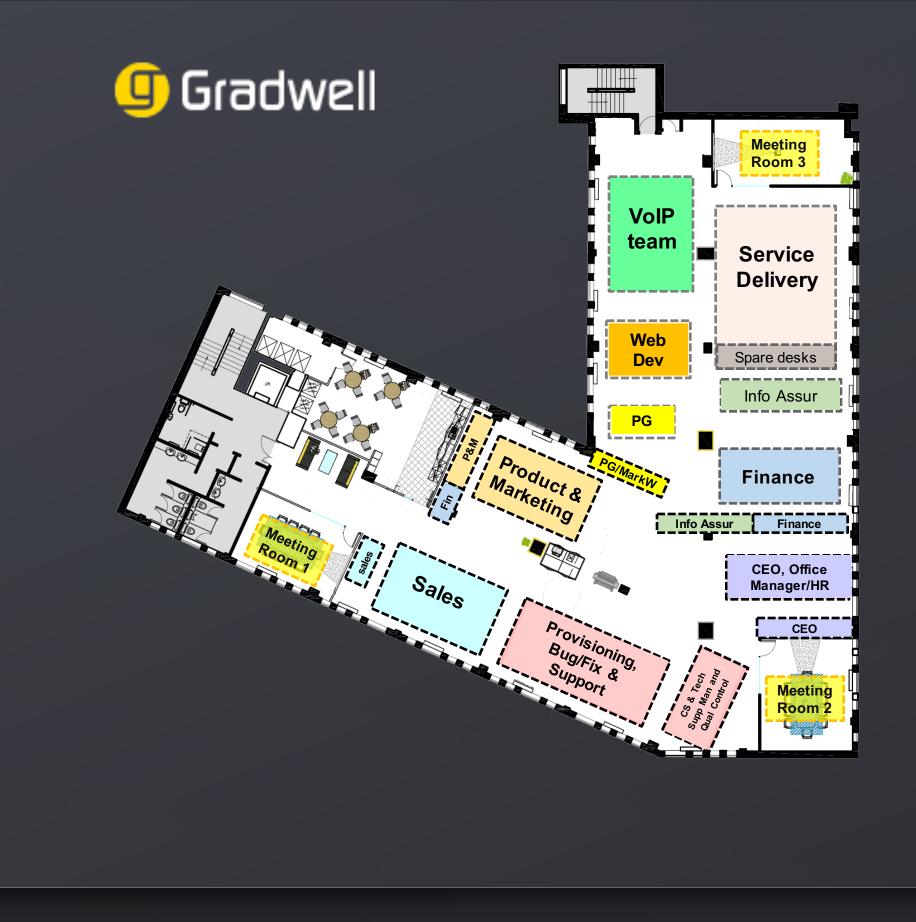
Theatre Technician Local Amdram, Glastonbury, edFringe

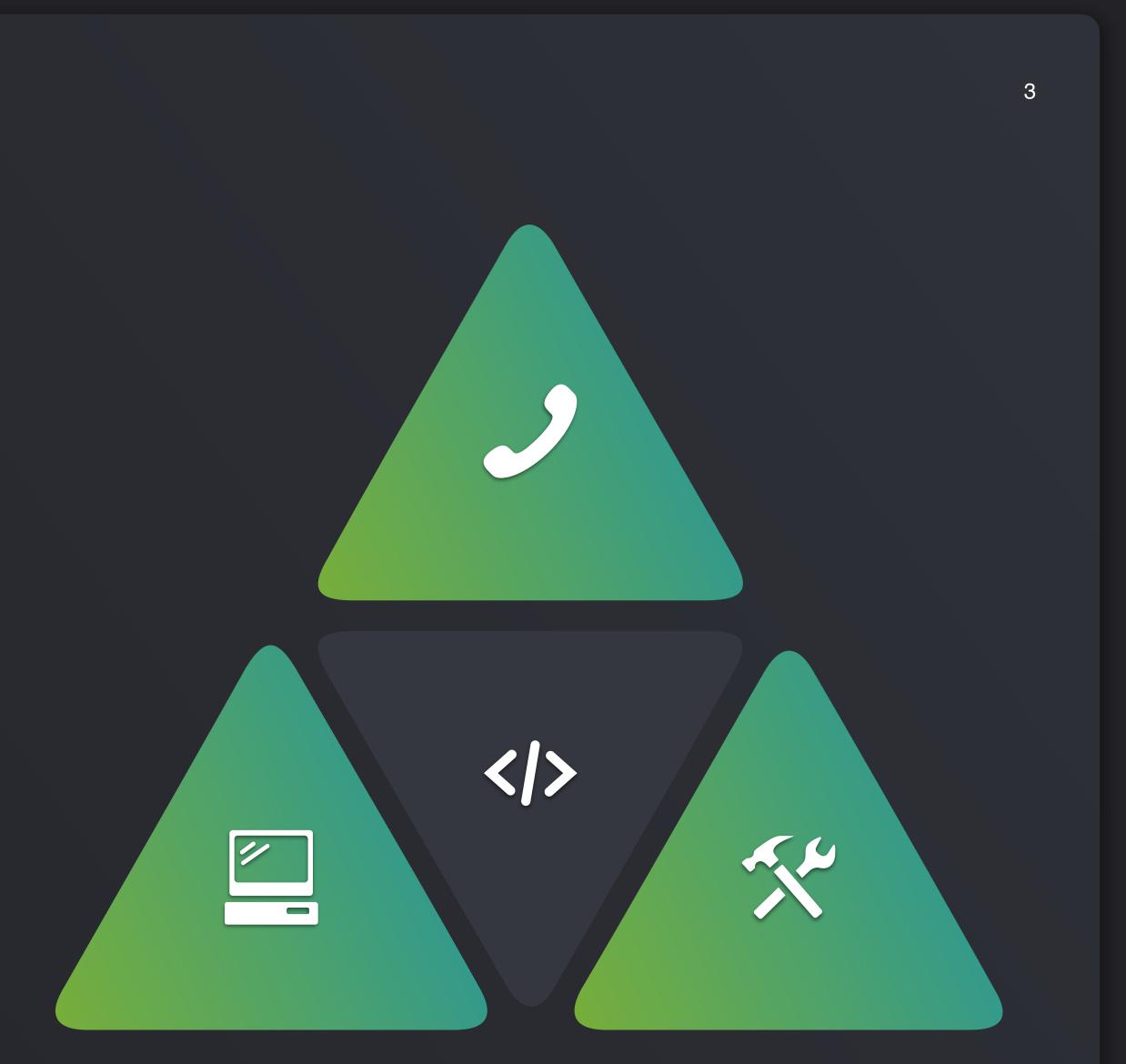




Lee Stone 🕑 @leesto



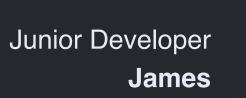




Lee Stone 🔰 @leesto



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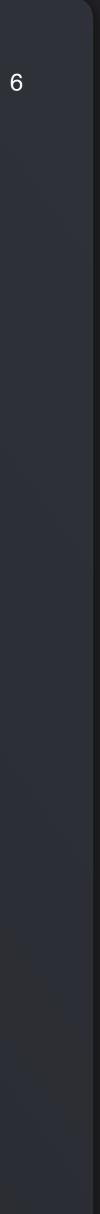




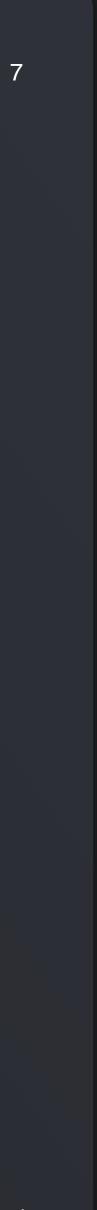
## What is Code Review?



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



# Checking code through a dedicated tool prior to merge upstream



• 0 0

## Why Should We Review Code?





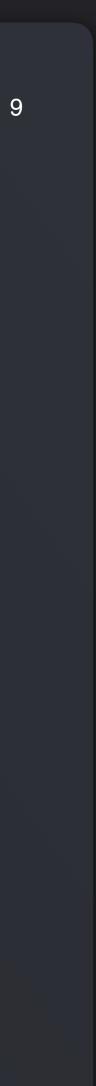
## ••• Prevent Bugs Reaching Production.

Security

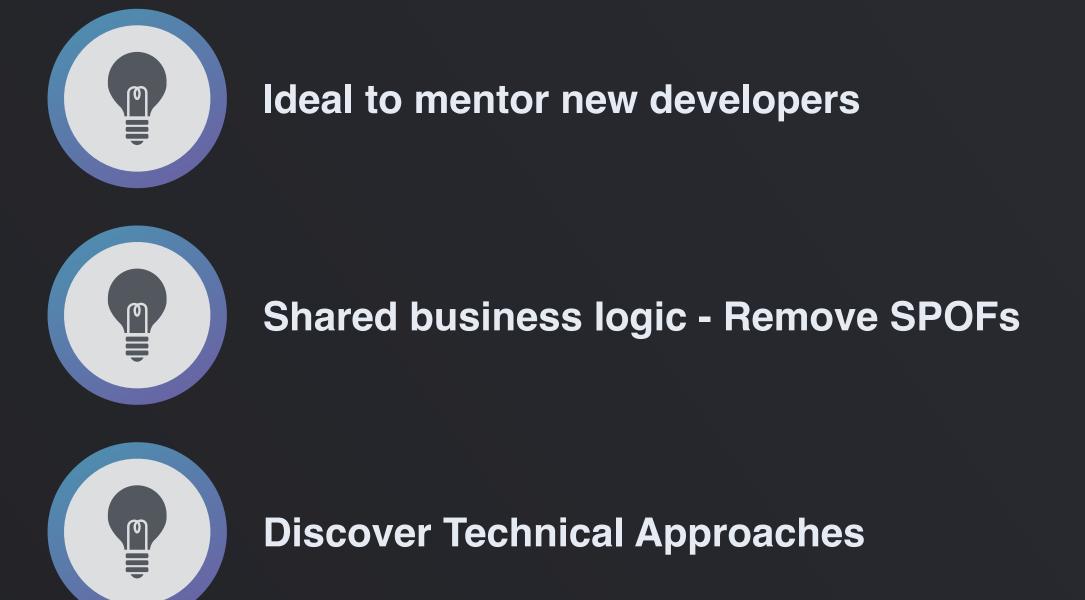
**Business Logic** 

**Coding Standards** 

Lee Stone 🔰 @leesto



## ••• Knowledge Share







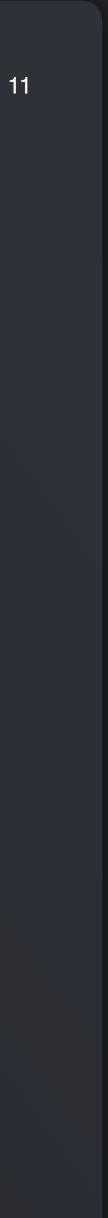
1

## ••• Other Benefits.

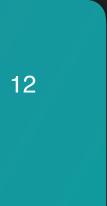
**Improve Estimates** 

Making Sure Solutions Meet Requirements

Lee Stone 🔰 @leesto



## How We Complete Code Reviews



to

• 0 0

### ••• 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



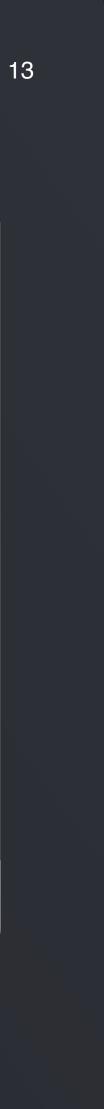
**Easily See Differences Between Commits** Highlights added/removed lines Can drag between commits to see history



Auto Update for Changes on Branch Developer doesn't have to update review on making changes & can't forget

					•		
S + 🗶 Repositories - Projects - People -	Reviews -	Create	eview	•		Search	۹ 🛛 🕈 🖓 ۲
ZRA-1380	Edit Details	Edit Details Uncomplete I Send Reminder 4 Tools -					
entrol-panel - Sip Out UI - ZU-11	21						Author 🛐 Reviewers 🎬 🎇 🏖 🕢
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tails jectives neral Comments		ication/ 07ea9cb	./confi	g/module.co	fig.php Changed 1		View + FishEye + ⊂⊃ □ Loeve Unread
resolved    resolved   resolved   resolved   resolved   resolved   resolved   resolved   resolved    resolved    resolved     resolved      resolved      resolved	<u>Add a file</u> ¥	<u>comment.</u> Cli 5 6 7	5 * D	rce lines to add ate: 28/10/14 'ime: 13:40	an inline comment.		
application/modules/Voip  application/modules/Voip  application/modules/Voip  application/module.config.php  (1)			8 9 retu 10	rn array( 'controllers'			
<ul> <li>✓ imit StockOop</li> <li>✓ imit Controller</li> <li>✓ imit Plugin</li> </ul>		12 13 14	12 13 14	'Voip 'Voip	s' => array( Index' => 'Voip\Controller\IndexController', BlockedCalls' => 'Voip\Controller\BlockedCalls\BlockedCallsController', BlockedCallsAsync' => 'Voip\Controller\BlockedCalls\BlockedCallsAsyncCont	roller',	
<ul> <li>W VoipFactory.php (1)</li> <li>▼ Sip</li> <li>▼ Control Option</li> </ul>		16 17	15 16 17 18	'Voip 'Voip	Extensions' => 'Voip\Controller\Extensions\ExtensionsController', ExtensionsAsync' => 'Voip\Controller\Extensions\ExtensionsAsyncController AlissAsync' => 'Voip\Controller\Extensions\AliasAsyncController', 7oicePrompt' => 'Voip\Controller\VoicePrompt\VoicePromptController',	e",	
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Outbound.php     Service     Factory			25 26 27	'Voip 'Voip	NotDesk' => 'Voip\Controller\KotDesk\RotDeskController' SipOutboundProvision' => 'Voip\Controller\Sip\Outbound\ProvisionControlle SipInboundProvision' => 'Voip\Controller\Sip\Inbound\ProvisionController'		
e SipProvision.php 1 e Factory.php ▼ Vew/voip/sip		27 28	28 29 30 31	_	agins' => array( ' => array(		





## Everything is Reviewed.

Lee Stone 🔰 @leesto



• 0 0

## Everything Should be Reviewed Within 2 Days

Lee Stone 🔰 @leesto



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## Everyone is invited to the review

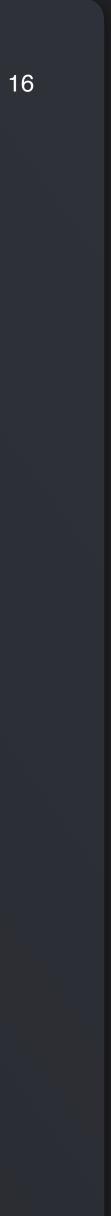


## Everyone is invited to the review



## 1 x Senior must sign off

Lee Stone 🕑 @leesto

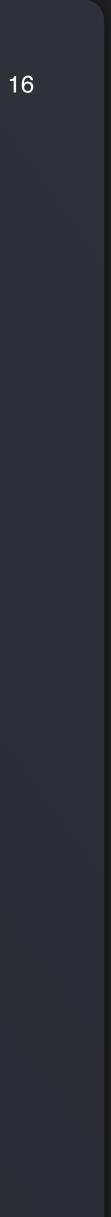


## Everyone is invited to the review

1 x Senior must sign off

1 x Other must sign off

Lee Stone 🕑 @leesto



# Everyone is invited to the review

## 1 x Ser 1 x Oth

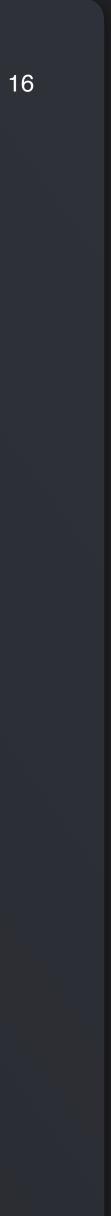


1 x Senior must sign off

1 x Other must sign off

No defects

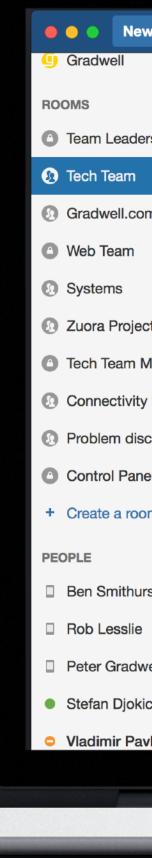
Lee Stone 🔰 @leesto



• 0 0



Because we all forget



at Invite	your team	Search history
	Tech Team	
	<ul> <li>Review Checker · Jan-5 1:29 PM</li> <li>@2EØEOL @ close https://fecru.gradwell.com/cru/ZRA-1371 (enough people have reviewed)</li> <li>gw-voip-asterisk11-scripts - We are looking at the wrong field for call length in prepay_tickdown</li> <li>Review Checker · Jan-5 1:34 PM</li> <li>@ben @JamesGibbs @JovanaSabljic @LeeStone @NemanjaPokrajac @ review https://fecru.gradwell.com</li> <li>/CP-624 for @stefan @</li> <li>Spinvox voice to text - control-panel - CP-1172</li> </ul>	6
gement ations	Review Checker · Jan-5 1:41 PM @LeeStone https://fecru.gradwell.com/cru/ZRA-1377 can be closed (enough people have reviewed) puppet-manifests - Changes to support being able to embed web pages within Odin	8 & 0
on p	Review Checker · Jan-5 1:46 PM         @ben       @DanijelBjelancevic       @JamesGibbs       @JovanaSabljic       @NemanjaPokrajac       @stefan       @VladimirPavlis         review https://fecru.gradwell.com/cru/ZRA-1388 for       @LeeStone       @gradwell-app-cloudembed - Make Zuora invoices viewable to cloud customers	
	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	<b>e</b> k
1	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	



• 0 0

## **Effective Code Reviews**

Lee Stone 🔰 @leesto



#### WHAT WE SAY

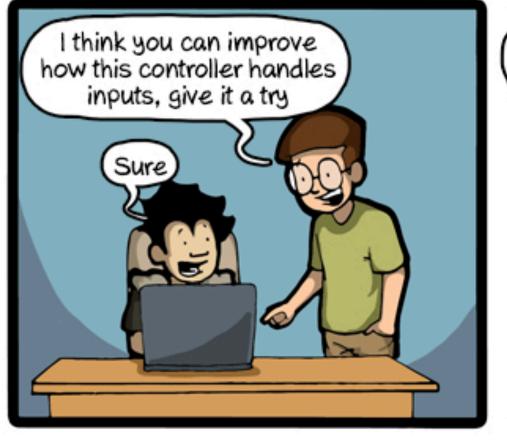


#### WHAT WE THINK



WHAT WE SAY

#### WHAT WE THINK





### ••• Don't Make it Personal.



#### WHAT WE SAY

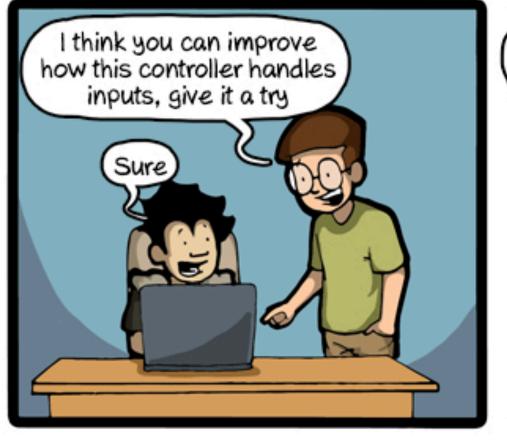


#### WHAT WE THINK



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

000

Lee Stone 🔰 @leesto



## Put whitespace only changes into separate commits



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



## What Has Gone Well For Us?

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



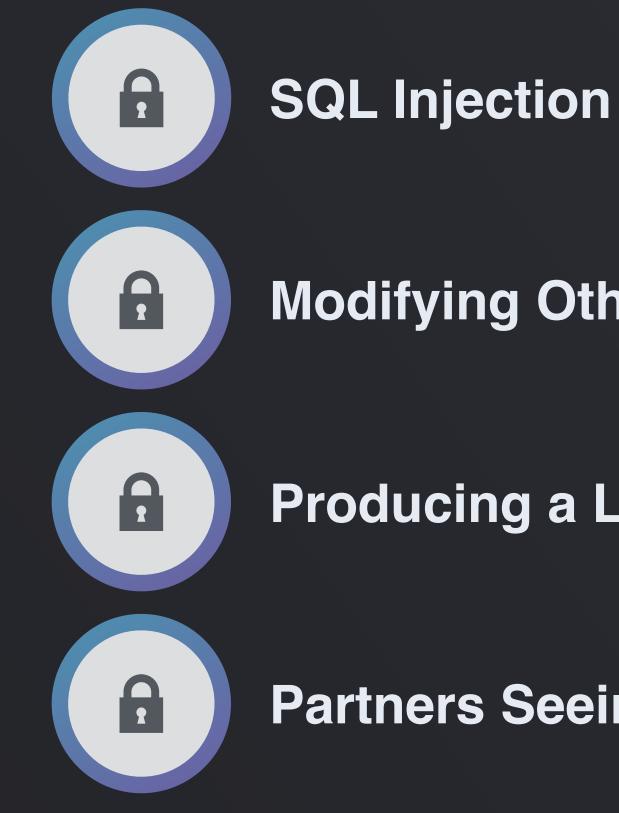
## Tended towards standard approaches in a quicker fashion.



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



## Caught Security Issues Before Hitting Production

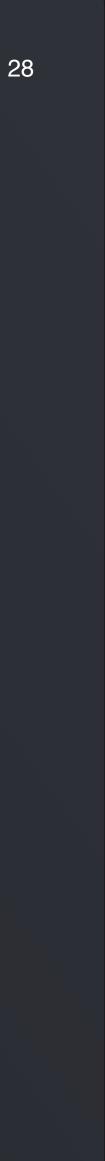


Modifying Other Customer's Settings

**Producing a List of Customer Emails** 

Partners Seeing Gradwell Only Pages

Lee Stone 🕑 @leesto



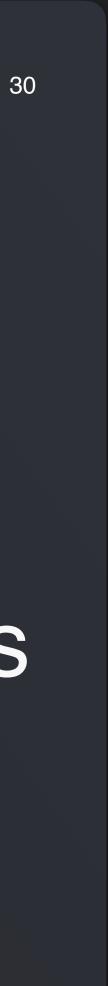
## Improved In-line Documentation

Lee Stone 🔰 @leesto



## Increased Confidence From The Rest of The Business

Lee Stone 🔰 @leesto



## Given Individual Developers More Freedom



## Where Do I Have To Encourage The Team?



to

• 0 0

## 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.

000



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#### Start Small.

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

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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.

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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.



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#### **Bring Fresh Ideas**

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



## 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);
```



## What Do We Need To Improve?



 $\bullet$ 

## Introduce Code Coverage Reports

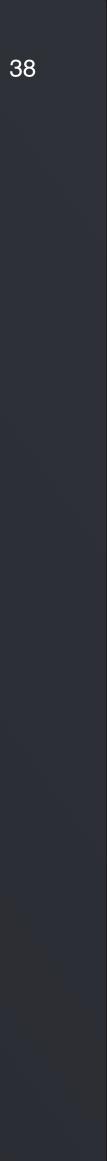


#### **Ben Smithurst**

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

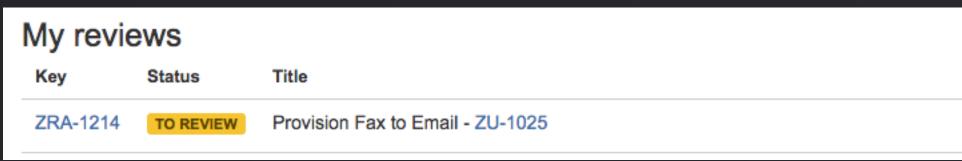
File	stmt	bran	cond	sub	pod	time	total
/LSM/Automation/Puppet.pm	100.0	100.0	n/a	100.0	25.0	0.1 >> 0.0	95.8
Gradwell/Infra/Misc/HG.pm	100.0	87.5	66.6	100.0	100.0	1.4 >> 1.9	96.4
Infra/Misc/IssueLogger.pm	100.0	100.0	n/a	100.0	0.0	5.2 >> 3.8	93.9
adwell/Infra/Misc/Jira.pm	96.7	75.0	n/a	100.0	0.0	0.4 >> 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





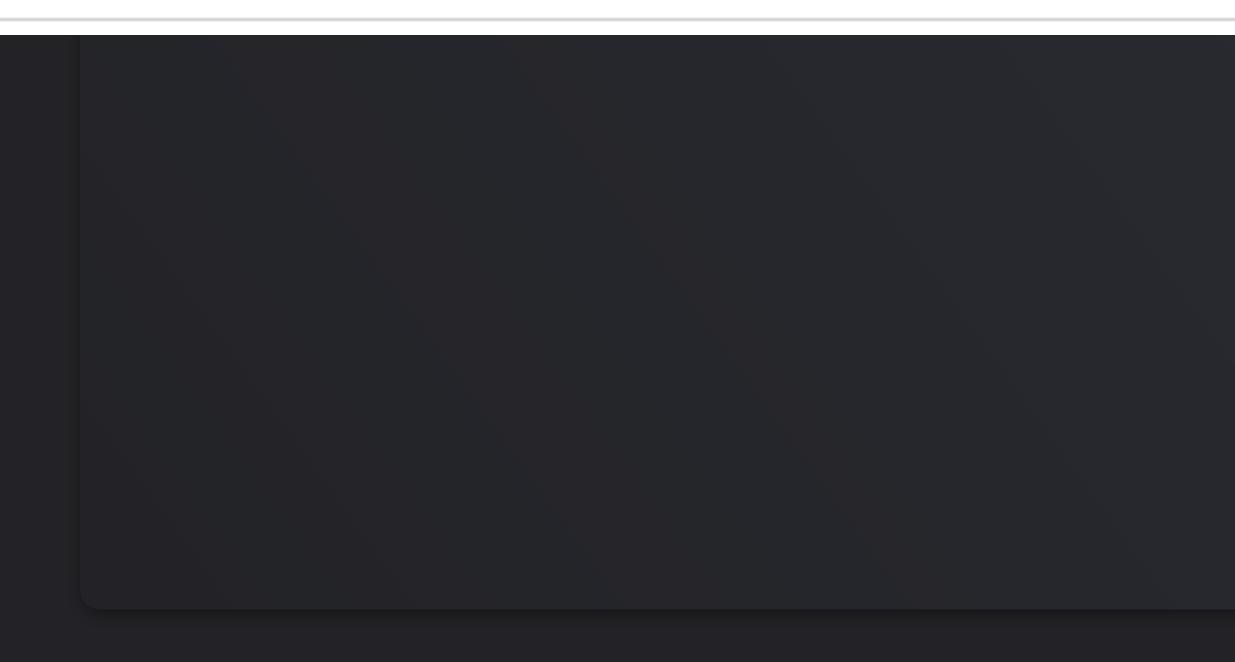
Author	



 $\bullet$ 

#### Author





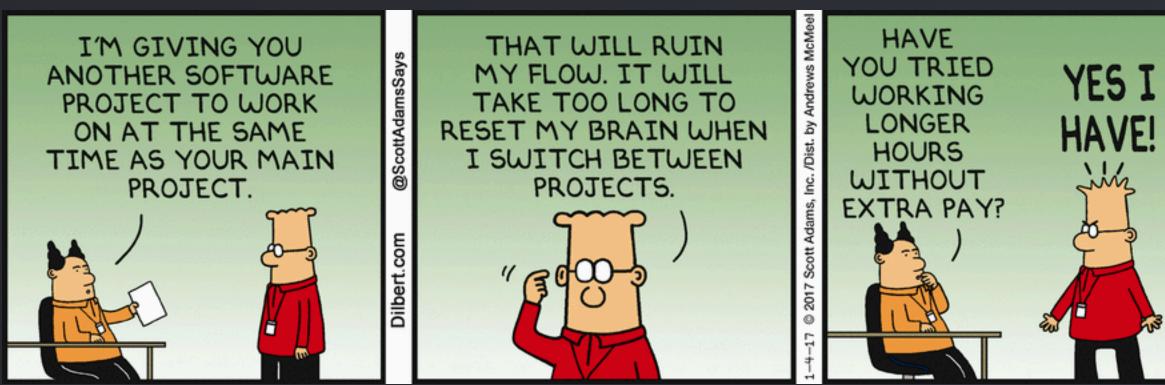
### Due 45 days ago





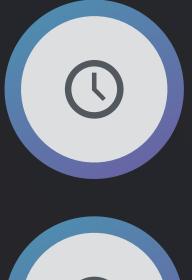


**Reviewers Don't Want to Interrupt Flow** Other developers don't look until they have finished their task, or at an ideal break point





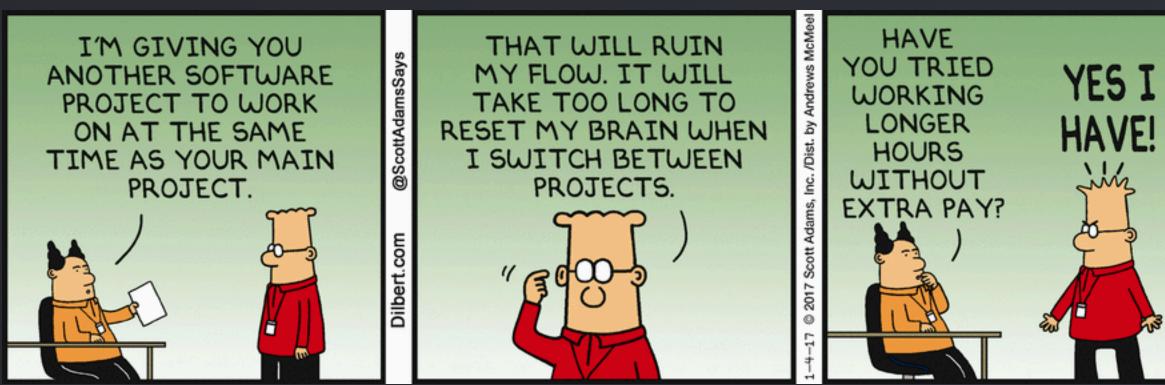
### www.why.so.Long?



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



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





### ••• Why so Long?

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

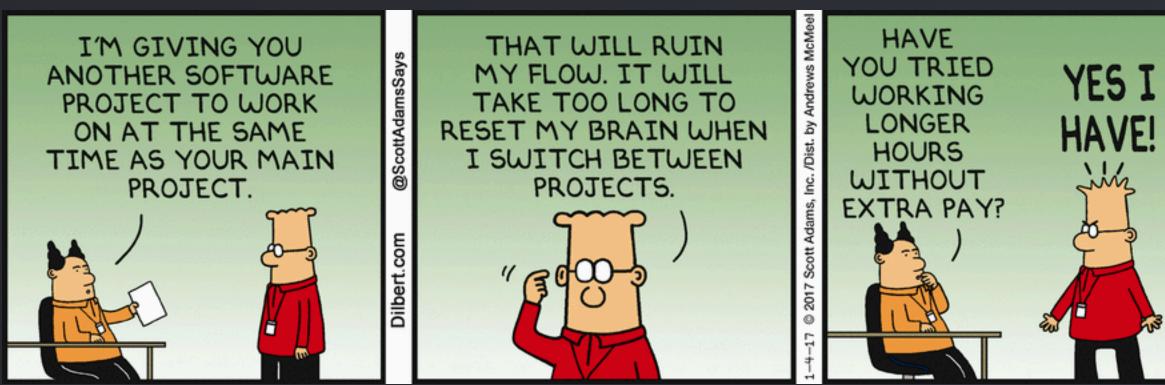


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**Developers Move on to Something New** Resistant to context switch back to make any suggested changes



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





### www.why.so.Long?

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



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

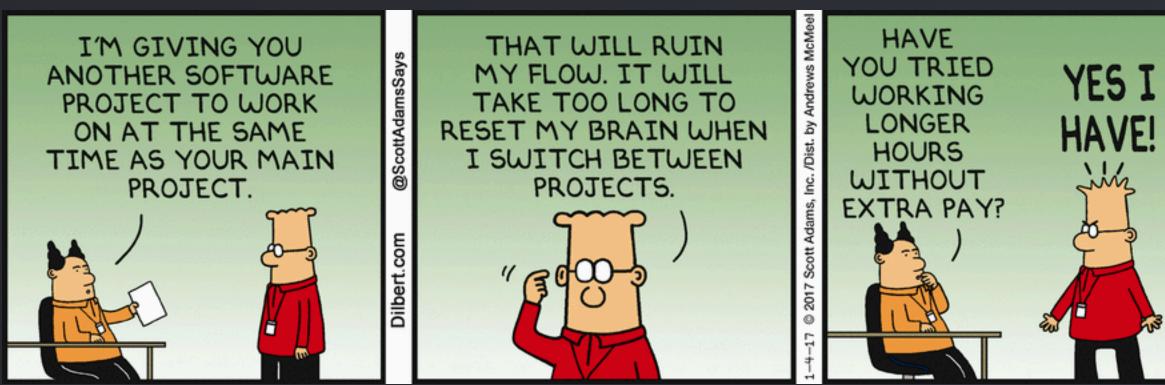


Large Reviews are Harder to Start People see '67 files changed' and delay



#### 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





## ••• 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 -





## ••• 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 -



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

I want to avoid this





## 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?** 

000



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How Do You Get Buy In From The Team? 000



Think About....

What Tooling Can Fit Into Your Workflow?

Lee Stone 🕑 @leesto



## In Summary...

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?** 



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?** 



Any Questions?



