Code Reviews and How To Improve Them.

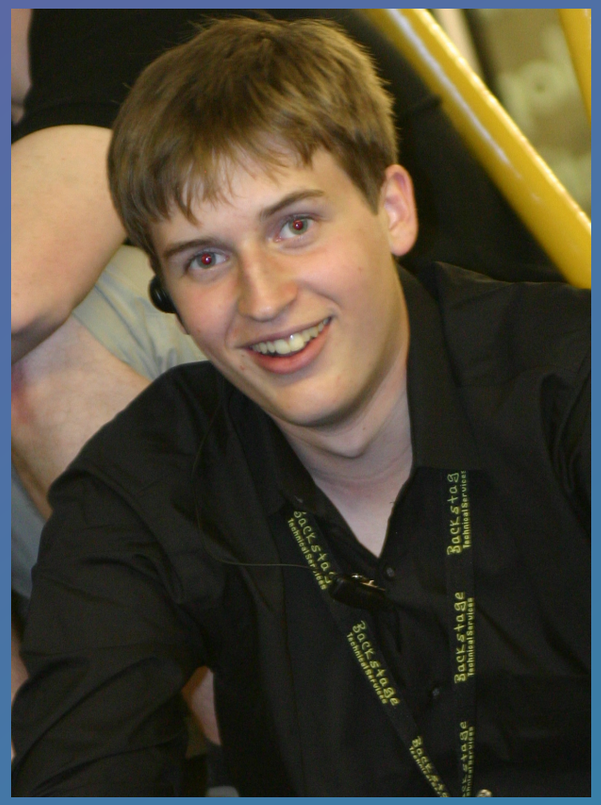
Improving the process of improving

Lee Stone @leesto

Reviewing Code Review.

Improving the process of improving

Lee Stone @leesto



Hi. I'm Lee.

Organiser of PHPSW
One of a great team to make sure meetups happen

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

Theatre Technician
Local Amdram, Glastonbury, edFringe

What is Code Review?

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

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Checking code through a dedicated tool prior to merge upstream

Lee Stone @leesto

Why Should We Review Code?

Prevent Bugs Reaching Production.

- Security
- Business Logic
- Coding Standards

Knowledge Share

- Ideal to mentor new developers
- Shared business logic - Remove SPOFs
- Discover Technical Approaches

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... Other Benefits.

- Improve Estimates
- Making Sure Solutions Meet Requirements

What Code Review Isn’t

It does not replace training

It does not replace demos

My Environment

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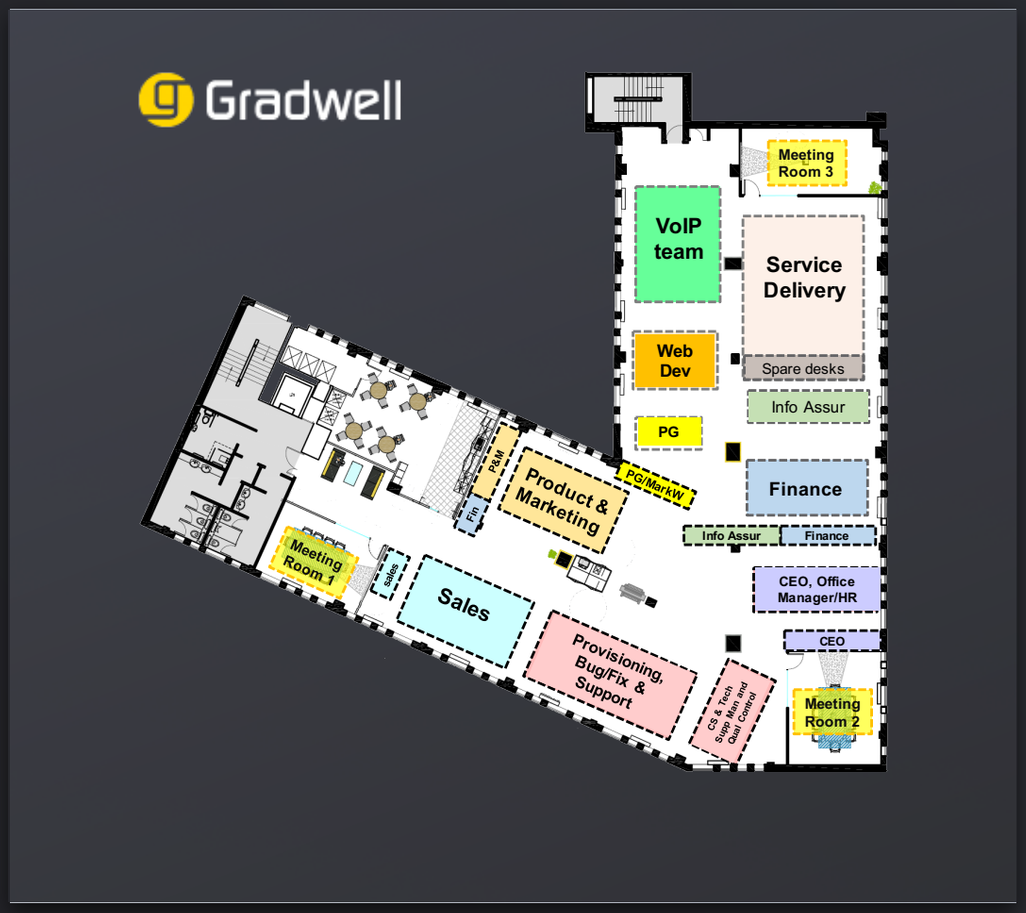
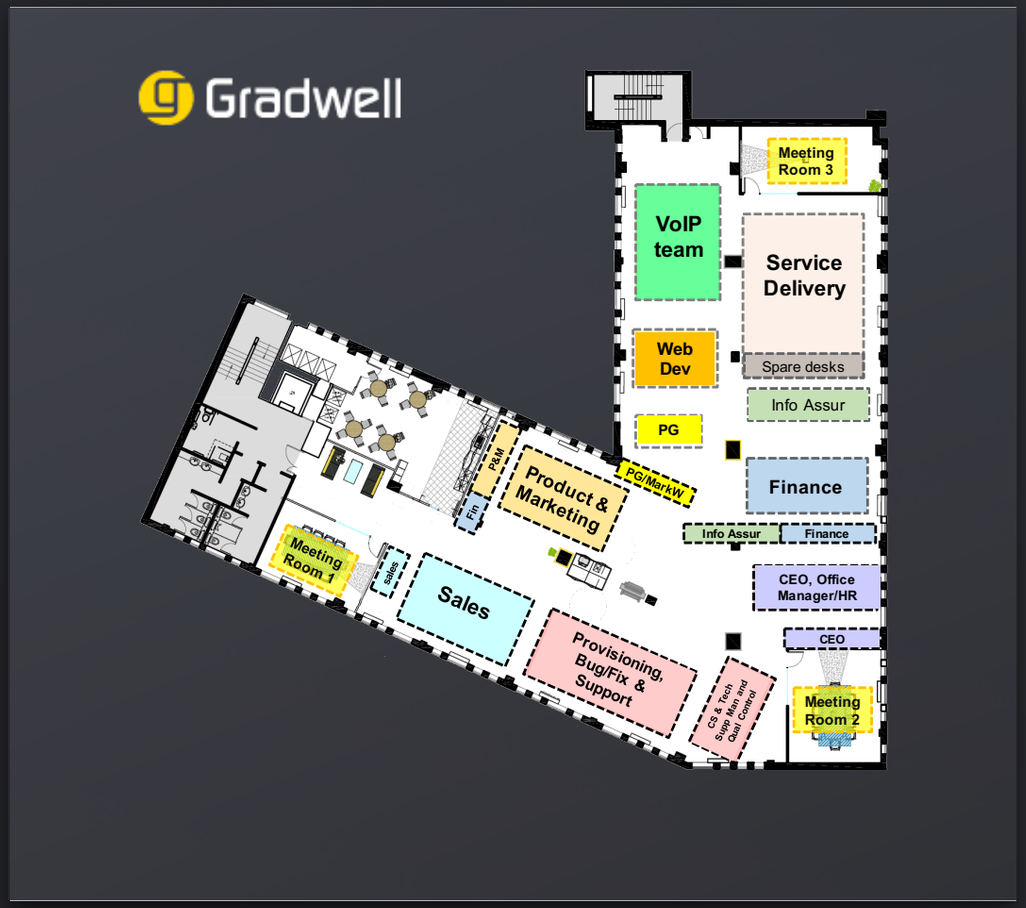
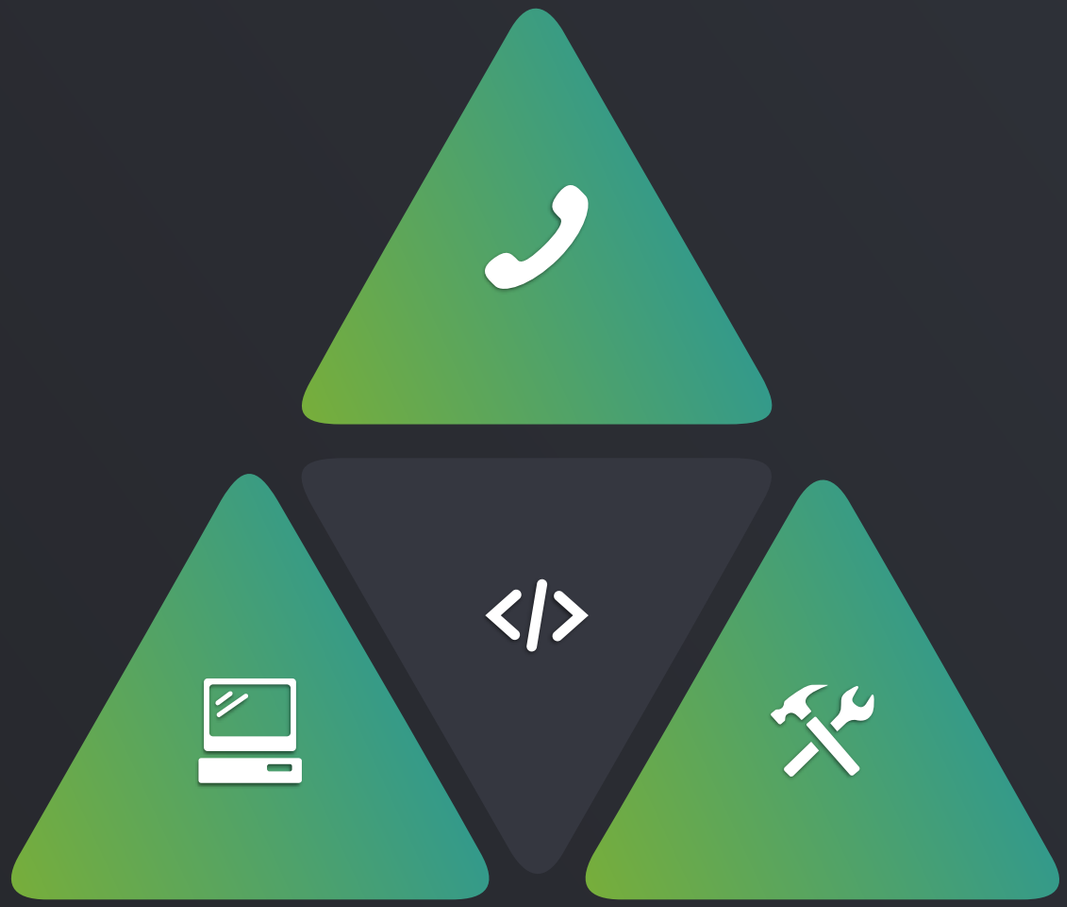
Reviewing Code Review







Lee Stone @leesto

Web Team Lead
Lee

Junior Developer
James

Senior Developer
Vladimir

Junior Developer
Nebojsa

Senior Developer
Josip

Junior Developer
Jovana

Mid-Level Developer
Danijel

QA
Nemanja

Our Tech Stack

PHP

Zend / Slim Frameworks

Split Between Libraries / Applications

Mercurial, not Git

How We Complete Code Reviews

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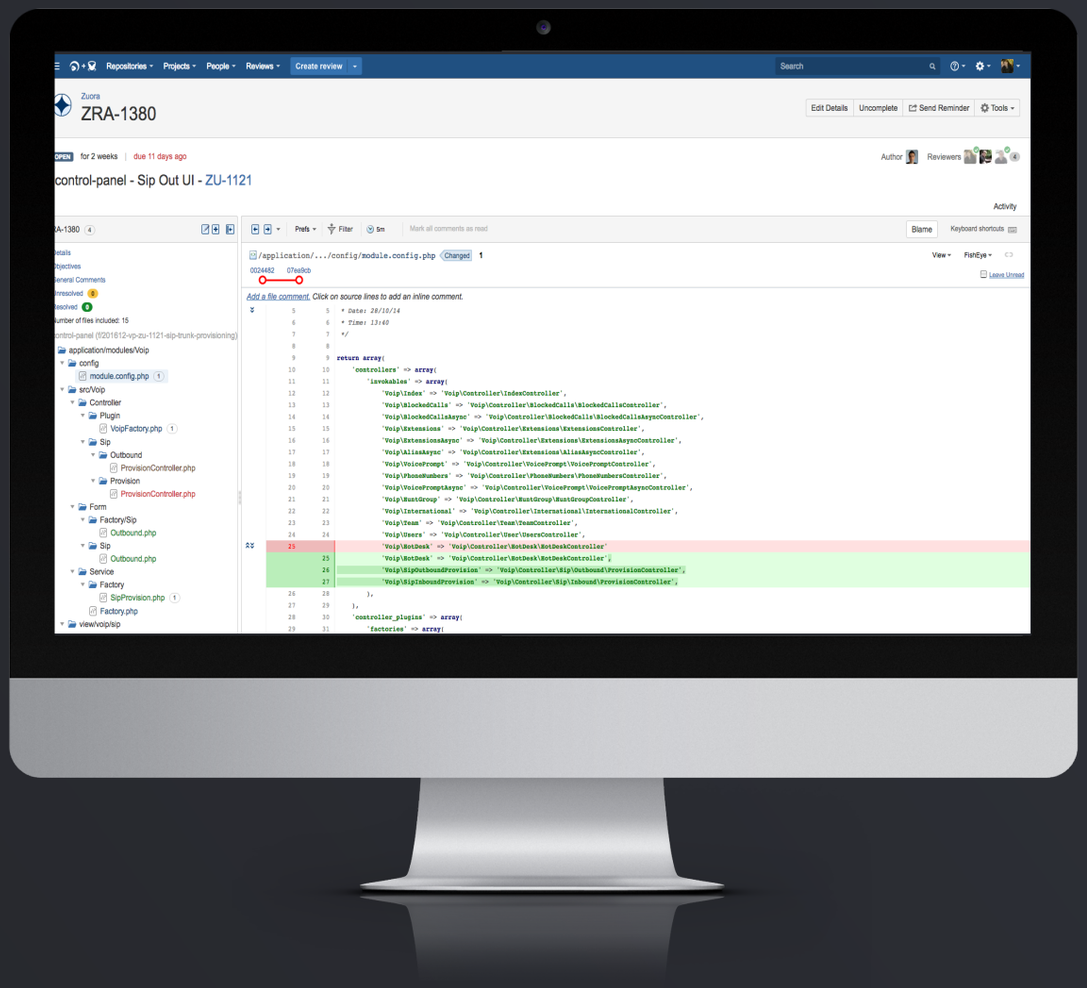
Crucible.



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

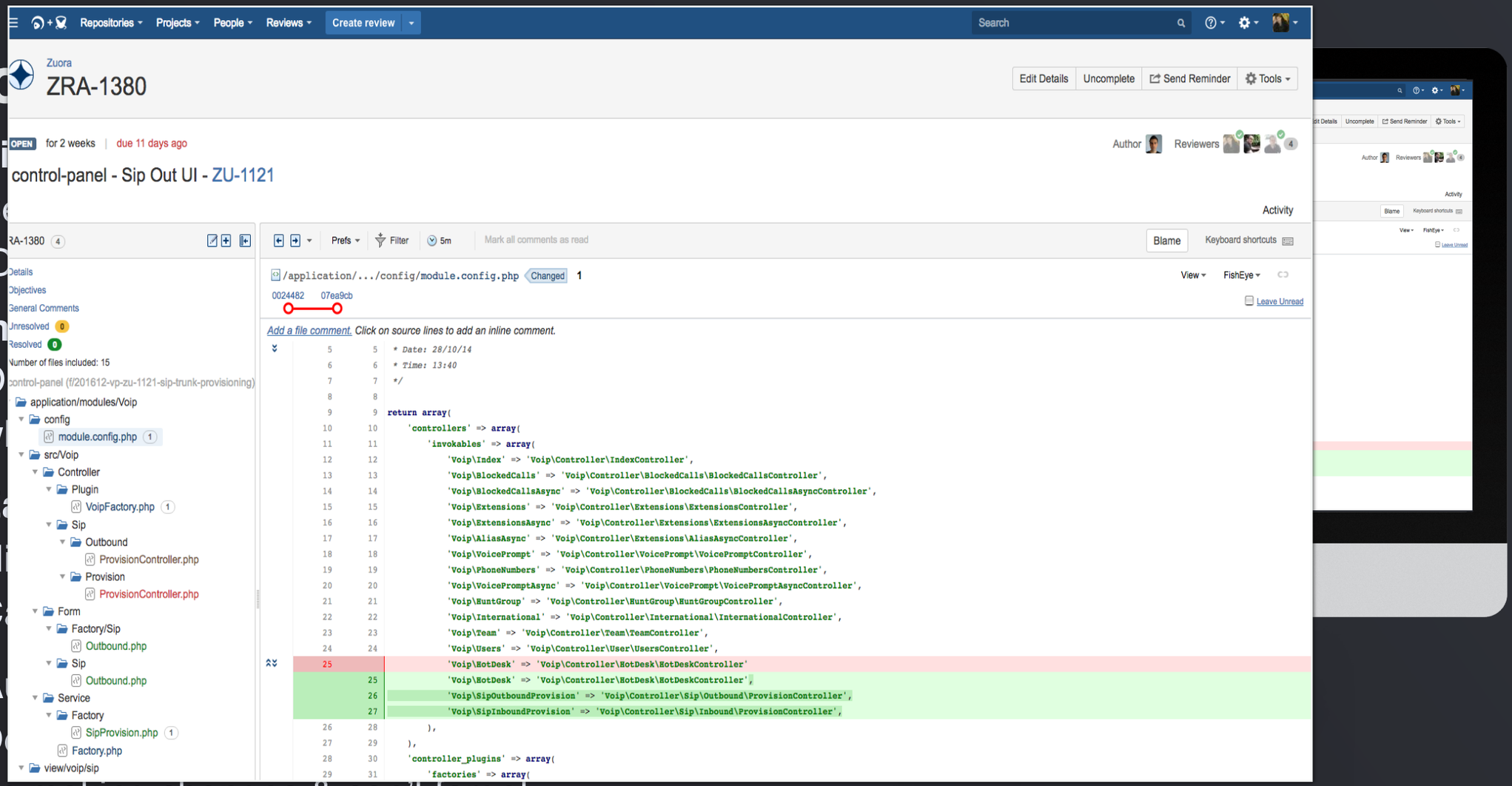
Can drag between commits to see history

Auto Update for Changes on Branch

Developer doesn’t have to update review

on making changes & can’t forget

... Cruc



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Lee Stone @leesto

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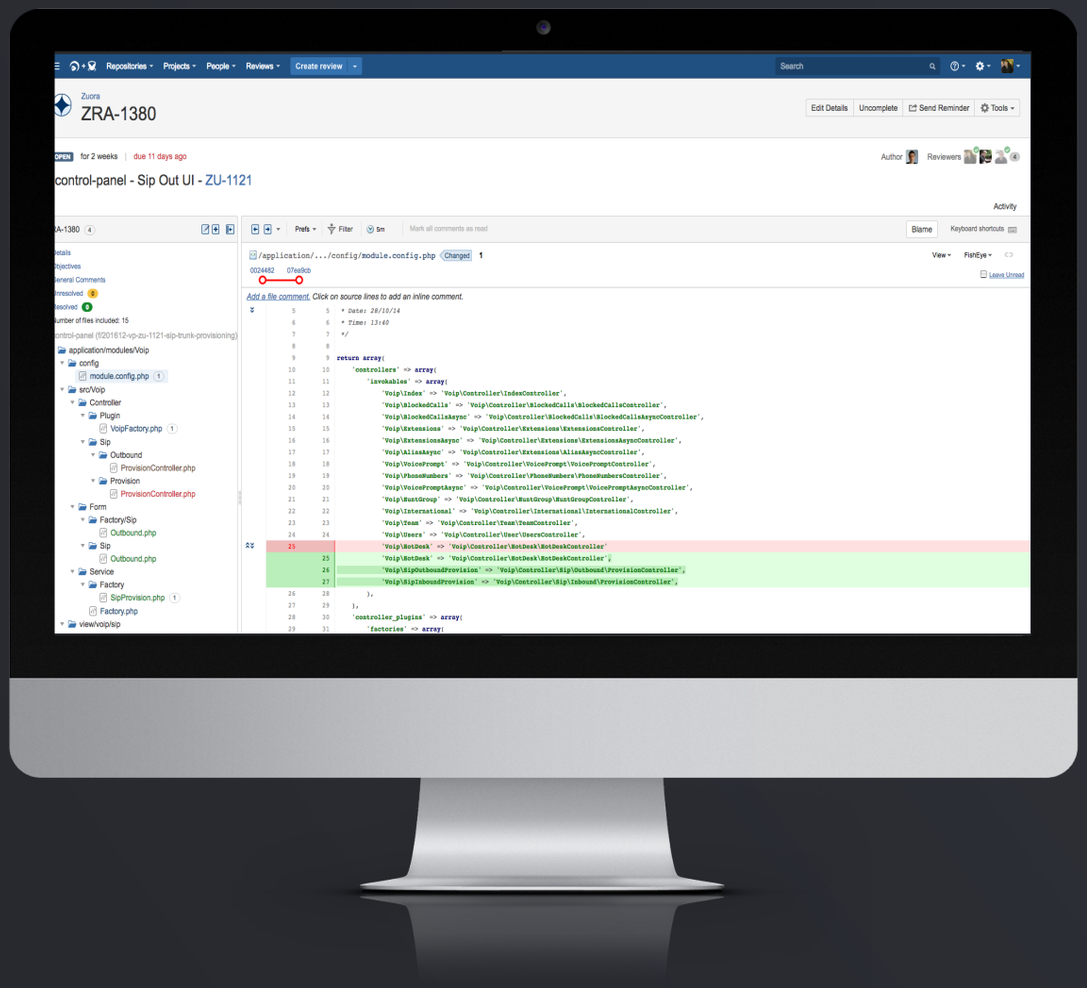

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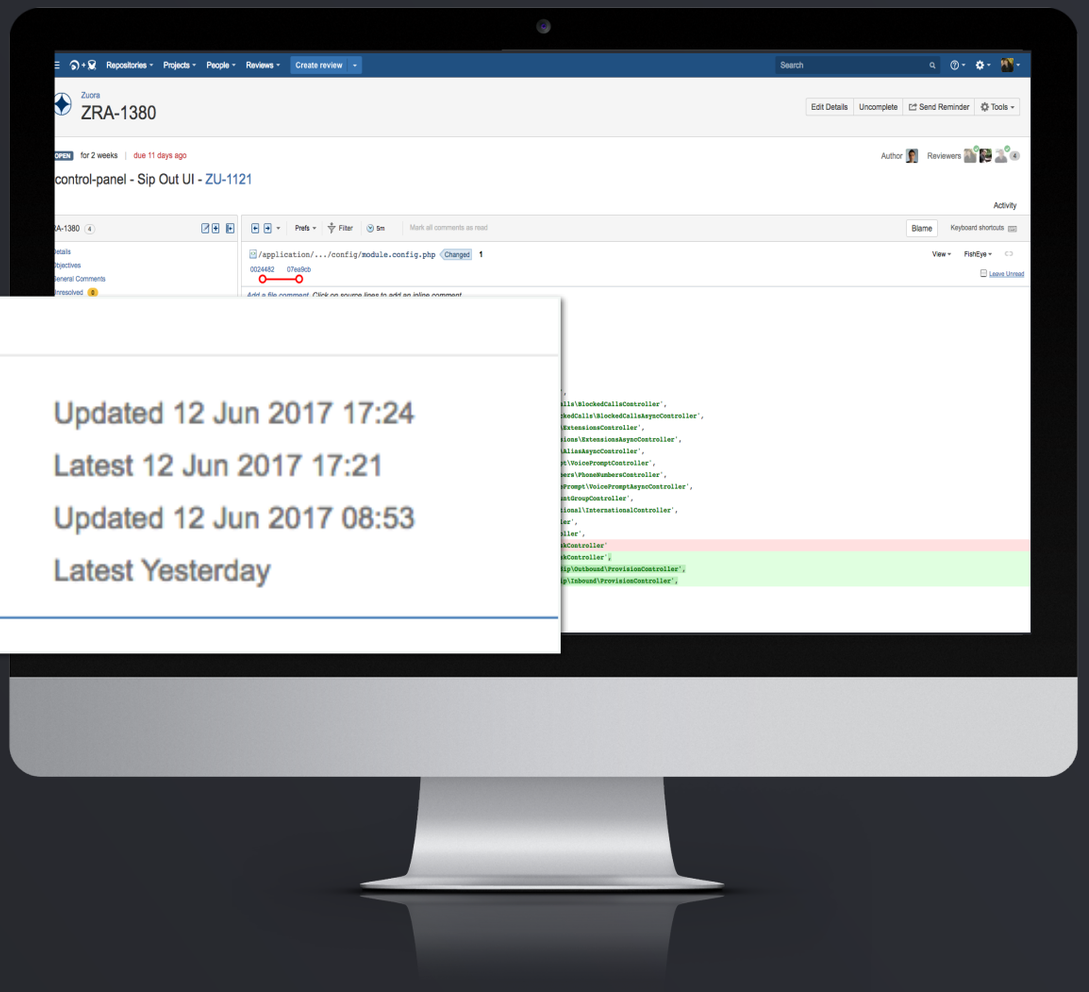

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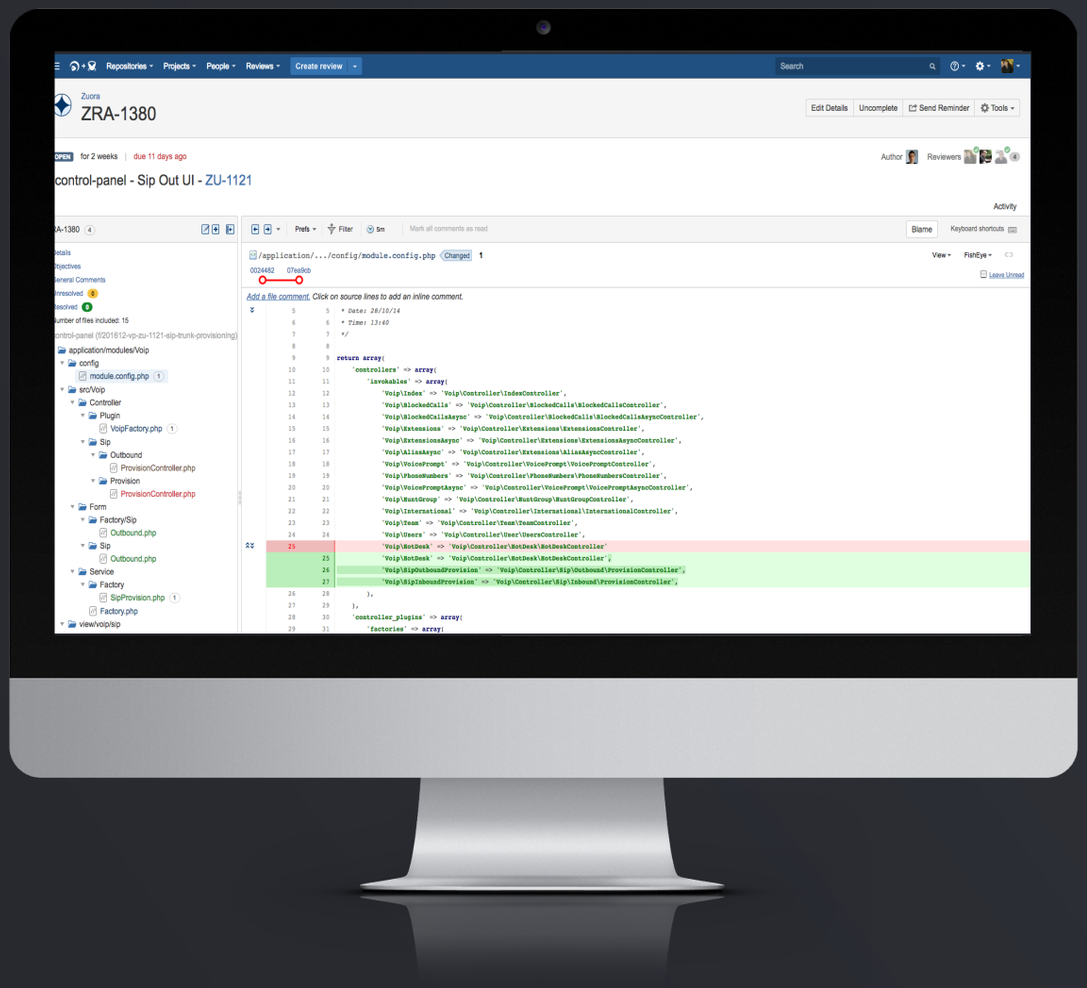

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Everything is Reviewed.

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

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1 x Senior must sign off

1 x Other must sign off

Everyone is invited to the review

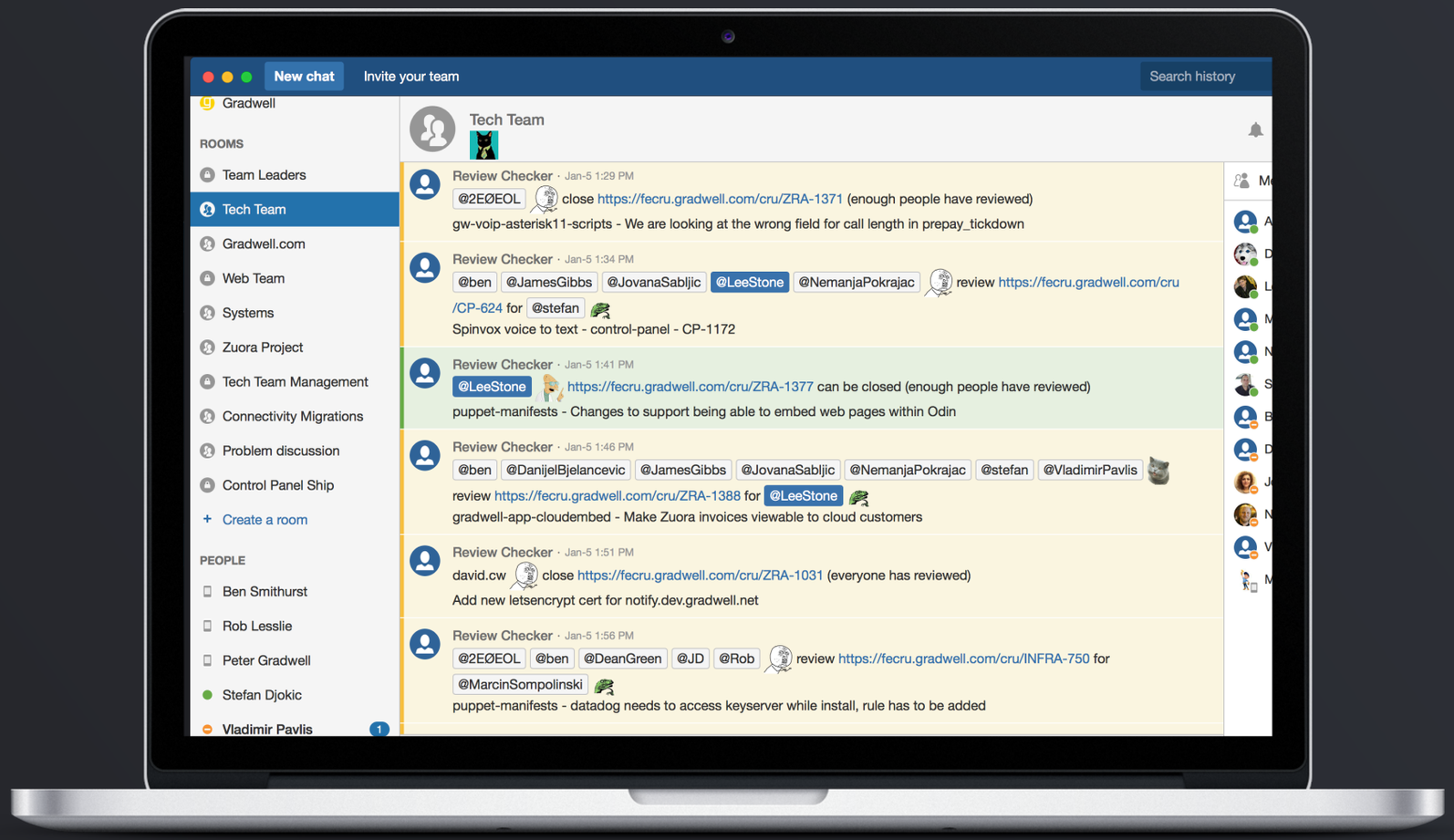
1 x Senior must sign off

1 x Other must sign off

No defects

HipChat Bot

Because we all forget



Effective Code Reviews

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Don’t Make it Personal.

... Don’t Take it Personally.

I find using “we” rather than “I” or “You” helps

```
15      require_once "hardware_manage.php";
16      error_reporting(E_ALL & ~E_STRICT & ~E_DEPRECATED);
```

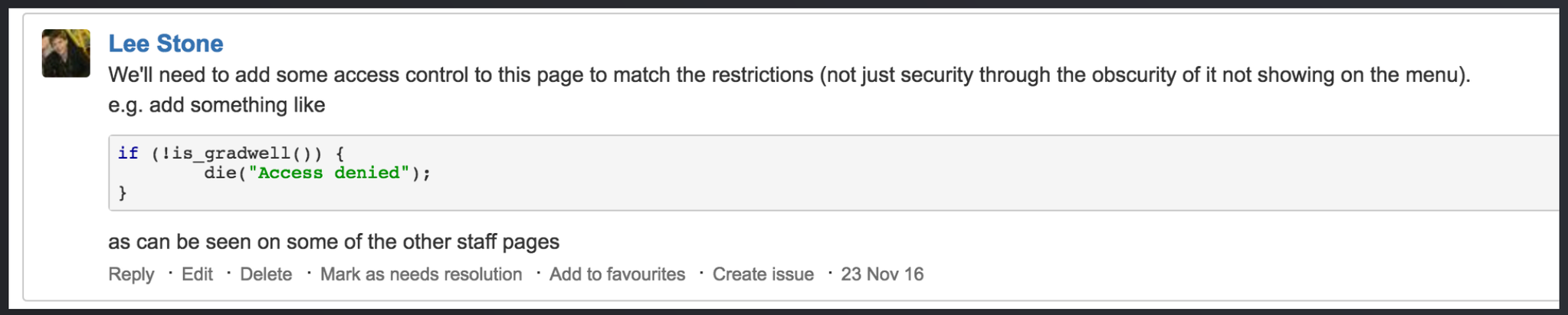
Lee Stone

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

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

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.

Lee Stone @leesto

Seen opportunities to refactor and produce more generic libraries earlier.

Caught Security Issues Before Hitting Production

- SQL Injection
- Modifying Other Customer's Settings
- Producing a List of Customer Emails
- Partners Seeing Gradwell Only Pages

Improved In-line Documentation

Lee Stone @leesto

The Business is Completely on-board

Increased Confidence From the Rest of the Business

Given Individual Developers More Freedom

Lee Stone @leesto

Where Do I Have To Encourage The Team?

What are the most difficult reviews to get feedback on?

Anything by

This Guy

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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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.

Lee Stone @leesto

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Bring Fresh Ideas

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

Lee Stone @leesto

Move Beyond Coding Standards

Move Beyond Coding Standards

```
2221    public function getBounceListService()
2222    {
2223        if($this->_bounceListService === null)  {
```

Danijel Bjelancevic

I don't want to be PITA, but you should have a space between if and opening parenthesis.

Add to favourites · Create issue · 21 Nov 16

```
105         $stmt->bindValue(':email_to', $logEntry->getEmailTo());
106         $stmt->bindValue(':template', $logEntry->getTemplate());
107         $stmt->bindValue(':formattedDate', $formattedDate);
```

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

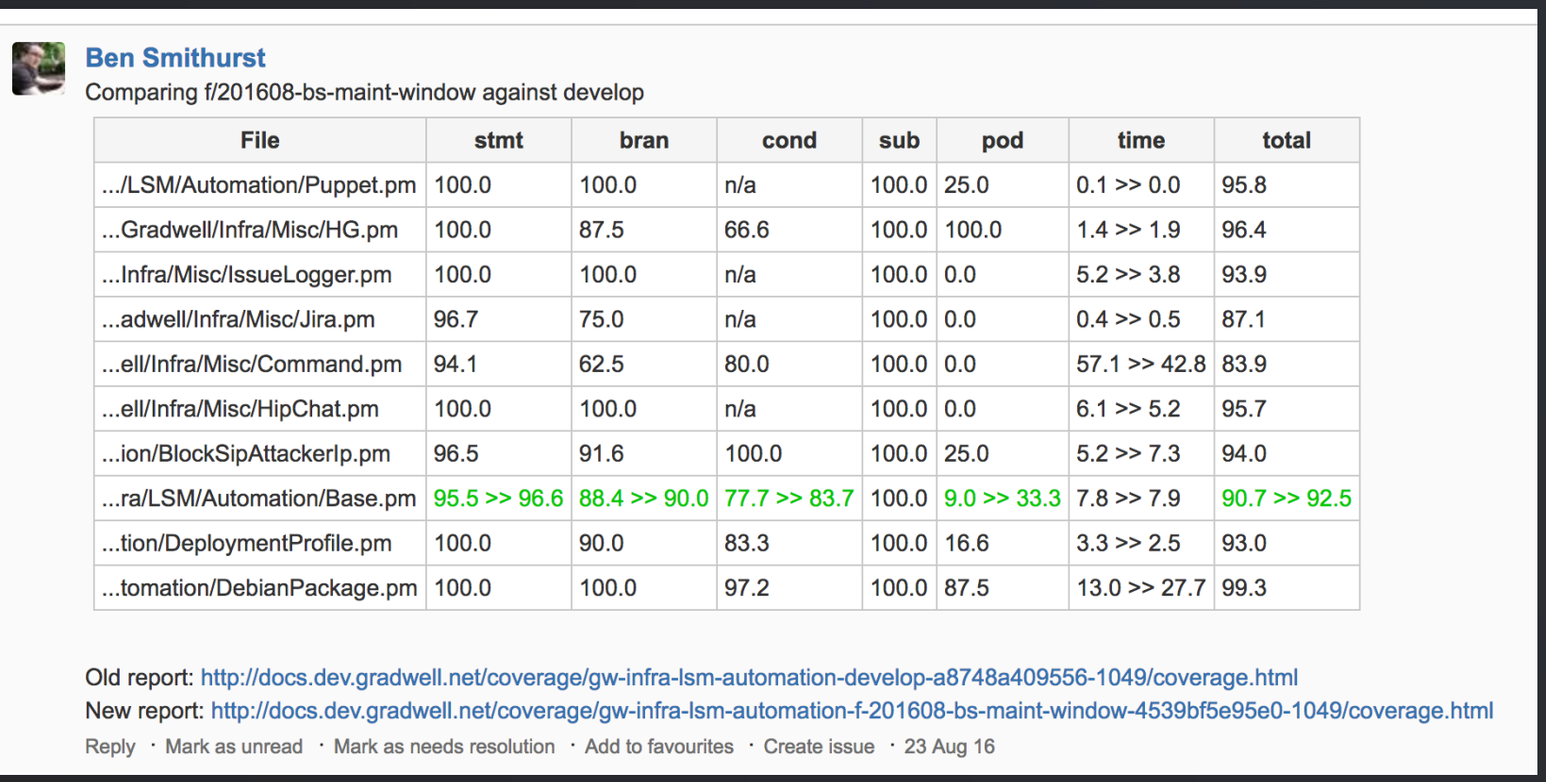
```
108
```

Don’t stick to giving the same feedback

Especially on a ‘minor benefit’ point

What Do We Need To Improve?

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

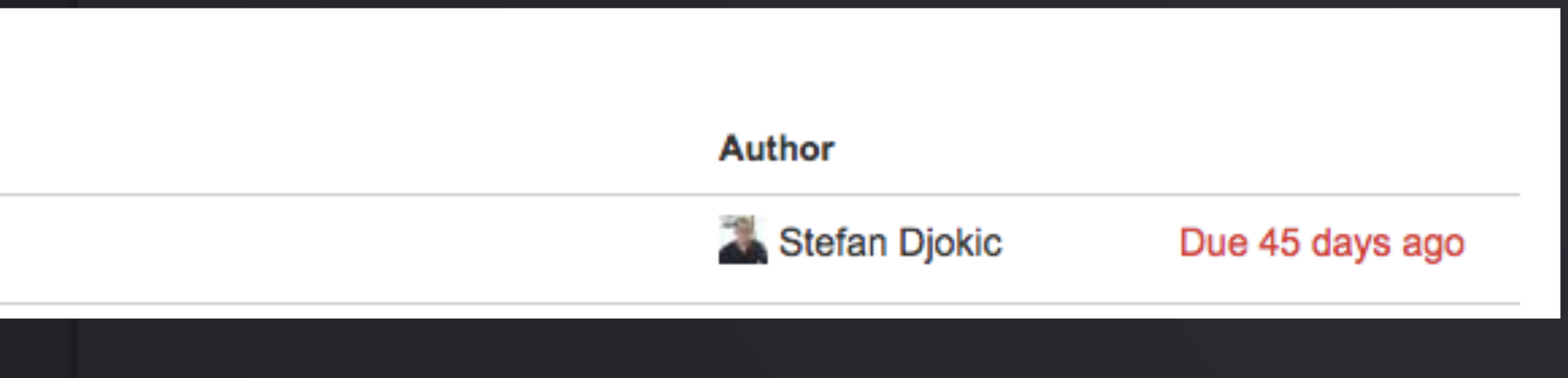
Reply · Mark as unread · Mark as needs resolution · Add to favourites · Create issue · 23 Aug 16

Get Reviews Completed Quicker

Lee Stone @leesto

My reviews

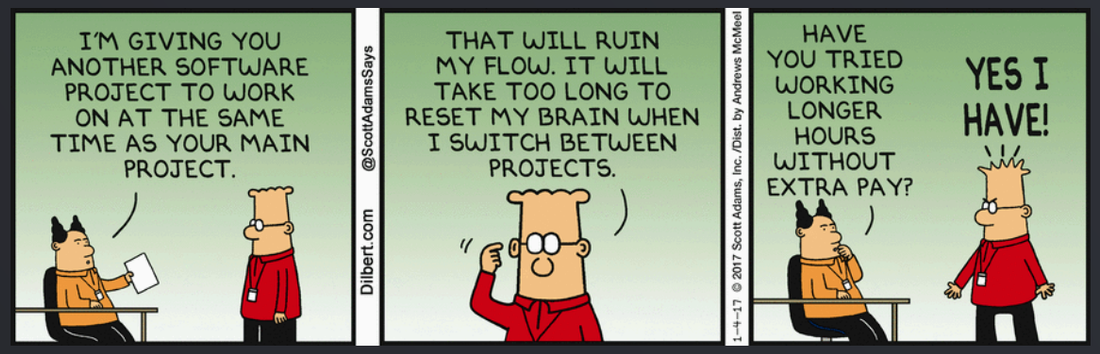
Key	Status	Title	Author	
ZRA-1214	TO REVIEW	Provision Fax to Email - ZU-1025	Stefan Djokic	Due 45 days ago


Author
Stefan Djokic
Due 45 days ago

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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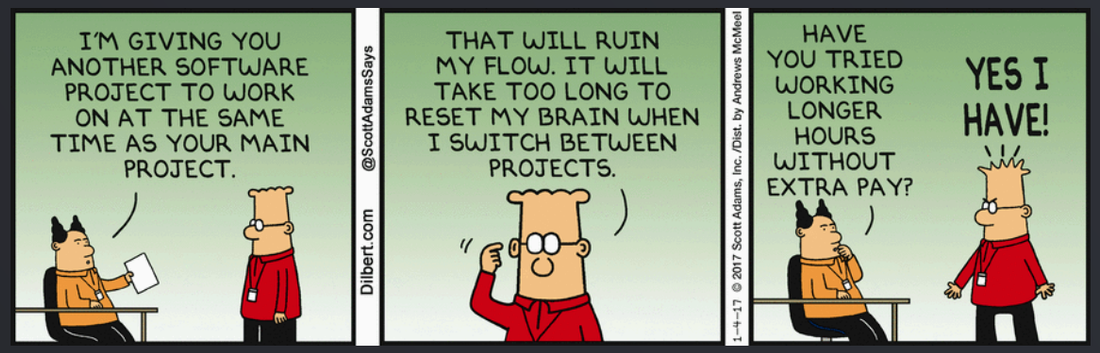
Developers Move on to Something New

Resistant to context switch back to make any suggested changes



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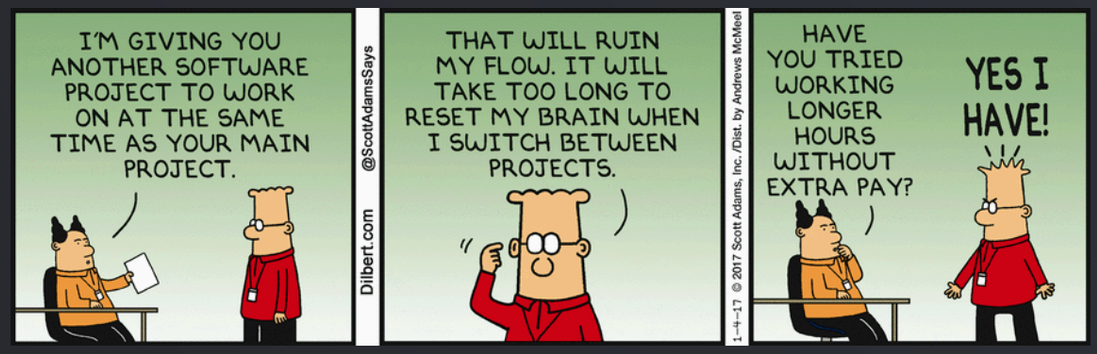
Large Reviews are Harder to Start

People see ’67 files changed’ and delay



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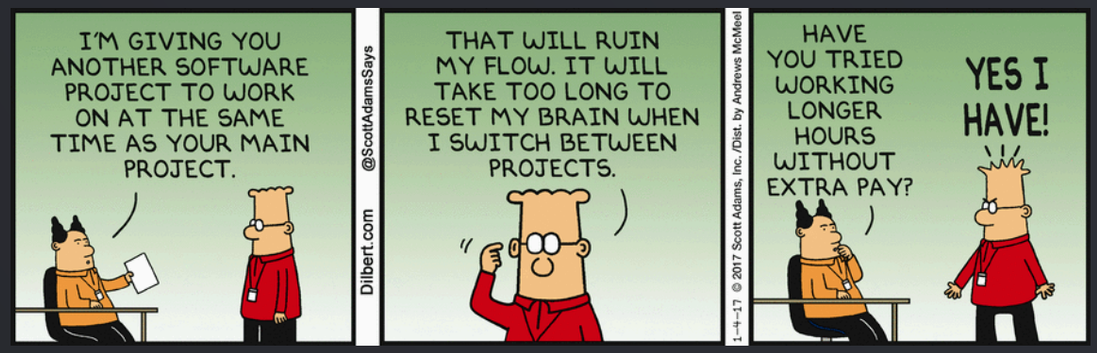
It Gets Worse

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



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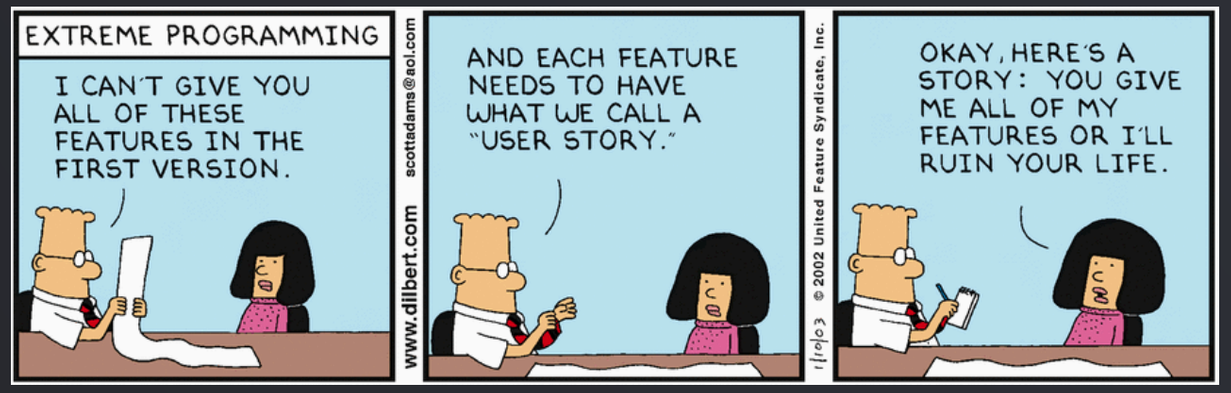
These Delays Hurt Our Release Pace

Lee Stone @leesto

How to Speed Up?

Encourage Smaller Reviews

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



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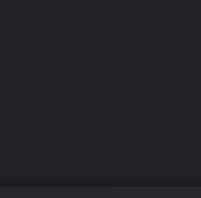
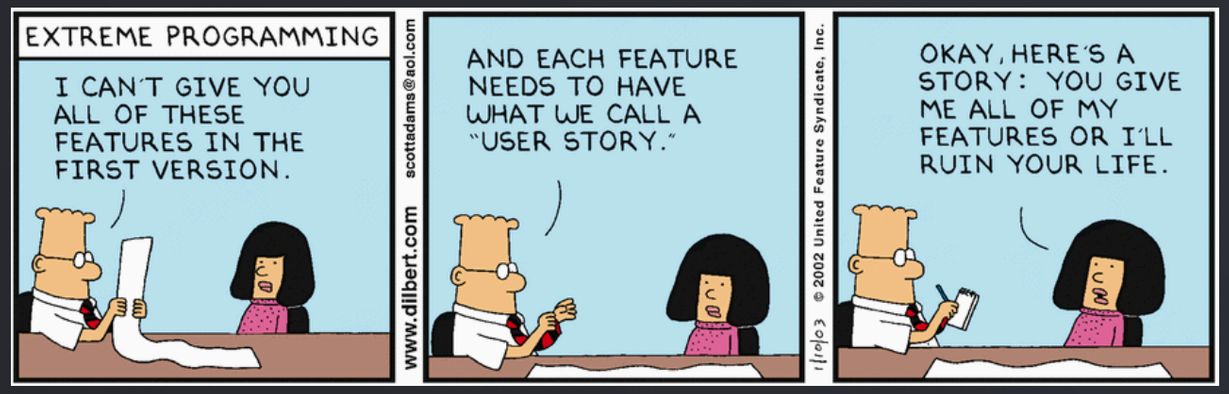


Encourage Use of Small Time Periods

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



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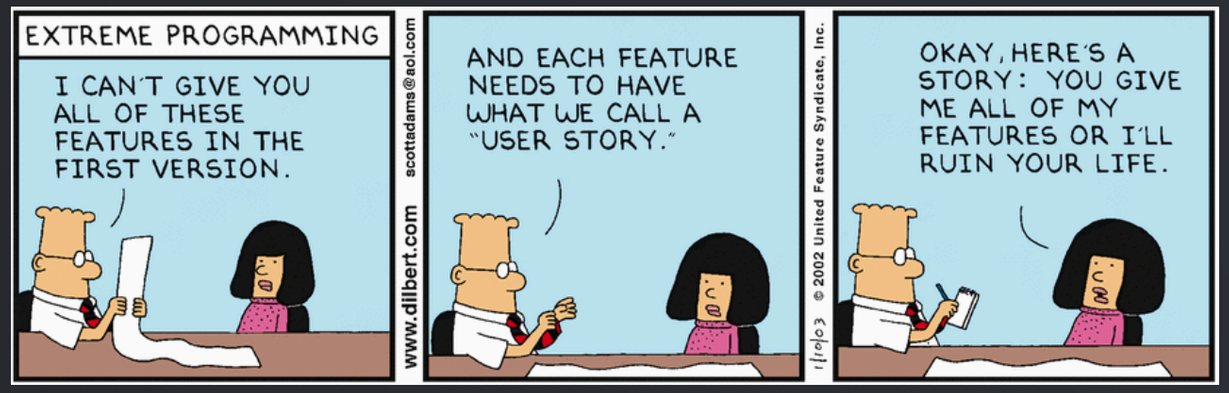
‘Fixed’ Review Times

I want to avoid this



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

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?

More Business Logic Feedback

Lets Recap

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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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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What Tooling Can Fit Into Your Workflow?

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How Do You Not Considerably Slow Your Release Pace?

Thank You.

Any Questions?

Lee Stone @leesto

https://joind.in/talk/e62d8

Lee Stone @leesto