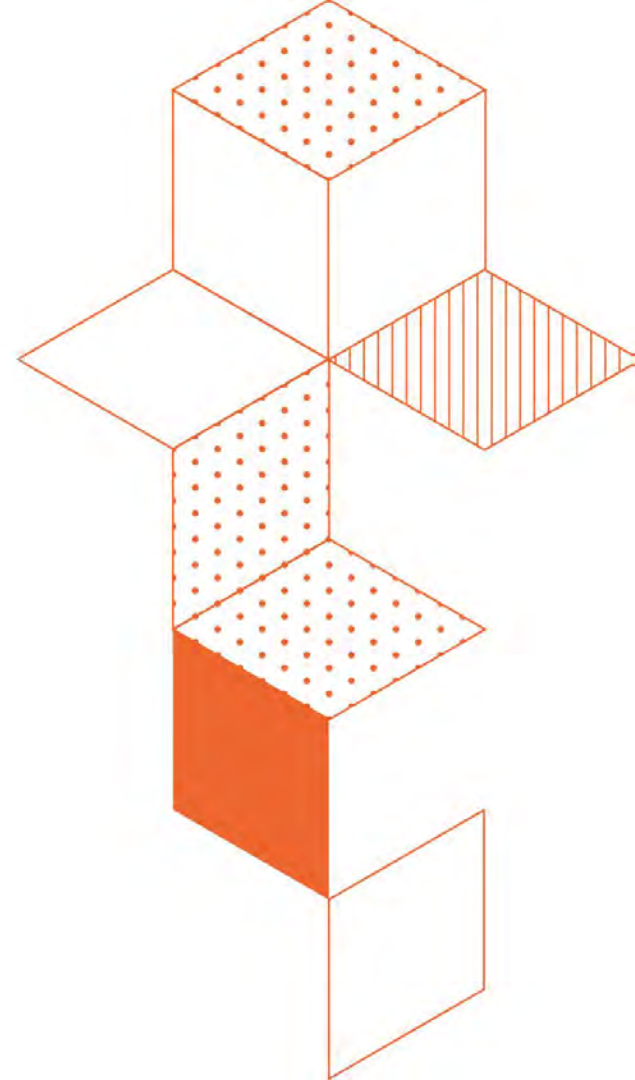




Magento**Live**

Europe | 2018

# Elite Bug Squashing





# Tony Brown



*Technical Director, Space 48*

*@Tonegolf71*

*@Space48ers*



# Tony Brown



*Mage Titans UK – Developer Conference*  
*10<sup>th</sup> November 2018*  
*@MageTitans*





# Cache corruption

*Randomly occurring, site down*



## Random cache corruption

- A pre-launch Magento 2 site
- Would randomly end up with exceptions
- The site would be unavailable until...
- ...a cache clear would resolve the issue



## Random cache corruption

- A pre-launch Magento 2 site
- Would randomly end up with exceptions
- The site would be unavailable until...
- ...a cache clear would resolve the issue

Where do you begin?

# Level 1

*Finding your debugging feet*





# Debugging starts on day 1

- Debugging is an integral part of coding
- I started with 20% coding, 80% debugging
- We should strive for the opposite!

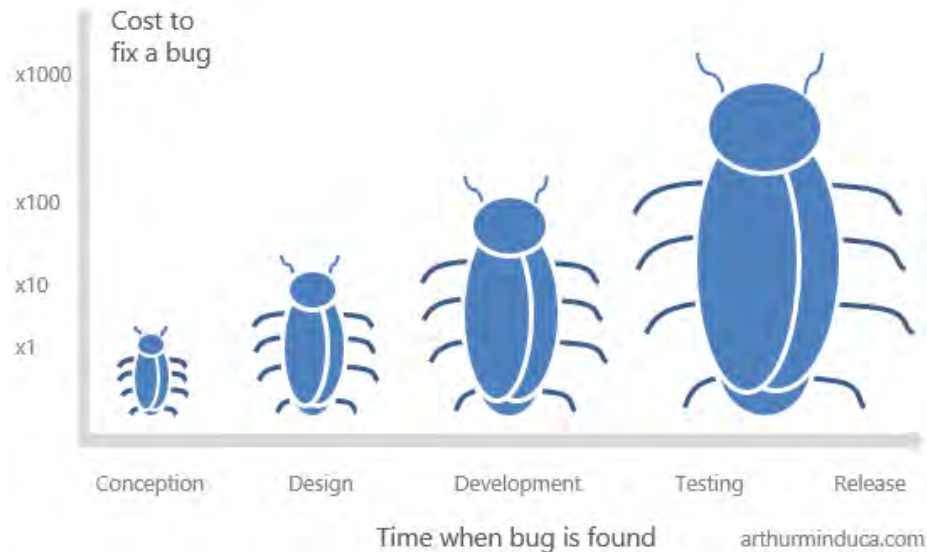


# Types of debugging

- Bugs during development
- Bugs that are “live”
  - Feature broken
  - Performance issues
  - Site down

# Impact of bugs

- The further along the development lifecycle that bugs appear, the greater the impact.





## Level 1 Tooling

- Echo / var\_dump / print\_r ... die()





## Level 1 Strategy: Research

- The majority of problems you will face have been solved already.



## Level 1 Strategy: Research

- The majority of problems you will face have been solved already.
- Opensource community rocks!
  - Stack exchange
  - Forums
  - Github
  - Contribute if you can!



## Level 1 Strategy: Ask your peers

- You shouldn't be fearful of leaning on your team



## Level 1 Strategy: Ask your peers

- You shouldn't be fearful of leaning on your team
- Articulating a problem (even to someone non-technical) can result in your brain sparking off new ideas
  - They may have ideas or even the solution!





## Random cache corruption

- Google revealed it to be a config cache issue
  - But the recommended resolution didn't apply



## Random cache corruption

- Google revealed it to be a config cache issue
  - But the recommended resolution didn't apply
- No-one in the team had seen the issue before



## Random cache corruption

- Google revealed it to be a config cache issue
  - But the recommended resolution didn't apply
- No-one in the team had seen the issue before
- Collaboration did happen, which accelerated progress

# Level 2

*Walking the debugging walk*





## Level 2 Tooling

- Logging



## Level 2 Tooling

- Logging



**Why is the hard drive nearly full?!**



## Level 2 Tooling

- Logging
- Advanced local environments



## Level 2 Tooling

- Logging
- Advanced local environments
- Monitoring - New Relic



## Level 2 Tooling

- Logging
- Advanced local environments
- Monitoring - New Relic
- Profiling – Blackfire



## Level 2 Strategy

- Can I replicate the issue?



## Level 2 Strategy

- Can I replicate the issue?
- What has changed?



## Level 2 Strategy

- Can I replicate the issue?
- What has changed?
- Are there any errors?





## Level 2 Strategy

- Can I replicate the issue?
- What has changed?
- Are there any errors?
- Eliminate as much as possible at each step



## Level 2 Strategy

- Can I replicate the issue?
- What has changed?
- Are there any errors?
- Eliminate as much as possible at each step
- Protect through process:
  - Code Reviews
  - QA Function
  - Automated tests where possible



## Random cache corruption

- Couldn't replicate it locally

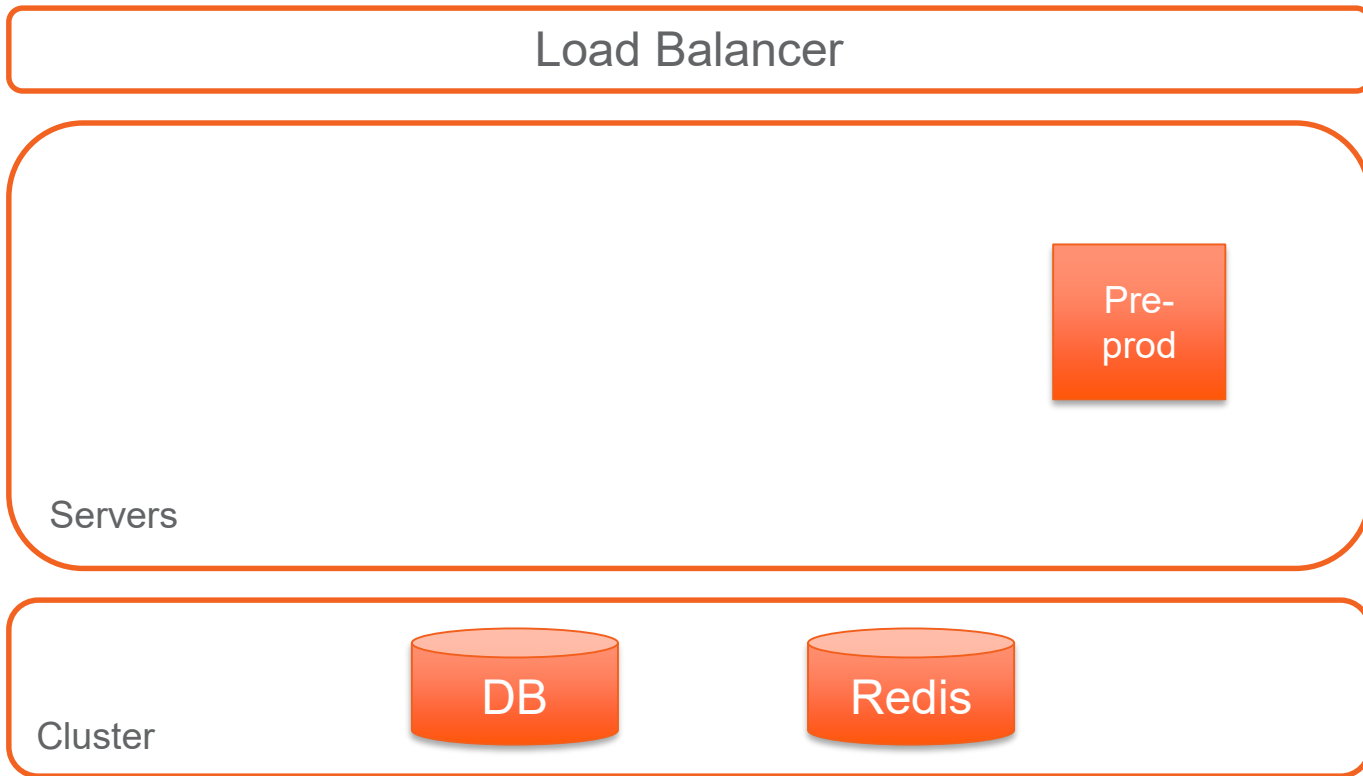


## Random cache corruption

- Couldn't replicate it locally
- What had changed?
  - Recently gone to multi-server setup

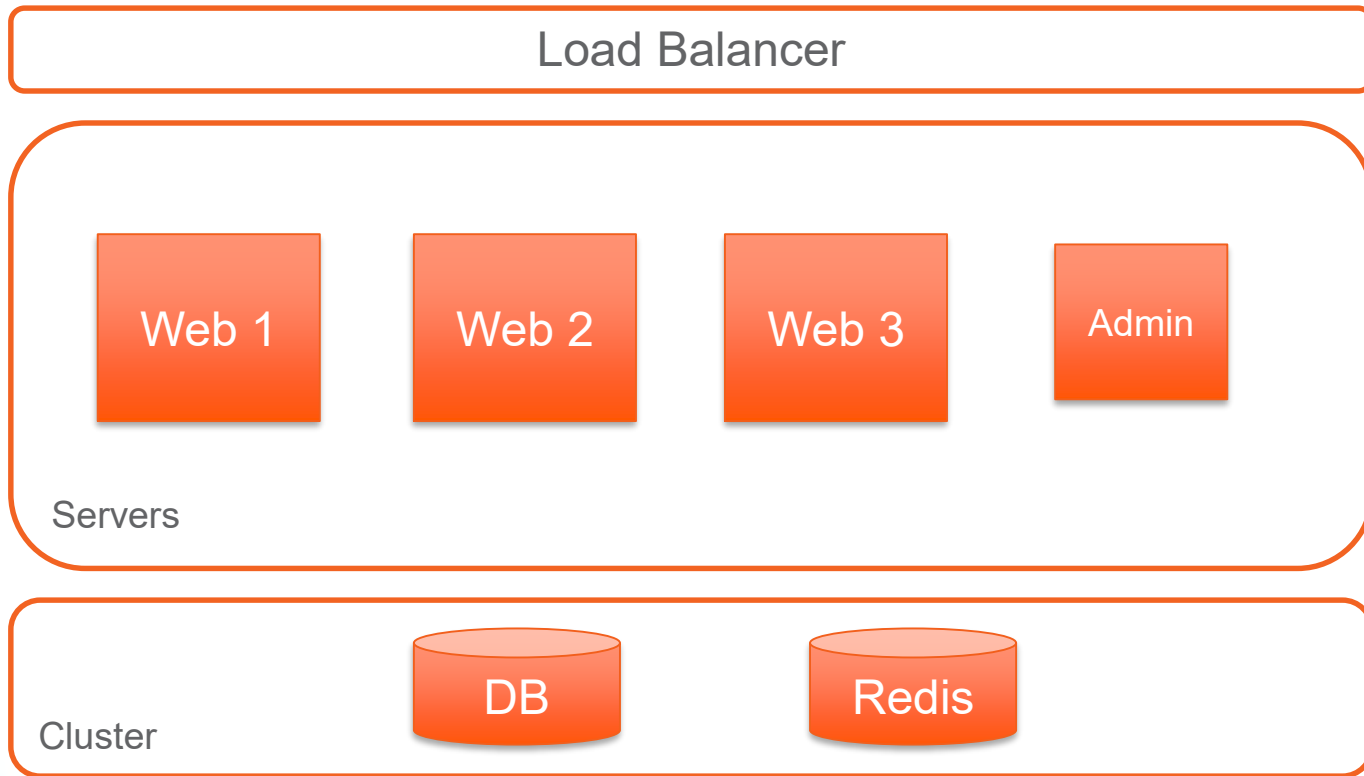


# Single-server setup





# Multi-server setup



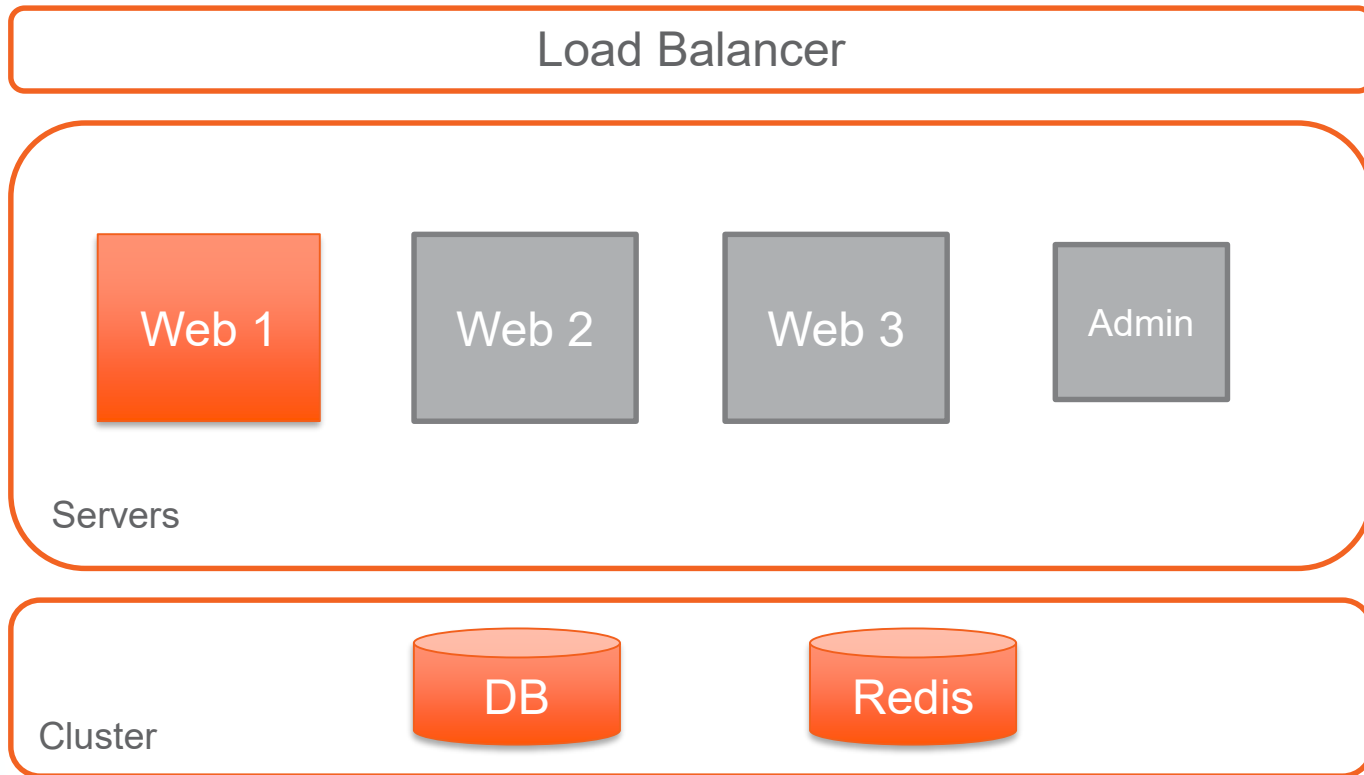


## Random cache corruption

- Couldn't replicate it locally
- What had changed?
  - Recently gone to multi-server setup
- Eliminate as much as possible
  - When set to single server, the issue disappeared



# Multi-server setup (restricted)







## Random cache corruption

- Couldn't replicate it locally
- What had changed?
  - Recently gone to multi-server setup
- Eliminate as much as possible
  - When set to single server, the issue disappeared
- Put logging in place to capture state
  - Found that the config cache was getting zapped repeatedly

# Level 3

*Clear vision and prevention*



## Level 3 Tooling

- Xdebug



## Level 3 Tooling

- Xdebug
- Static analysis for quality / best practice
  - Mess Detector, Copy paste detector



## Level 3 Strategy

- Defensive Programming



## Level 3 Strategy

- Defensive Programming
- Conscious structure of code
  - SOLID principles



## Level 3 Strategy

- Defensive Programming
- Conscious structure of code
  - SOLID principles
- Tight feedback loops



## Level 3 Strategy: Culture of learning – Reduce FEAR!

- Mistakes and failures are learning opportunities
- Ensure people understand they will be supported
- Put in place processes to reduce risk and protect people
- Actively encourage people to seek improvements





## Random cache corruption

- Used Xdebug to find it was a 3<sup>rd</sup> party module zapping the cache



## Random cache corruption

- Used Xdebug to find it was a 3<sup>rd</sup> party module zapping the cache
- Used Redis Monitor to observe the config cache being written to
  - This revealed that when it was written to with bad data, it always came from the admin IP address



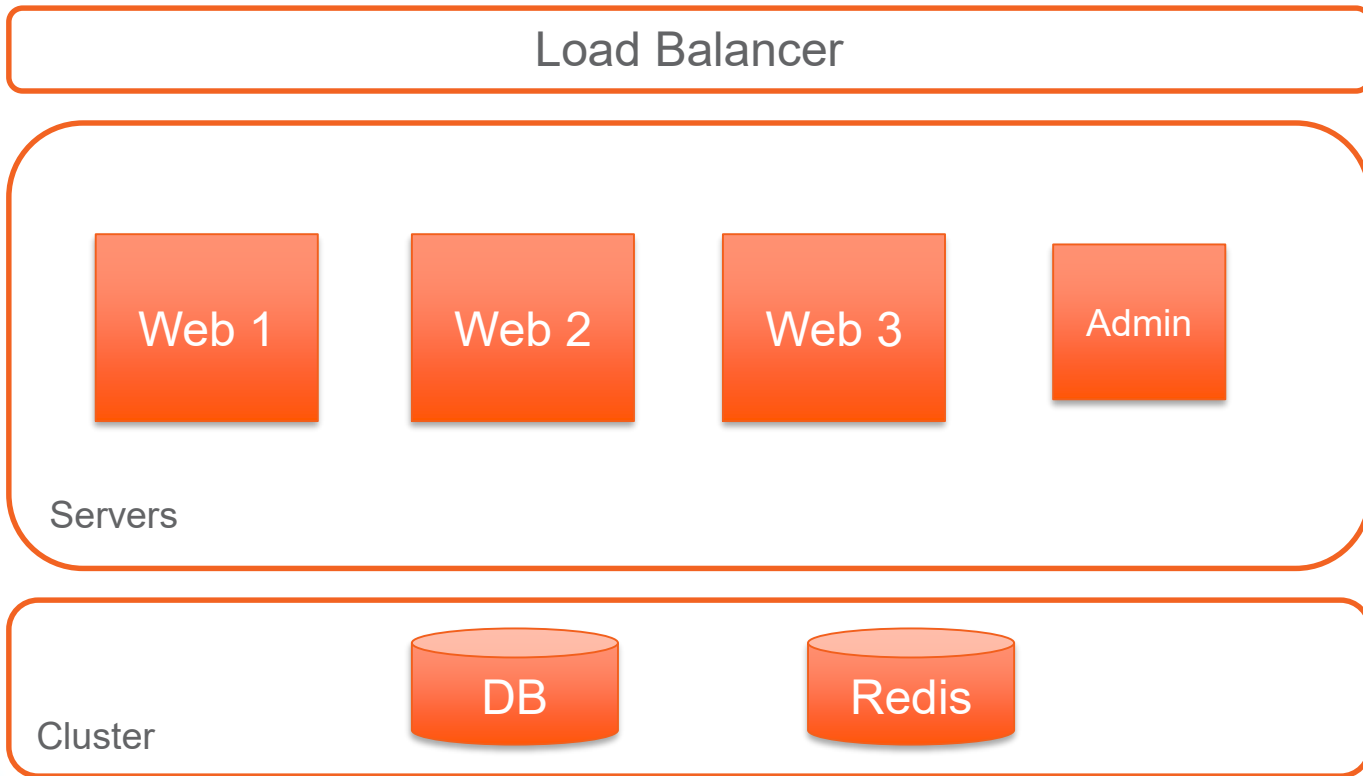
## Random cache corruption

- Used Xdebug to find it was a 3<sup>rd</sup> party module zapping the cache
- Used Redis Monitor to observe the config cache being written to
  - This revealed that when it was written to with bad data, it always came from the admin IP address

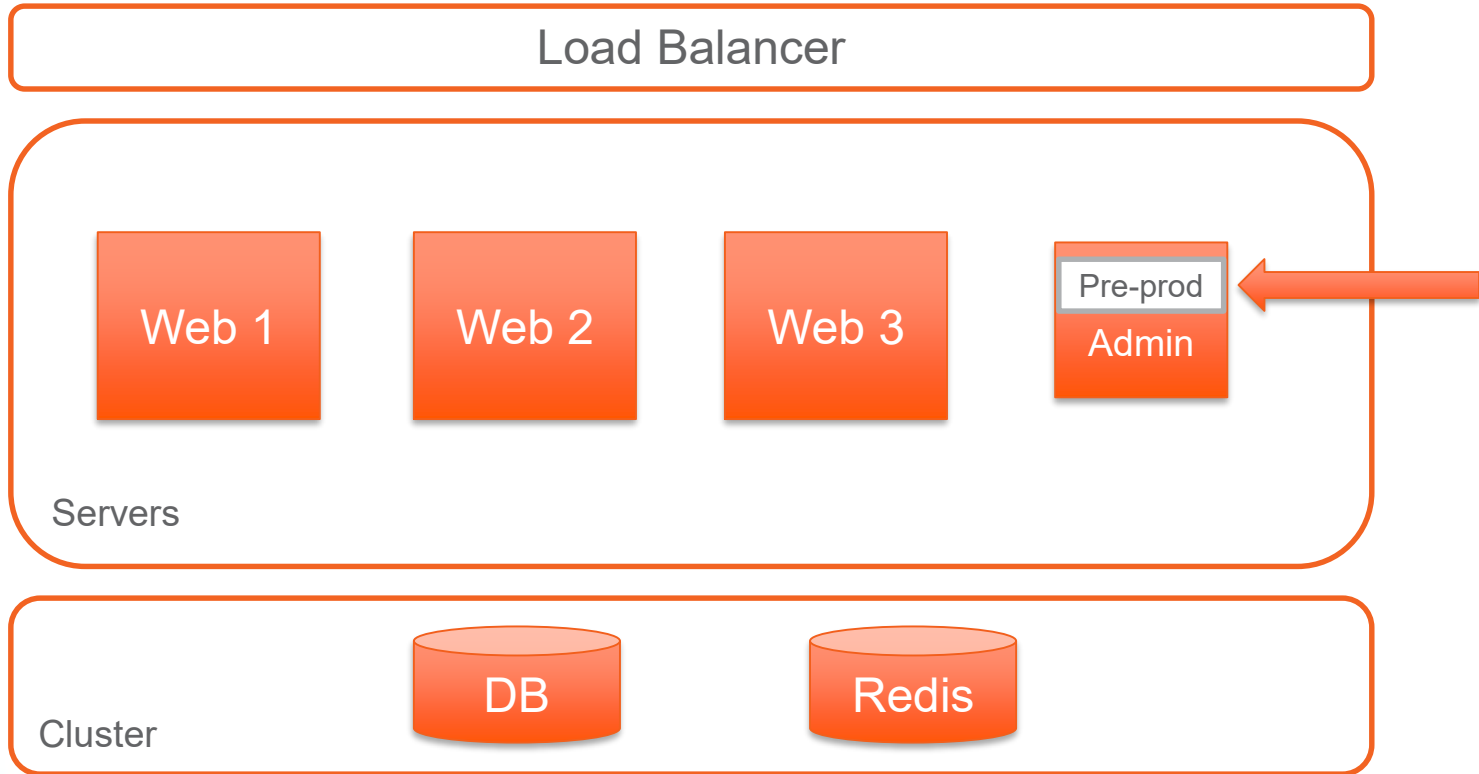
The old pre-production environment still existed!



# Multi-server setup



# Multi-server setup (pre-prod!!)



# Bonus Level

*Increasing efficiency*

# Bonus Level: The Pomodoro Technique

- 25 minute cycles



## Bonus Level: The Pomodoro Technique

- 25 minute cycles
- At each break, question progress and approach





## Bonus Level: The Pomodoro Technique

- 25 minute cycles
- At each break, question progress and approach
- Encourages focus and reduces chances of going “down the rabbit hole”



# Thank you!

- Any Questions?



@tonegolf71

Follow me!

Don't miss it!



Manchester  
10<sup>th</sup> November 2018  
@MageTitans



Magento**Live**

Europe | 2018