



# **Upgrading the backend database of a £3 billion business website on a Friday afternoon with Ansible**

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Quru

AnsibleFest – Austin, TX – 2018



1. How did you get started with Ansible?
2. How long have you been using it?
3. What's your favorite thing to do when you Ansible?

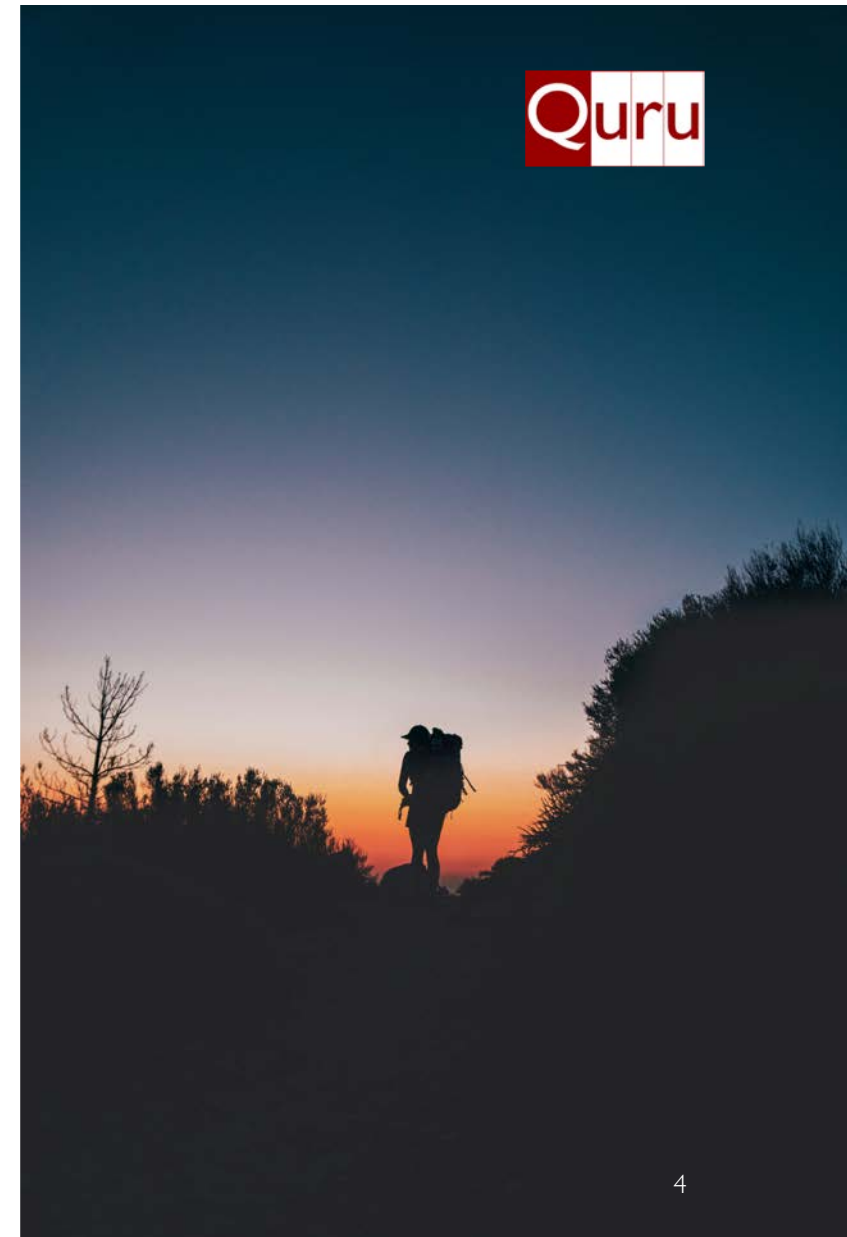
#ANSIBLEFEST

# About Quru

- 10 years old this year
- Open Source Specialist
  - Development
  - Sales – Red Hat Premier Partner
  - Own products
  - Consulting
- Clients include Experian, Sports Direct, Tesco, easyJet, ABN Amro...

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# Online businesses





# SPORTS DIRECT.COM

## **Sports Direct International Plc**

- UK's largest sporting goods retailer by revenue
- Currently one of the UK's retail success stories
- £3.4b (US\$4.4b) revenue 2018
- Omni-channel retail business
  - Stores in every town
  - Significant online presence

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# Staff are your most valuable asset

- Use them wisely
  - Innovating vs. Fire-fighting
- Average hours worked in United States per worker
  - 1,780 hours per year (OECD)
  - (~45 weeks, 5 days @ 7.9 hours)
- UK
  - 1,681 hours per year (OECD)
  - (~45 weeks, 5 days @ 7.5 hours)
- Staff work for 20% of trading hours only





# What is it about Fridays?

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- Accepted practice not to perform changes on a Friday
- In case things go wrong....
  - Human error
  - Testing disparities
    - Live environment != Testing
- SLA's may not cover weekends
- Overtime



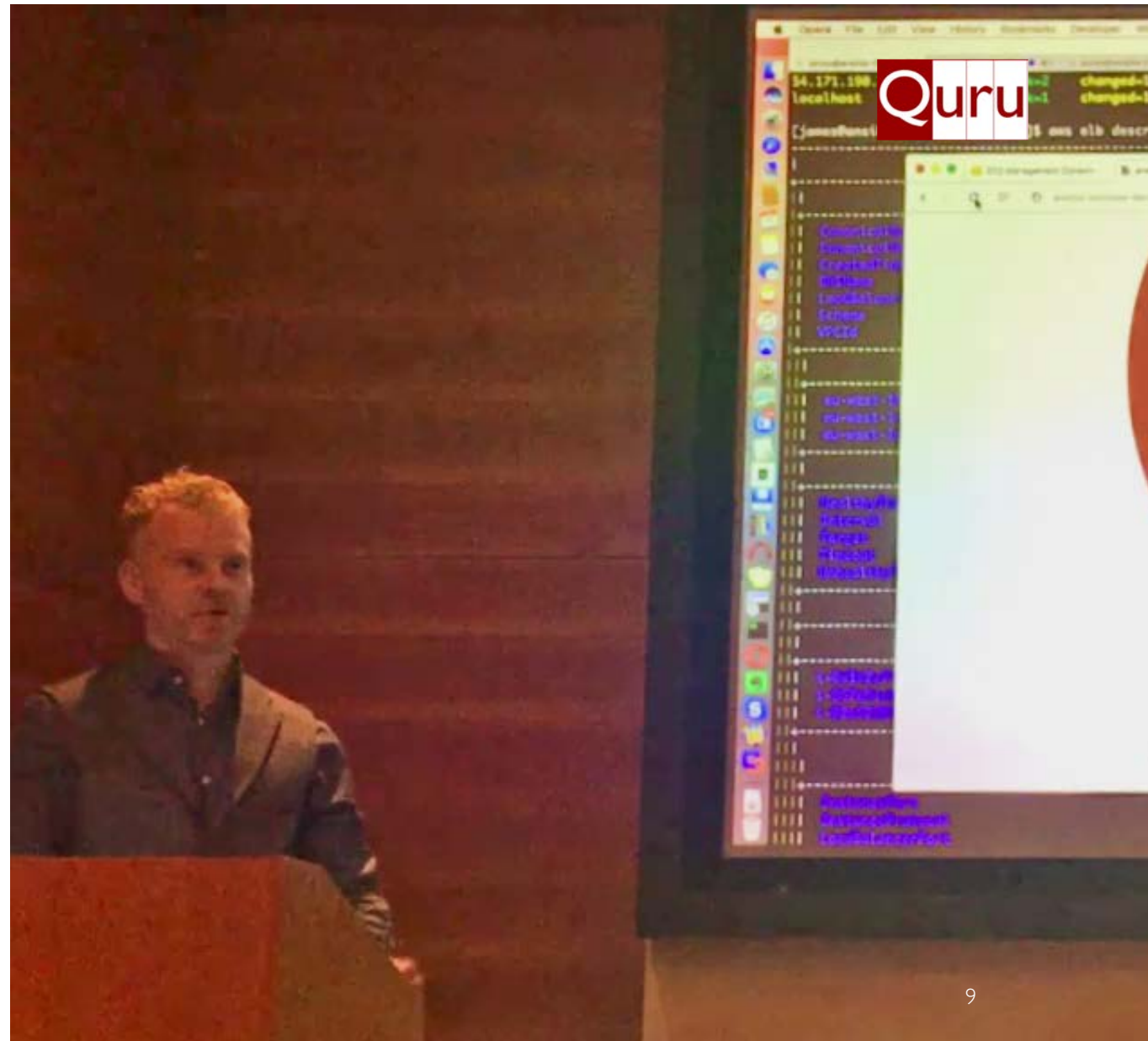
# **Impact of no changes on Fridays**

- Assume average employee is working 45 weeks per year
- Suddenly – 45 working days lost per year for change work
  - US – 1,420 hours per year (~16%)
  - UK – 1,343 hours per year (~15%)



# Should I be doing this?

- James Freeman
  - M.Eng (Hons)
  - C.Eng
  - ACGI
  - MIET
  - RHCSA
  - RHCE
  - RHCVA
  - RHCSAA
  - Reiki Master Teacher
  - ...



# What would I be doing?

- Build and deploy new code:
  - Copy across sources
  - ./configure
  - make
  - make install
  - service <whatever> restart
- Call someone and see if it works
  - Hopefully before network operations call you
- Am I capable of doing this?
- Have I broken things before?

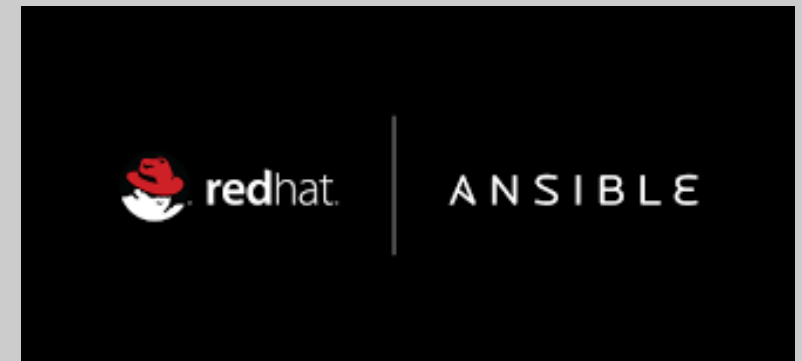
# What would Sports Direct do?



- Massive database cluster containing hundreds of nodes in total
- Flash backed
- Upgrade process – in principle:
  - Take node out of service
  - Upgrade
  - Test
  - Put back in service
- Upgrade process – each node:
  - Copy across sources
  - ./configure
  - make
  - make install
  - systemctl restart database.service
- And repeat...

# Enter Ansible

- Changes become:
  - Repeatable
  - Testable
  - Documented
  - Version controlled
  - Faster to complete
  - Opportunities for error are reduced
- No agent deployment required





# Enter Ansible Tower or AWX

- Rich ACL's
- Low barrier to entry for Operations Staff
  - Run “Upgrade Production Cluster” template
  - Or
  - `ansible-playbook -i inventory --limit production --tags upgrade_database site.yml`
- Auditability
- Accountability

# Ansible at Sports Direct



- AWX and Ansible
- Code built in to RPM
  - Ansible can distribute or pull from a central source (e.g. Red Hat Satellite)
- Time to install, configure and perform knowledge transfer:
  - < 1 day
- End result
  - 60 node back-end database upgraded successfully on a Friday late in May 2018

# Technically...

## 2 plays

One to update the OS, apply latest security patches and reinforce hardening policies  
One to upgrade database, application stack  
~25 lines of code

## Supplements Red Hat Satellite 6

Improve user experience

James Freeman – AnsibleFest - October 2018



# **Upgrading by Ansible is now standard practice at Sports Direct**



ANSIBLE

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# Benefits to staff



- Applies to Sports Direct and any business implementing
  - Save time on repetitive/manual tasks
  - Increases productivity
  - Reduced chance of human error
  - Changes performed in test environment will be the same in production
    - ...if same playbooks/variables are used
  - Improved collaboration
  - Improved job satisfaction

# Organisational benefits

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- Better use of existing resources
  - More time for innovation
  - Less time on menial tasks
- Increased morale in teams
- Increased accountability
- Improved auditability
- Increased compliance
- Fridays are back!



# Increased productivity

- Good business process still applies
  - Check your SLA's
- If the old ways of working were giving you ~15% by hours
  - What is possible now?
- Sports Direct Database upgrade
  - Previously spread across multiple days
  - Completed in segments
  - Now < 3 hours
- Productivity improvement - ~200% or more

**There is no excuse not to do  
this...**