Surviving the Grand National

A story from the trenches
The Grand National

9th April 2016
Some Grand National facts...

• Started in 1839
• Nearly 7km long (4 miles 514 yards)
• 30 fences jumped, over 2 laps
• Highest prized jump-race in Europe
• Up to 40 horses
• The favourite has only won 9 times in the last 70 years
• Highest bet traffic of the year
A normal weekday
A normal weekday
A normal Saturday
Grand National day
Account / SSO
Infrastructure
Data analytics
... and others
Account / SSO
Infrastructure
Data analytics
... and others
The “Bet” Tribe
The “Bet” Tribe - Technology

Architecture  Engineering  Operations
The “Bet” Tribe - Technology

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Load test cycle

- Load test
- Implement fixes
- Identify problems
Load test cycle

1. Expertise
2. Load test
3. Implement fixes
4. Identify problems
Problems found in load testing

- NFS performance
- Account API memory leak
- Virtual CPU layout issue
- and... performance of the load injectors
Load tests only tell you about things you’re expecting

If the world was predictable, there wouldn’t be a betting industry...
Unexpected events...

Leicester City wins the Premier League

Horse races get cancelled

Competitor websites fail
Unexpected failures

- Payment gateways fail
- Banks fail
- Identity verification services fail
- Network transit links fail
- Storage backends (e.g. SANs) fail
- ISPs fail
- Customer services systems fail
Unexpected failures

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Slowing down is worse than failing!
Grand National timeline

3pm - 4pm: Football quiet period
4pm - 5pm: Football settlement

3pm - 4pm: Grand National busy bet placement
4pm - 5pm: GN settlement

Danger zone!
The day itself
Two important things

Have a plan

Have a good team
Two important things

Have a plan

Have a good team

... and let them do their job
Team structure

Coordinator

Point-of-contact

Point-of-contact

Point-of-contact

Point-of-contact
Team structure

- Web servers
- Databases
- Trading systems
- Network
- Storage
- Compute power
- Account
- etc
Team structure
Team structure
So, what went wrong?
Risk-management system
Risk management system

New = “Orwell”
Risk management system

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Old = “Not cool enough to have a name”
Risk management system

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Redis memory usage
Redis
What happened during the danger zone?
Grand National day
Lessons learnt

• Small, trusted teams
• Good preparation
• Lean, fast decision-making chain
Lessons learnt

- Small, trusted teams
- Good preparation
- Lean, fast decision-making chain
- Everyone likes a successful day!
Thanks for listening!

Image credits:
“Grand National in Leeds”: Tom Hudson