10 Years of Failure

How Racecar Teams and SREs Deal With Complex Problems

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Who am I

- LinkedIn SRE for 3 years on API, web & mobile SRE team
- Amateur race car driver for over 10 years
- Both are very similar!
24 Hours of Lemons

- Race series for $500 cars
- Team of 4-6 people, everyone works on the car
- Very similar to being a SRE :D
- Building a reliable, resilient system
- Driver stints (oncall)
- Incidents
- Working sessions
Early work

Entire focus was on the car

- Tuning
- Fixing
Fix car
Fix car again
Fix car again, again
Problem => Fix. Win?
Almost
Eventual win
Our model changed
Complex Systems vs Complicated Systems
Complex Systems

- Stochastic - effects of changes are not proportional, a small change may have massive impact.
- Run in degraded mode.
- There is no root cause for incidents - complex systems have many safeguards, so failure requires many contributors.
- Many dynamic events occurring all the time and interacting.
- Localized changes have unintended changes in other areas.
- Same starting conditions can produce different outcomes.
Sound Familiar?
We are dealing with complex systems
Complex systems require a different approach
Tips for handling complex systems
Understand the pressures involved
Go beyond ‘root cause’

● ‘Contributing factors’ is a better label
● Pursue ‘second stories’ - look at systems and processes involved
Search for systemic issues

- Look for gaps
- Record ‘close calls’ - these are indicative of systemic issues
- Encourage teammates to bring up problems
Understand that people create safety

- Every day people make decisions that create safety in complex systems
- People are the largest source of adaptive capacity in systems
- Invest in them
This is the first step
Next steps
To Learn More

Papers:
● How Complex Systems Fail
● https://www.learningfromincidents.io/
● https://github.com/lorin/resilience-engineering
Thank You