

Chaos Engineering:

Getting out of the starting blocks

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What currently prevents the wide adoption of chaos engineering in your organization?



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I have some serious questions for you Twitter. What currently prevents the wide adoption of chaos engineering in your organization?

[#SRE](#) [#AWS](#) [#Serverless](#) [#Software](#) [#ChaosEngineeing](#)

Hard to start.

24.3%

Enough chaos in prod!

45.7%

Cultural issues (blame)

20.8%

Other - comment

9.1%

514 votes · Final results

Why is production chaos?



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The results of the survey are out!!

"Hard to start." - 24%

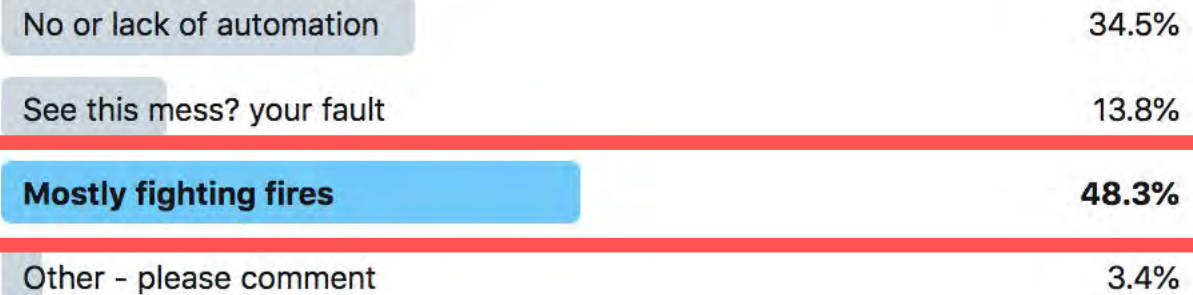
"Enough chaos in prod!" - 46%

"Cultural issues" - 21%

Thank you everyone who participated 🙏

A follow up question for you:

Why is production chaos?



116 votes · Final results



#0 - DON'T CALL IT CHAOS ENGINEERING.



#0 - ~~DON'T~~ CALL IT ~~CHAOS~~ ENGINEERING.

#1 - DON'T FOCUS ON CHAOS ENGINEERING,
LOOK AT THE BIGGER PICTURE.



Good intentions never work [...]

Because people already had
good intentions



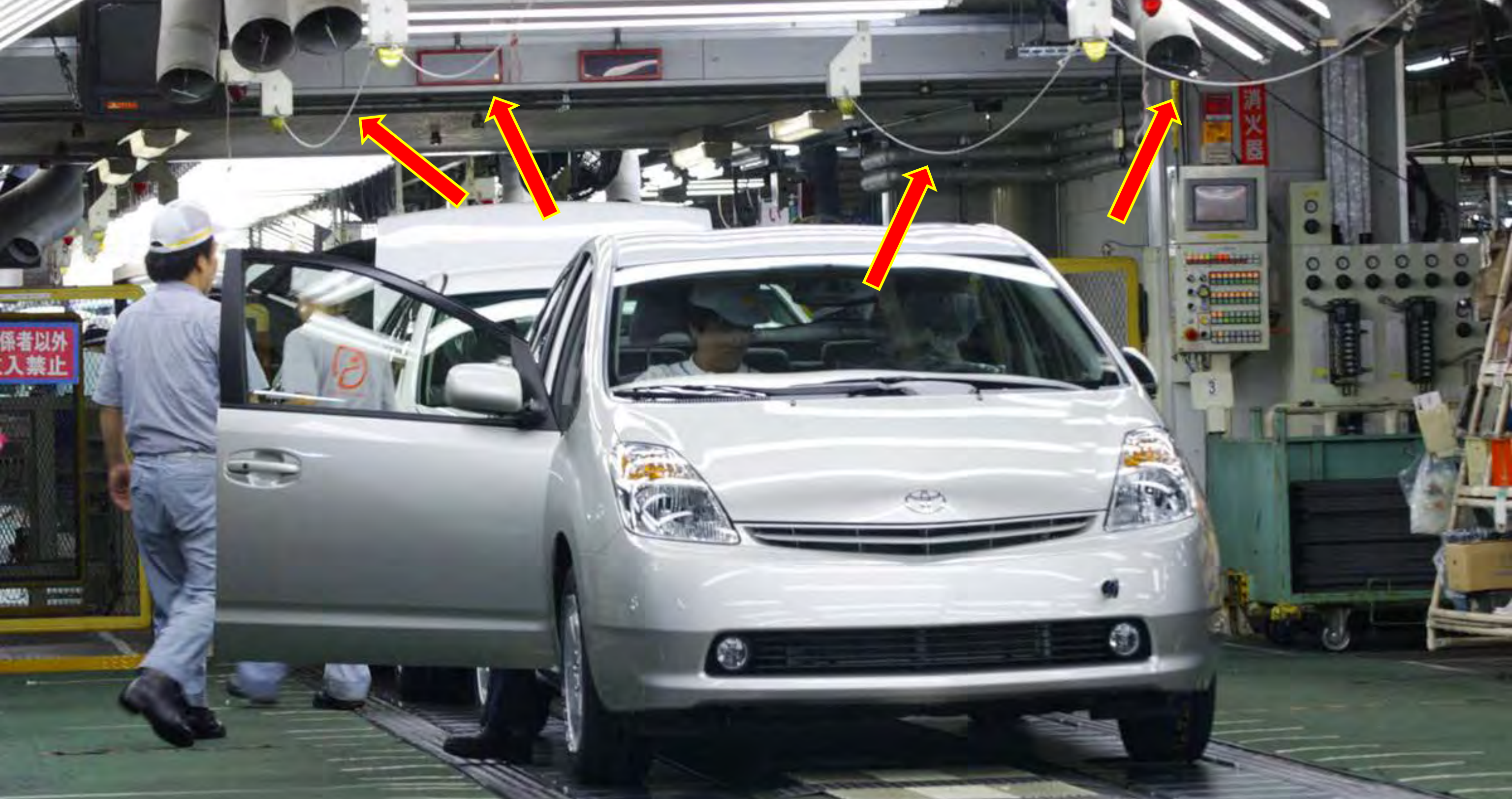
If good intentions don't work,
what does?

The Andon Cord

1902



Toyota will not allow any defect that they know about to go down the manufacturing line.



Source: <http://www.autoexpress.co.uk/toyota/prius/34615/japanese-earthquake-hits-car-production>

Andon Customer Service



Microsoft Xbox 360 Wireless Controller
for Windowsby [Microsoft](#)

★★★★☆ (131 customer reviews) | 6 answered questions

Note: This item is only available from third-party sellers
([see all offers.](#))

14 used & new from \$24.00

[See all buying options](#)

Have one to sell?

[Sell on Amazon](#)[Add to Wish List](#) ▾

- Erroneously listed recharge cable as included
- Andon cord pulled and page corrected
- **Contacts per unit go from 33% to 3.7%**

Hello,

We're contacting you about your recent attempt to purchase "The Wolverine". We recently learned that a technical issue may have prevented you from being able to watch this video. We're very sorry about this.

To help make it up to you, we've issued a £3.48 for this order. The refund will be applied to your original order payment method and should complete within the next 2-3 business days.

We look forward to seeing you again soon.

Sincerely,
Customer Service
[Amazon.co.uk](https://www.amazon.co.uk)

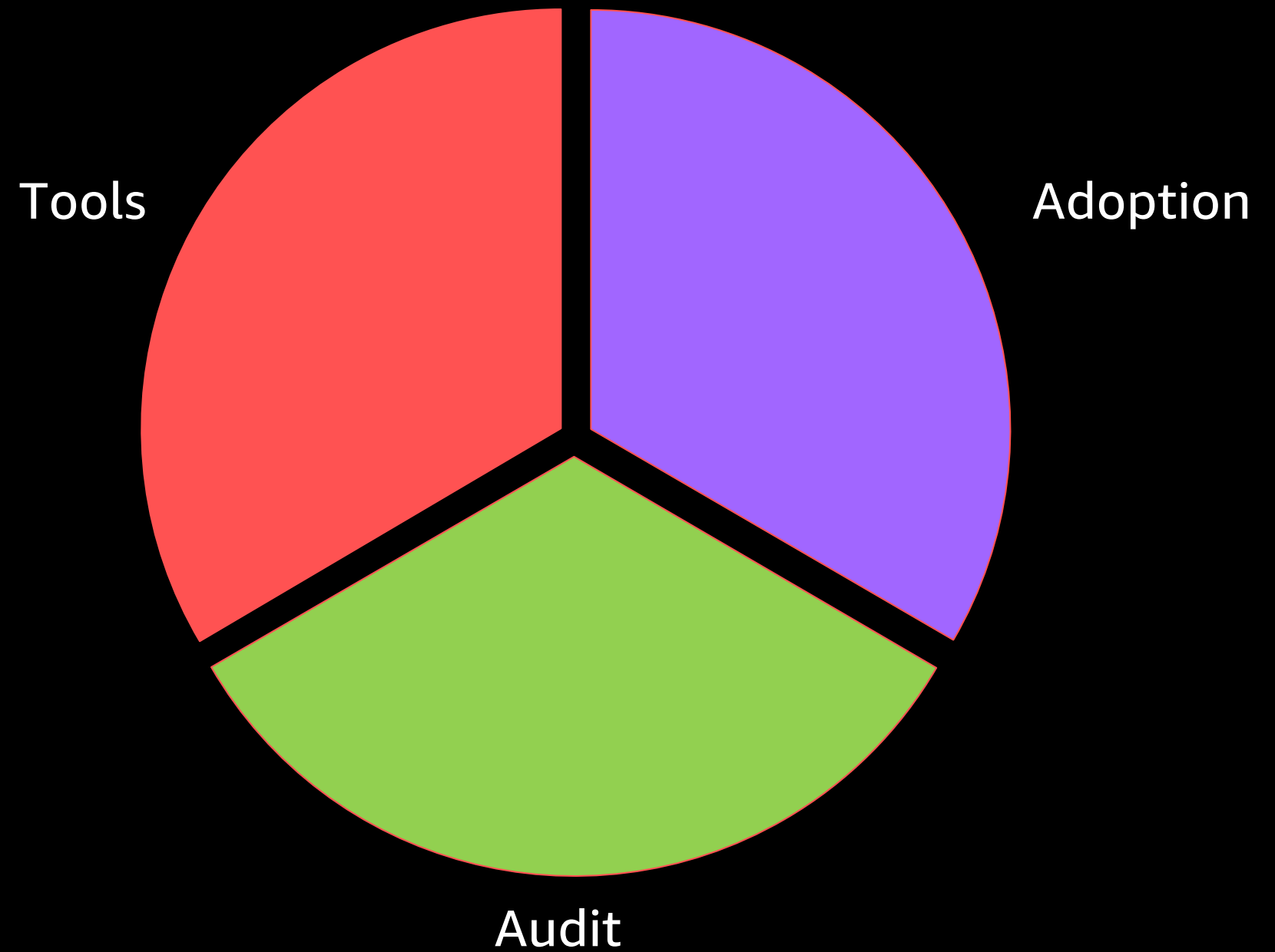
Please note: this e-mail was sent from a notification-only address that cannot accept incoming e-mail. Please do not reply to this message.

"Good intentions never work, you need good mechanisms to make anything happen."

Jeff Bezos

People have good intention to start
with!

Good Mechanisms \approx Complete Processes





#2 - CHANGE BEGINS WITH UNDERSTANDING.

What are the top 5 “painful” reasons
for your fires?

1. It is always DNS
2. Configuration drift
3. SSL Certificate expiration
4. Deployment failure
5. Failed link to 3rd party provider

Anatomy of a COE

- What happened?
- What was the impact on customers and your business?
- What were the contributing factors?
- What data do you have to support this?
- What lessons did you learn?
- What corrective actions are you taking?

Audit

Weekly Operational Metrics Review

- Continuous inspection mechanism
- Maintains focus on operations
- Foundation of a healthy operations program

Typical Agenda - typically divided into fifteen-minute slots

- Share successes and failings
- Action items follow up
- Review COEs
- Review key service metrics
- Identify new best practices

Policy Engine

- Automated risk and opportunity analyzer
- Identifies potential risks to availability, infrastructure, security and more
- Highlights opportunities to optimize resource utilization
- Extensible and configurable
- Provides a view into policy compliance
- Allows acknowledgment
- Reports roll-up the organization hierarchy

Mechanism to propagate local learnings globally



#3 - CHOOSE YOUR TROJAN HORSE.

Find the right team to start with:

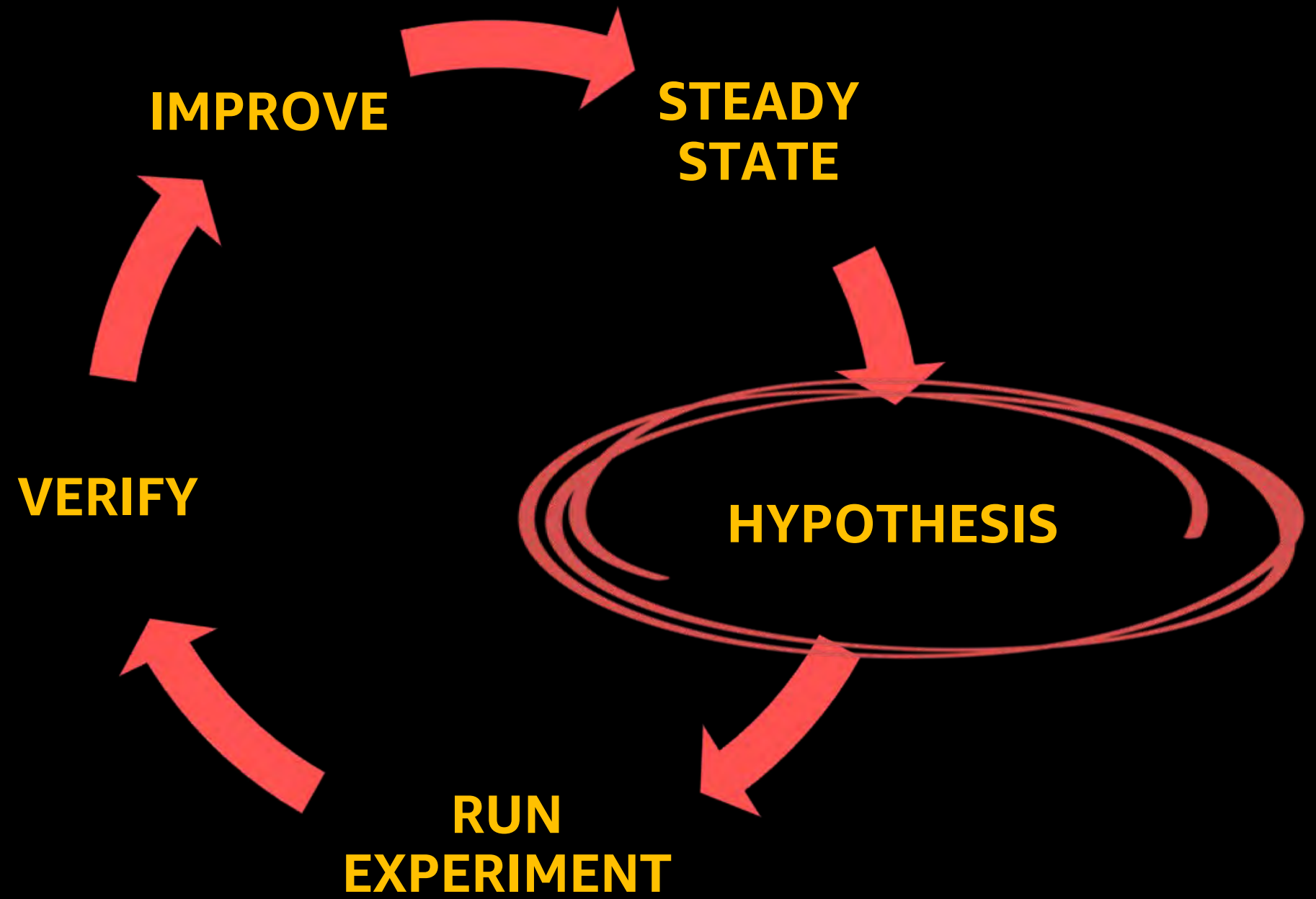
Not the best (*improvements are harder*)
Not the worse (*they have bigger problems*)

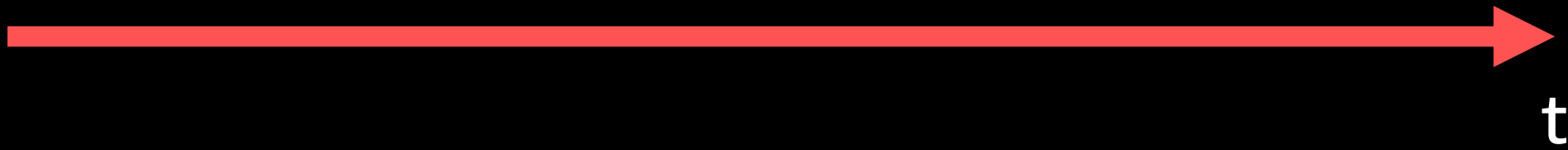
Choose the metrics to measure improvement:

MTTR is always a good default.

A group of people are gathered around a table in a workshop or classroom setting. In the foreground, a person with dark hair tied back, wearing a red scarf and a light-colored shirt, is focused on drawing on a large sheet of paper with a yellow marker. The table is cluttered with various supplies, including a green cup, a container of markers, a pair of scissors, and a smartphone. Other people are visible in the background, some sitting and some standing, engaged in conversation or observing the work. The overall atmosphere is collaborative and creative.

#4 - OVER-INDEX ON THE HYPOTHESIS.





CONVERGENCE



DIVERGENCE



A wide-angle photograph of a beach at sunset. The sun is a bright, glowing orb on the horizon, casting a long, shimmering reflection on the wet sand. The sky is a gradient of orange and yellow. In the foreground, the sand is covered in intricate, wavy ripples that catch the low light. In the distance, a line of people is visible on the beach, and the ocean waves are gently breaking.

#5 - INTRODUCE CHAOS ENGINEERING
EARLY IN THE JOURNEY.

Start simple and local!!

```
$ docker stop 94a214bbeebd
```

DDoS yourself

```
$ wrk -t12 -c400 -d30s http://127.0.0.1/api/health
```


Burn CPU with Stress(-ng)

<https://kernel.ubuntu.com/~cking/stress-ng/>

```
$ stress-ng --cpu 0--cpu-method matrixprod -t 60s
```

Adding latency to the network

```
$ tc qdisc add dev eth0 root netem delay 300ms
```

Blocks DNS resolution

```
$ iptables -A INPUT -p tcp -m tcp --dport 53 -j DROP
```


A close-up photograph of two hands, palms up, cupping a glowing, spherical fireball. The fireball is bright orange and yellow with visible flames. The hands are positioned symmetrically, one above and one below the fireball, against a solid black background.

#6 - BLAST-RADIUS REDUCTION MINDSET.



#7 - IF YOU HAVEN'T VERIFIED IT, IT'S PROBABLY BROKEN.



Verification:

1. Disaster Recovery & backups
2. Auto scaling
3. Multi-AZ
3. Fault tolerance & self healing
4. People

<https://github.com/adhorn>

[aws-lambda-chaos-injection](#)

Chaos Injection library for AWS Lambda

 Python  35  2

[chaos-ssm-documents](#)

Collection of AWS SSM Documents to perform Chaos Engineering experiments

 Shell  53  13

[aws-lambda-layer-chaos-injection](#)

AWS Lambda Layers to inject latency into AWS Lambda Functions

 Python  27  5

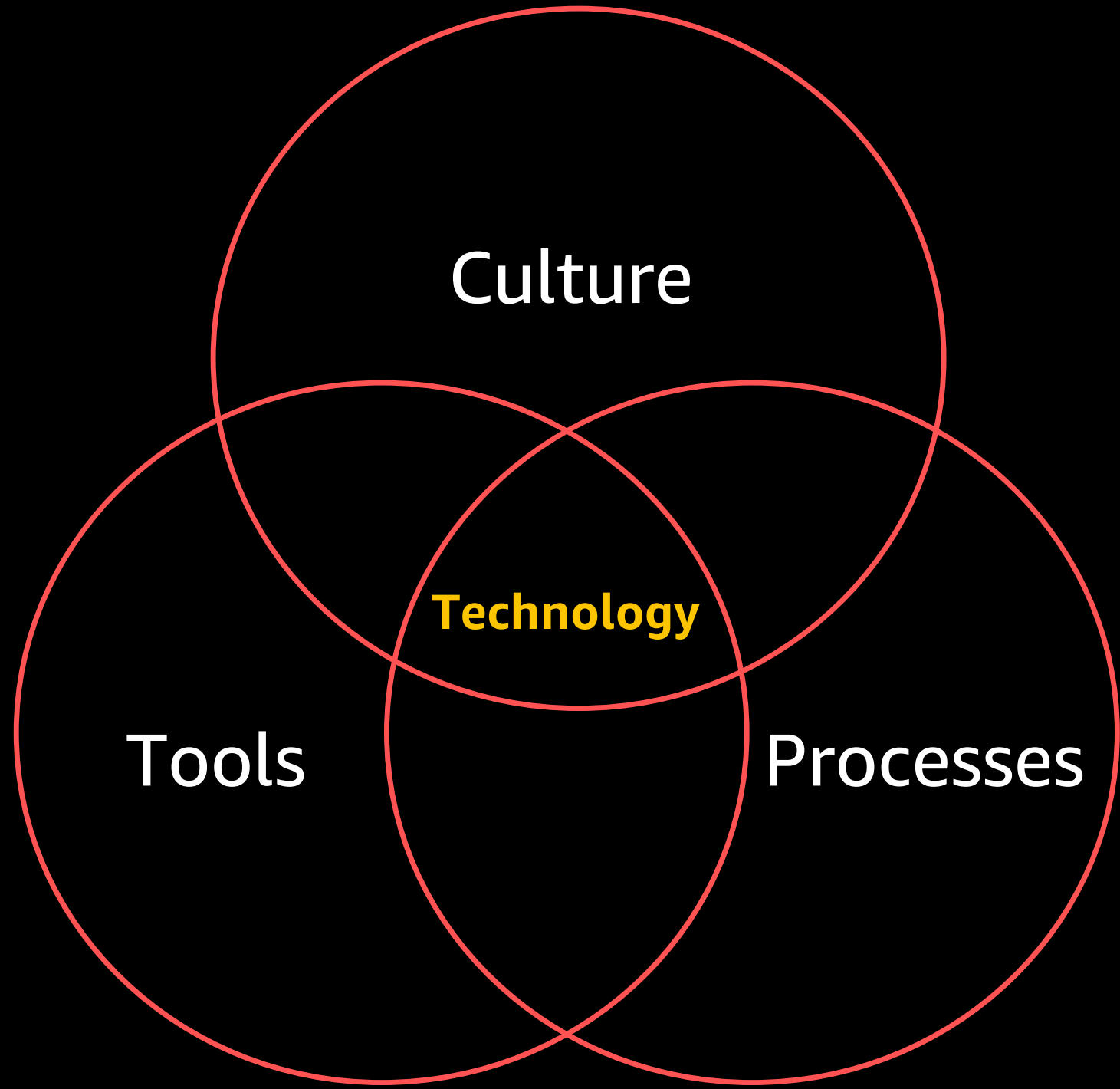
[aws-chaos-scripts](#)

Collection of python scripts to run failure injection on AWS infrastructure

 Python  27  3

A black and white photograph capturing the initial burst of a sprint race. Several male athletes are shown in mid-stride, leaning forward as they push off from their starting blocks on a track. They are wearing athletic singlets and shorts, with some bib numbers visible. In the background, a few spectators and officials are standing behind a metal barrier. The image is overlaid with a semi-transparent dark band containing white text.

Getting out of the starting blocks.



Thank you!

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<https://medium.com/@adhorn>

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