Chaos Engineering Working Group

A proposal for the CNCF

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A Chaos Engineering Haiku

We love our systems

They tend to fail all the time

Don't turn a blind eye

Based on true events!

A man takes security seriously.

2FA is setup on all his accounts

He's using Google Authenticator

Serious we say.

A lesson learnt

Phone dies (faulty battery, who could predict?)

"Oops!", the man says. Can't produce 2FA codes any longer.

Obviously, the man was careless and did not produce spare codes.

A lesson is learnt. One he shall never forget.

Don't bet on a single device for 2FA.

Shocking event occurs!

(New) phone is stolen.

"Hah!" the man says, "I'm using my laptop to generate codes!"

Phone was stolen in a foreign country and laptop is home.

"Oh!" the man says pointidely.

Worse part, all accounts are directly accessible on phone but can't be disabled because codes are needed to connect from different device.

Obviously, man was again careless and did not print spare codes.

A new lesson is learnt, "print stupid codes!"

To be continued

A point to this sophisticated story?

Unexpected events occur.

Getting familiar with the unexpected could save your bacon.

Sylvain Hellegouarch as "The man"

Let's start somewhere

Chaos Engineering is the discipline of experimenting on a distributed system in order to build confidence in the system's capability to withstand turbulent conditions in production.

Principles Of Chaos

Reference http://principlesofchaos.org/

Failure free operations require experience with failure

Recognizing hazard and successfully manipulating system operations to remain inside the tolerable performance boundaries requires intimate contact with failure.

How complex systems fail / Richard I. Cook

Reference http://web.mit.edu/2.75/resources/random/How%20Complex%20Systems%20Fail.pdf

Some context

Netflix - The Origins
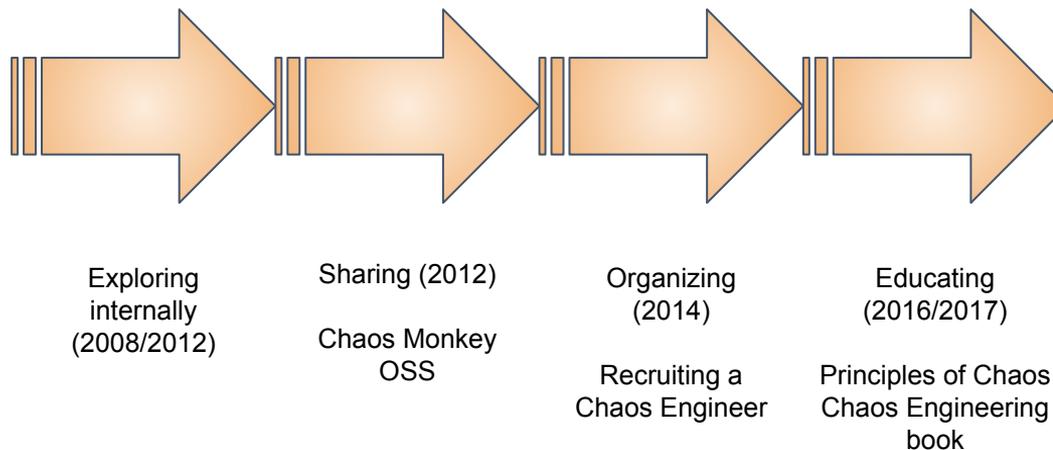
Exploring
internally
(2008/2012)

Sharing (2012)

Chaos Monkey
OSS

Organizing
(2014)

Recruiting a
Chaos Engineer

Educating
(2016/2017)

Principles of Chaos
Chaos Engineering
book

More details at: https://www.gremlin.com/community/tutorials/chaos-engineering-the-history-principles-and-practice/

Now, it's a whole world!

So why Chaos Engineering?

Cost of ignoring weaknesses existence exceeds cost of unearthing them proactively.

Pitfalls everywhere

Systems grow in complexity (so fast):

- More moving parts
- Interdependence: from inside and outside the system
- Changes at a fast pace
- Security not an afterthought anymore
- Stricter Regulations: GDPR
- Reliance on pieces we don't control
- Weaknesses have subtle ripple effects
- Blaming culture rather than questioning the system's potential for failure

Benefits of Chaos Engineering?

Proactiveness increases confidence in systems and trust in teams

Improves system availability and safety

Happy and trusting users!

Why a CNCF Working Group?

A natural encounter.

CNCF has laid solid foundations for **powerful community and industry collaboration**.

Chaos Engineering is a **socio-technical discipline** to learn about systems weaknesses **through experimental cooperation**.

Working Group Objectives

- Goals
  - Federate the industry and create educational material
  - Propose an industry-wide definition that users can make their own
  - Provide a white paper and update the CNCF landscape with a new category
  - Discuss the ethics of doing Chaos Engineering
  - Discuss, and potentially come up with, an API specification for platform and application native Chaos Engineering operations

- Non-Goals
  - This is not a standard body and we won't be creating standard
  - We will not try to bless one project over the other

Next steps?

- Listen to the CNCF community
  - On the CNCF Slack #chaosengineering channel

- Propose the Chaos Eng WG to the CNCF TOC in June/July
  - Organize regular meetups (stream-based)
  - Follow the CNCF rules regarding WG

Want to join the discussion?

[Please add yourself to the proposal if interested!](#)

[Join the first meeting](#)

Talk with the CNCF community on https://slack.cncf.io/ #chaosengineering

Join some of the public forums on the topic:

https://groups.google.com/forum/#!forum/chaos-community

https://chaosengineering.slack.com

United we stand better

Systems are **complex** and the **challenges we face**, as engineers, are overwhelming. We need to **come together and learn as a group**.

Thank you all for listening!