

Finding the in Chaos Engineering

Lenny Sharpe, Target
Ana Margarita Medina, Gremlin

Fun facts about us and our work at Target & Gremlin...



Chaos Engineering is
thoughtful, planned experiments
designed to reveal weakness in
your systems.

Chaos Engineering Experiments

Using the Scientific Method:

- Form a Hypothesis
- Experiment and Test It
- Analyze Results
- Expand Scope
- Share Results



GameDays are dedicated time
to come together to gain
insights, an opportunity to
execute one or more
experiments

The Cost of Downtime for the Top US Ecommerce Sites

Downtime is expensive, but for ecommerce companies an outage brings business to a standstill. To illustrate the impact of downtime, Gremlin used online revenue metrics³ to calculate just how much each second of downtime costs the largest and most well-known ecommerce retailers.

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SESSION TIMER

00

00

MINUTES

SECONDS

COMPANY	ESTIMATED ANNUAL ECOMMERCE REVENUE	REVENUE LOSS PER HOUR	REVENUE LOSS PER MINUTE	REVENUE LOSS THIS SESSION
 Amazon.com	\$115,879,000,000.00	\$13,219,128.00	\$220,318.80	\$0.00
 WalMart.com	\$21,443,900,000.00	\$2,446,272.00	\$40,771.20	\$0.00
 HomeDepot.com	\$7,613,000,000.00	\$868,464.00	\$14,474.40	\$0.00
 BestBuy.com	\$6,126,000,000.00	\$698,832.00	\$11,647.20	\$0.00

Where we started

**"Don't wait for your ticket to
the dance, just show up!"**

Josh Hardin



1,862

Stores

38th

Fortune 500

100K+

Mobile Devices

40

Distribution Centers

2

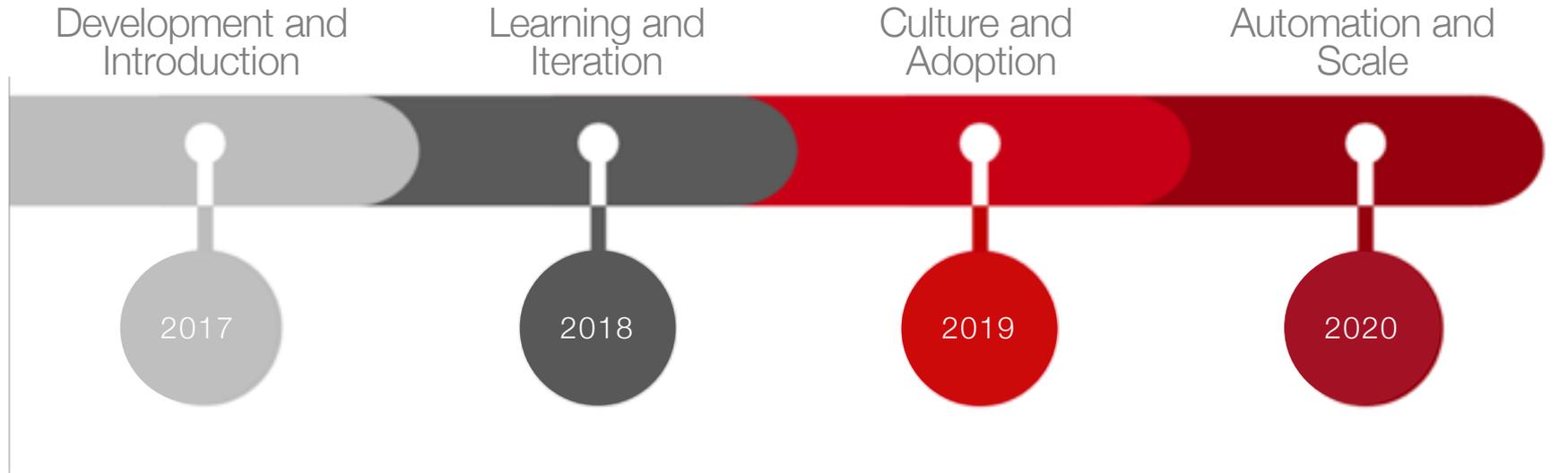
Enterprise Data Centers

5K+

Applications

It's not going to work

Let's Team Up & Introduce Chaos Engineering



In the Beginning...

Engineer Led

Service Focused

Manual Execution

Fire Drills





Safety

Expertise

Speed to value

Success!



So now we're experts



Target Resiliency Automation Platform

CHAOS ENGINEERING

TAKE-OUT, EAT IN
Restaurant

Watch our Master of Disaster
prepare Chaos Specials
for your Applications



Fast, Resilient Services

To place your orders,
please Slack us @
#chaos

Learn @ [go/chaos](https://go.chaos)

Chaos Specials

Served daily, when you least expect it

Resource

Impact cores, workers, and memory

- C1** CPU (Consumes CPU resources)
CPU attack with rice, spicy API sauce and a full heap!
- C2** Disk (Consumes disk space)
Disk attack with orange chicken
- C3** IO (Consumes targeted file system devices resources)
IO attack with veggies and fried rice
- C4** Memory (Consumes memory)
Memory attack with lobster sauce

State

Process killer, shutdown, and time travel

- C5** Process killer (An attack which kills the specified process)
Process killer with beef and broccoli and your choice of rice
- C6** Shutdown (Reboots or shuts down the targeted host OS)
Extra spicy Shutdown attack with hot and sour fish soup and bad guest experience.
- C7** Time travel (Changes the system time)
Time Travel attack with shrimp and vegetables and black bean sauce

Network

Blackhole, latency, packet loss and DNS

- C8** Blackhole (Drops all matching network traffic)
Blackhole attack with spicy Kung Pao Shrimp and extra paging at 3:00 am!
- C9** DNS (Blocks access to DNS servers)
DNS attack with shredded pork with garlic sauce
- C10** Latency (Adds latency to all matching egress network traffic)
Latency attack with Mongolian beef, mixed vegetables, and extra MSG
- C11** Packet Loss (Introduces packet loss to all matching egress network traffic)
Packet Loss attack with Chicken Chow mein

CHAOS ENGINEERING

TRICK-OR-TRAP



Watch our Spell-Caster of Disaster
curse your application with chaos

cast your own spells @ go/trap/sandbox

Chaos Spellbook

curse, hexes, and charms meant to incite chaos

Resource Curses

impact cores, workers, and memory

name CPU
appearance Mixed reds, mix of greens
effect Consumes CPU resources

name Disk
appearance A dark, yellow dust
effect Consumes Disk space

name IO
appearance An intercom, one cup of fragments
effect Consumes targeted file system devices resources

name Memory
appearance A high clear tea
effect Consumes CPU Resources

State Hexes

Process killer, shutdown, and time travel

name Process killer
appearance A tea, multi-colored floating bean
effect A tea used to kill a specified process

name Shutdown
appearance A wild, red intercoming box of wires
effect Reboots or shuts down the targeted host OS

name Time Travel
appearance A yellow, circular particle wave
effect Changes the system time

Network Charms

blackhole, latency, packet loss and DNS

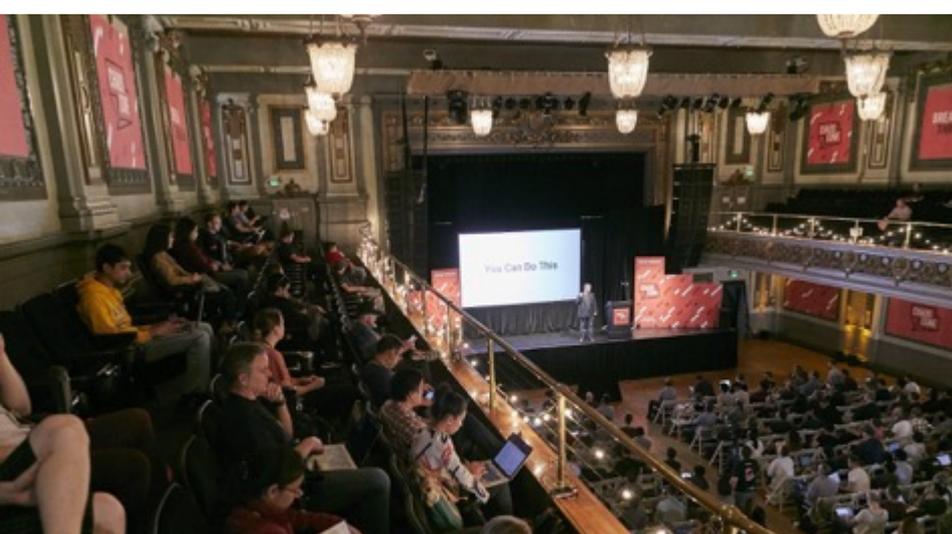
name Blackhole
appearance A pair, red rock of small spikes
effect Drops all matching network traffic

name DNS
appearance A wild, waves blast of particles
effect Blocks access to DNS servers

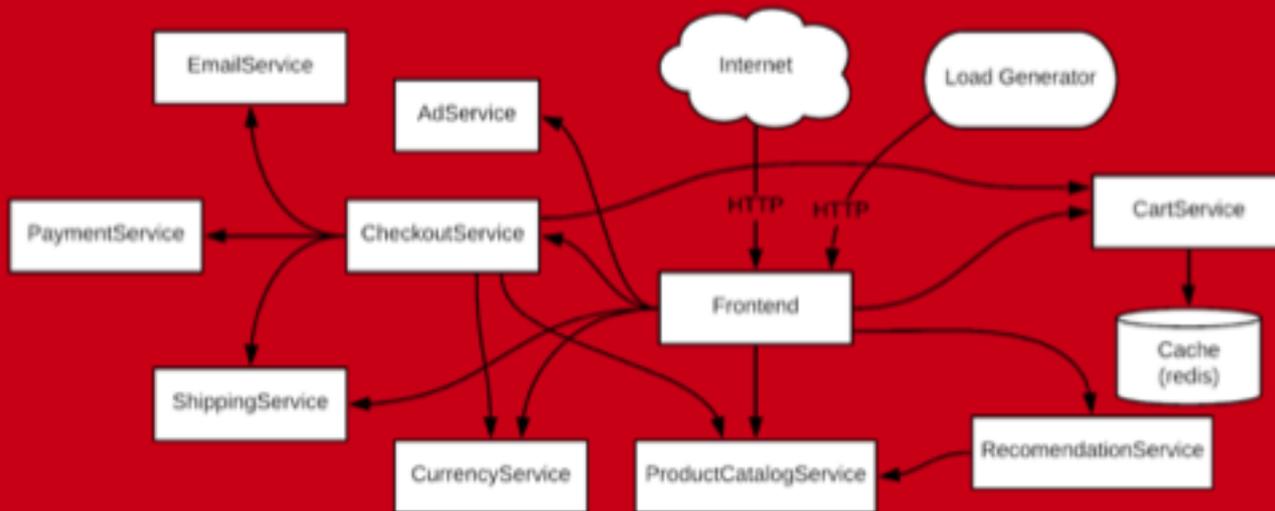
name Latency
appearance A waffle, red stream
effect A charm that introduces latency to all matching network traffic

name Packet Loss
appearance An intercom, colorful blast of particles
effect Introduces packet loss to all matching egress network traffic





Google Cloud Platform's Microservices Demo



One-stop for Hipster Fashion & Style Online

Tired of mainstream fashion ideas, popular trends and societal norms? This line of lifestyle products will help you catch up with the hipster trend and express your personal style. Start shopping hip and vintage items now!



Vintage Typewriter

Buy

USD 67.98



Vintage Camera Lens

Buy

USD 12.48



Home Barista Kit

Buy

USD 123.99



Recommended Chaos Engineering Experiments on Kubernetes

Resource Attacks (CPU) to test Auto-Scaling Policies on the Nodes, Pods or Containers

Network Attacks (*Latency, Packet Loss, Blackhole*) to test dependencies



The Road Ahead:

Increased OKRs around chaos experimentation

Continuous experimentation in production

Increased scope and scale

Machine Learning



“There will be many failures sprinkled among the successes you enjoy.”

Marv Levy

Join over 3000+ Engineers in the Chaos Engineering Community Slack

tinyurl.com/chaoseng



Ian Stockdale 6:26 PM

Hi all. I'm coming up to speed on chaos engineering, and looking forward to learning more here!



JOY

Thank You!

lenny.sharpe@target.com

ana@gremlin.com

