



Break it Till you make it

ShortStack Conf
3 Jul, 2021



Sayan Mondal, Software Engineer - ChaosNative






Sayan Mondal



@s_ayanide



@s-ayanide

Software Engineer at  **CHAOS NATIVE**

Contributor / Core Team member at



Litmus



Agenda

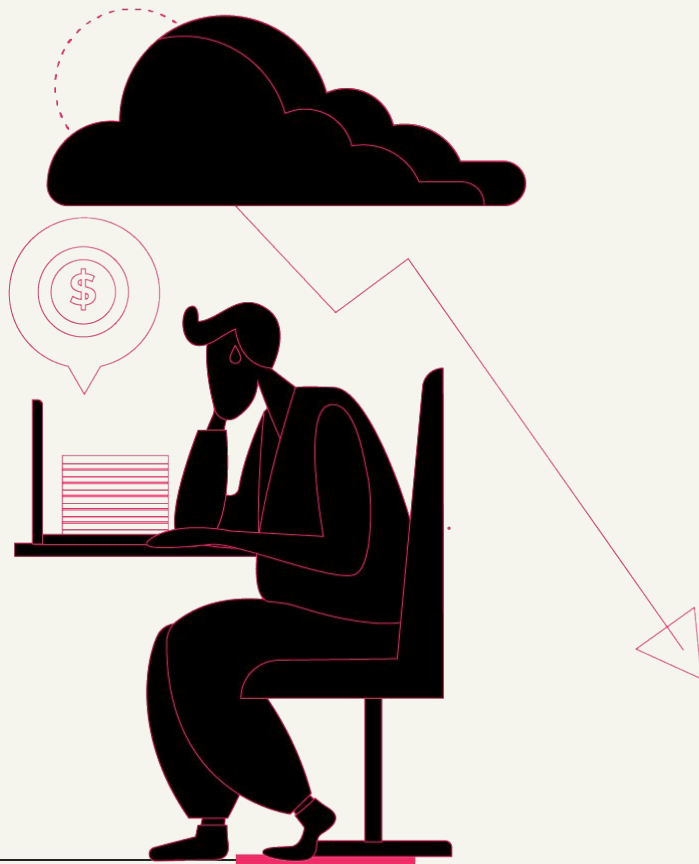
- Chaos Engineering
- Why do we need this? What are the problems?
- Cloud Native Chaos Engineering
- Different Tools in the market
- Litmus overview





Chaos Engineering



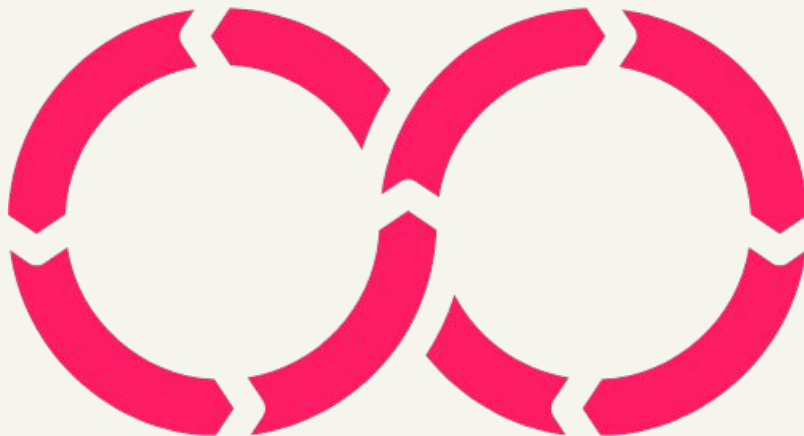


**DOWNTIMES ARE
EXPENSIVE**





Feedback loop can be activated by proactive testing in production



Test

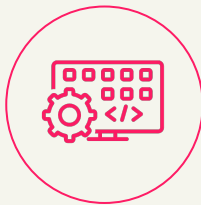
Don't
wait



How is it done typically?



Game Days



Rarely integrated into
CI or CD system



Only the SREs. Developers
do not engage in Chaos
Engineering



Manual Planning &
Execution



Chaos observability is not
a commodity, it is a
custom built stack at each
enterprise



Custom measurement
process for management to
see any results on increase in
reliability



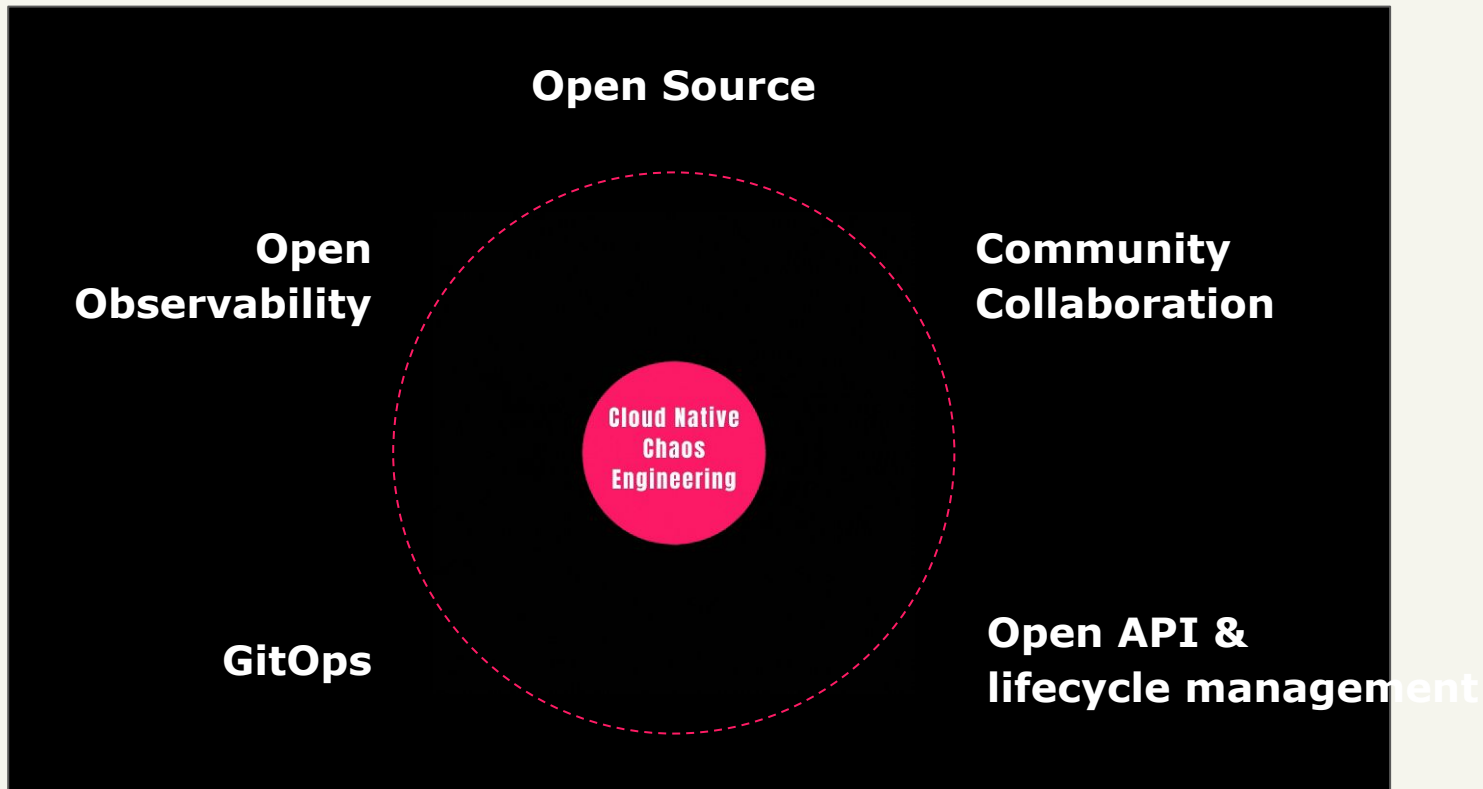


Cloud Native Chaos Engineering





Built on the foundation of CNCE





Different Chaos Engineering Tools out there

ChaosBlade

Pros:

- Has application level fault injection for Java, C++, Node JS
- Multiple ways of managing experiments

Cons:

- Language Barrier
- Lacks Scheduling, Safety Reporting

Chaos Mesh

Pros:

- Has a WebUI which can control experiments
- Support for CI/CD

Cons:

- Dashboard is not very secure
- Ad Hoc experiments run indefinitely

Chaos Toolkit

Pros:

- Full Control over experiments
- Built in logging and reporting

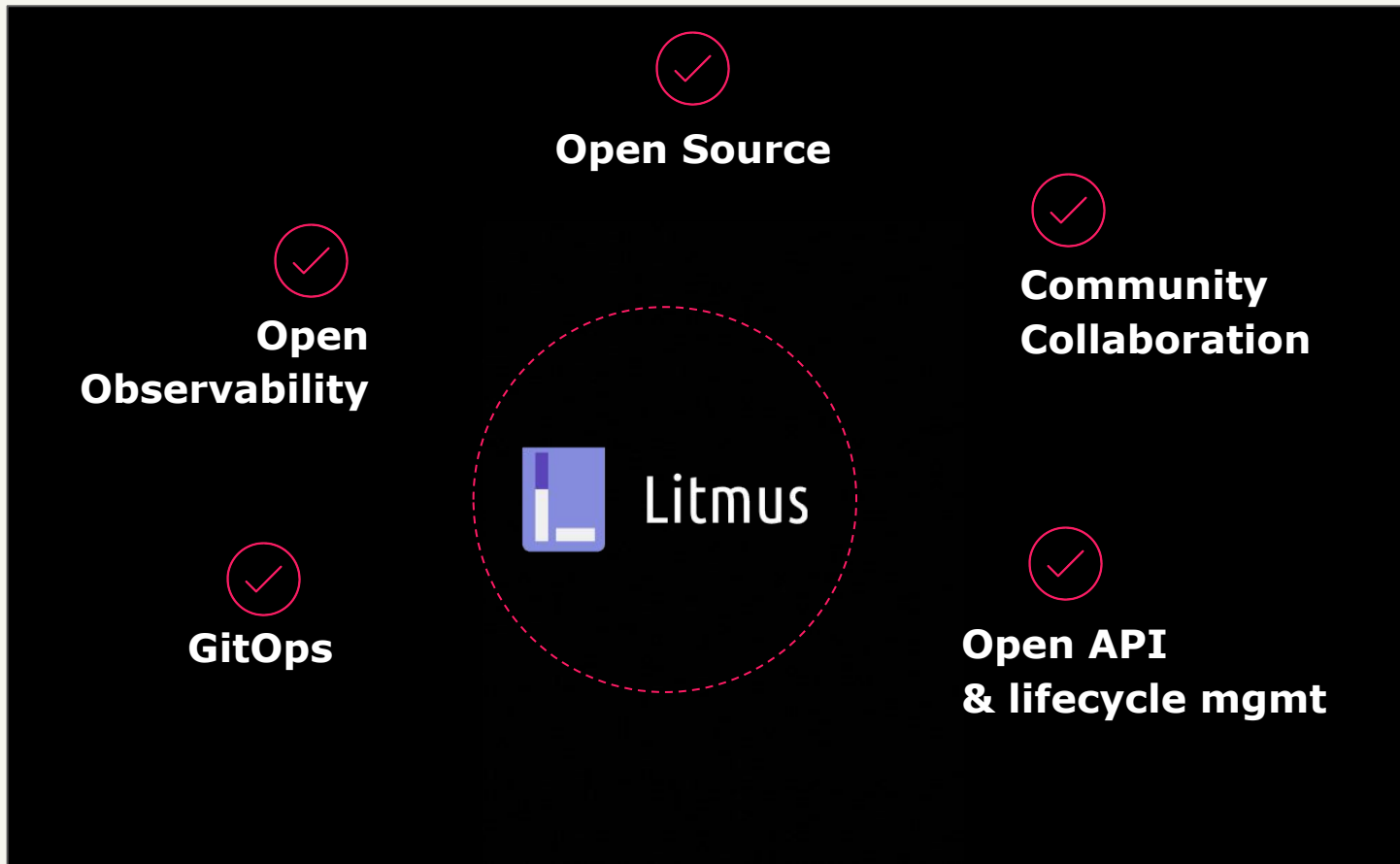
Cons:

- No native scheduling
- Limited Portability
- No easy way to run attacks on multiple system





Feature complete for CNCE - Adoption ready





Litmus Overview





What is Litmus?

Litmus is a toolset to do cloud-native chaos engineering.

Litmus provides tools to orchestrate chaos on Kubernetes to help SREs find weaknesses in their deployments.

SREs use Litmus to run chaos experiments initially in the staging environment and eventually in production to find bugs, vulnerabilities.






Experiments list


Pod Chaos	Node Chaos	Network Chaos	Stress Chaos	Cloud Services	Application Chaos
Pod Failure Container Kill Pod Autoscale	Node Drain Forced Eviction (Node Taints) Node Restart/PowerOff	Network Latency Packet Loss Network Corruption, Duplication	Pod, Node CPU Hog Pod, Node Memory Hog Pod, Node Disk Stress Pod Ephemeral Storage Fill	AWS EKS EC2 Termination AWS EBS Disk Detach GCP GPD Disk Detach	Kafka Leader Broker Failure Cassandra Ring Disruption OpenEBS Control Plane / Volume Failure

190.3k+ runs



generic/
all-experiments

2.2k+ runs




openebs/
all-experiments

2.1k+ runs




kafka/
all-experiments

2.2k+ runs



cassandra/
all-experiments

159 runs



kube-aws/
all-experiments





Litmus after you set it up



cloud/onprem
Chaos workflows

VMs/Baremetal
Chaos workflows

ArgoCD/
FluxCD
etc



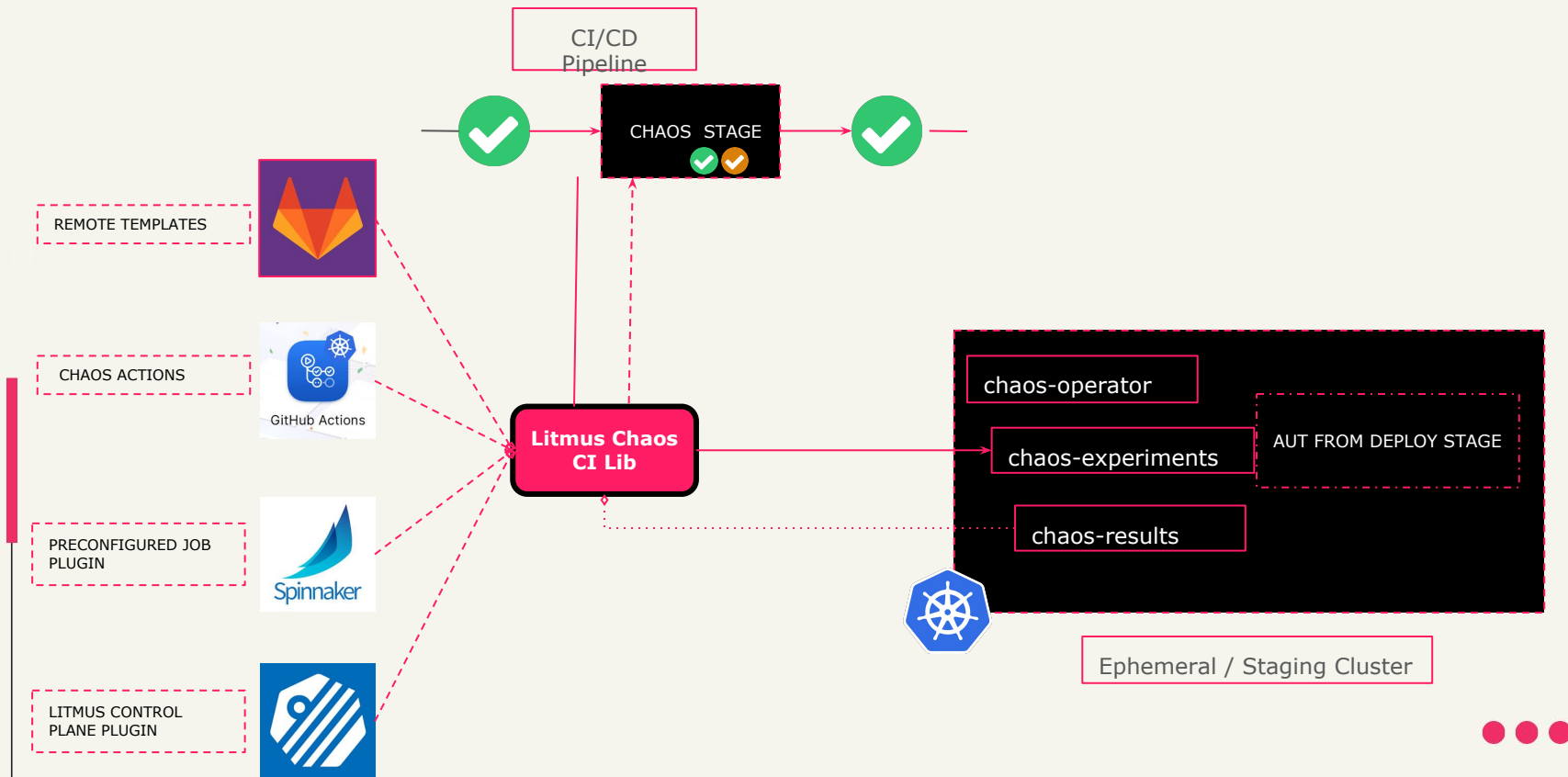
LitmusPortal

A public ChaosHub

A private ChaosHub

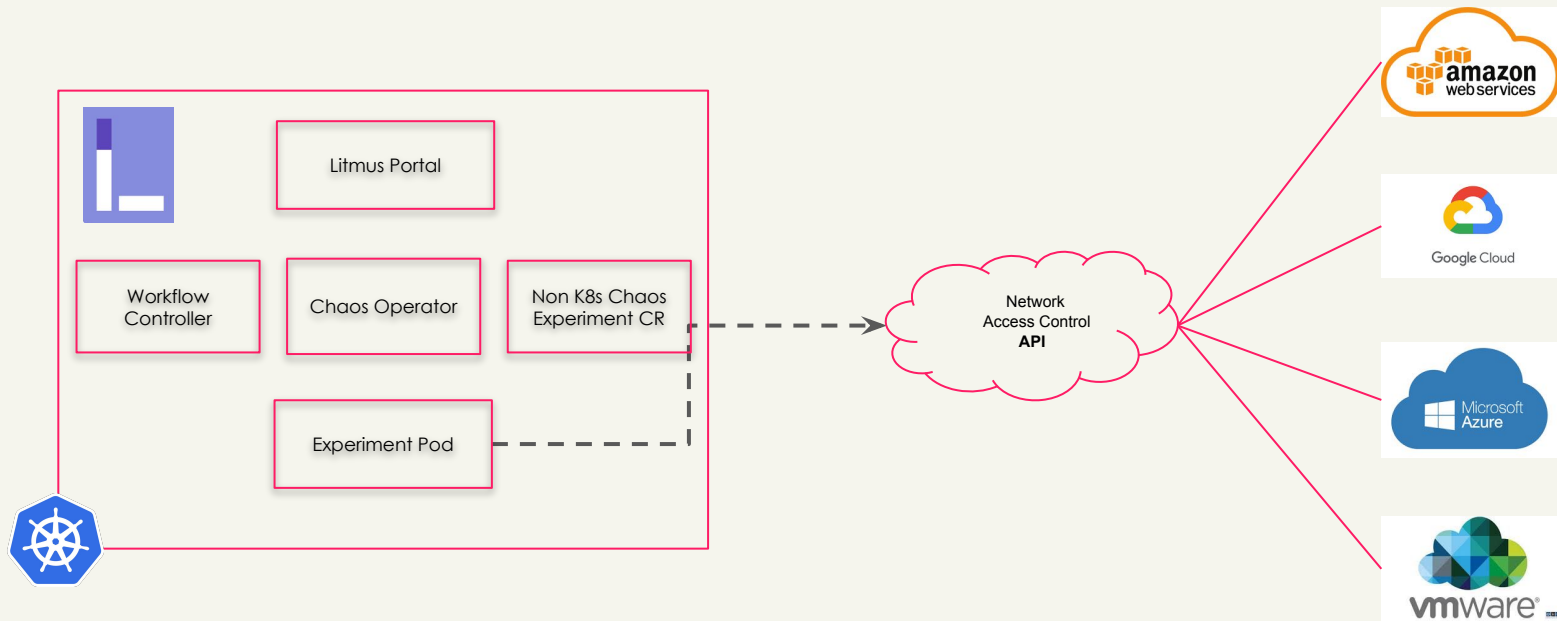


Chaos in CI pipelines





Litmus for non-Kubernetes chaos





Thank you

