SRE Enablement through Chaos Engineering

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Site Reliability Engineering 2023

Build solid systems to defend against intergalactic invaders!

HCL Cloud Native Labs

Accelerate the journey and enable change

Hybrid & multi-cloud

Vertical Industry Extensions
Telco/5G **NEW!**
Life Sciences & Healthcare
Financial Services

Industry showcase
Demonstrations
Complete hybrid, multi-cloud environments
E2E scenarios
DevOps& SRE journey
Kubernetes showcase
Production-grade configurations

Cloud Native Strategy
Roadmap and journey
Validation of vision
Business case
Vendor selection
Technology strategy

Cloud Native state of mind
Platform as a Product
Cloud Native Operations
Cloud Native Architecture
Cloud Native Software engineering
DevOps / SRE culture

Workforce Modernization
Developer / Engineer reskilling
SRE / PRE
Ways of working
Hands-on & pairing
Coaching
Certifications

Production showcase

Cloud Native engineering

Strategy & direction

Art of the Possible

CN Labs

Cultural Transformation

Adoption & Enablement

Rapid Enablement
Kick-starter projects
Proof-of-Concept
Technology prototyping
Development environments

Innovation
MVP Development
Rapid prototyping
AI / ML-infused apps
5G / Edge

Application Engineering
Replatform / Refactor / Rewrite
12 Factor development
Portfolio assessment
Modernization strategy
Containerization journey
Kubernetes / CNCF
API Management
Serverless
Service Mesh

XP / Lean / Agile

Frisco, London, Noida

kubernetes CERTIFIED SERVICE PROVIDER

CERTIFIED kubernetes APPLICATION DEVELOPER

CERTIFIED kubernetes ADMINISTRATOR

CLOUD FOUNDRY CERTIFIED SYSTEMS INTEGRATOR

CLOUD FOUNDRY CERTIFIED DEVELOPER

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SRE Services from Cloud Native Labs

100+
Customers

1000+
SRE enabled

SRE Enablement Services

- SRE SKILL ASSESSMENT
- SRE SKILL ENABLEMENT
- CUSTOM LEARNING JOURNEY
- CERTIFICATION
- PROGRAM MANAGEMENT

SRE Advisory Services

- SRE CONSULTING
- TOOL RECOMMENDATION
- CHAOS ENGINEERING
- OPERATIONAL MODEL
- AUTOMATION STRATEGY

Maturity assessment Services

- SRE MATURITY ASSESSMENT
- CORRECTIVE ACTIONS
- SRE SETUP HANDHOLDING
- ARCHITECTURE ASSESMENT
- AUTOMATION ASSESSMENT

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CNL Journey with Chaos Engineering

✓ Aug'21 Practice Build	✓ Oct'21 Enablement	✓ Nov'21 Experiments-1	✓ Oct'21 Experiments-2	✓ Dec'21 Chaos as code	✓ Feb'22 Part of CN Stack

20+ SRE Cohorts

Onwards implementation of Client Specific Use Cases..

100+ Client showcases
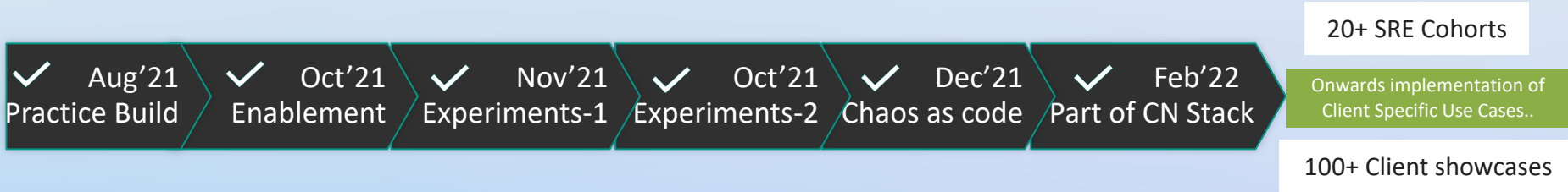
- ❖ Aug 2021 – Art of the possibilities around Chaos practice and and installation methods (Aug 2021- Sep 2021)
- ❖ Started Utilizing Chaos Engineering as part of Cloud Native Labs SRE Associate training path– Oct 2021
- ❖ Explore Simple Chaos Experimentations – Pod Delete , Node Shutdown etc scenarios in hands-on demos – Nov 2021
- ❖ Started exploring Complex workflow-based chaos experiment – Dec 2021
- ❖ Used in Various Client Demos for explaining and demonstrating Chaos Engineering in Cloud and Cloud Native environments – Jan 2022 till now
- ❖ 20+ SRE Cohorts completed around 1000 SRE's trained
- ❖ Chaos Environments showcased for 100+ clients engagements
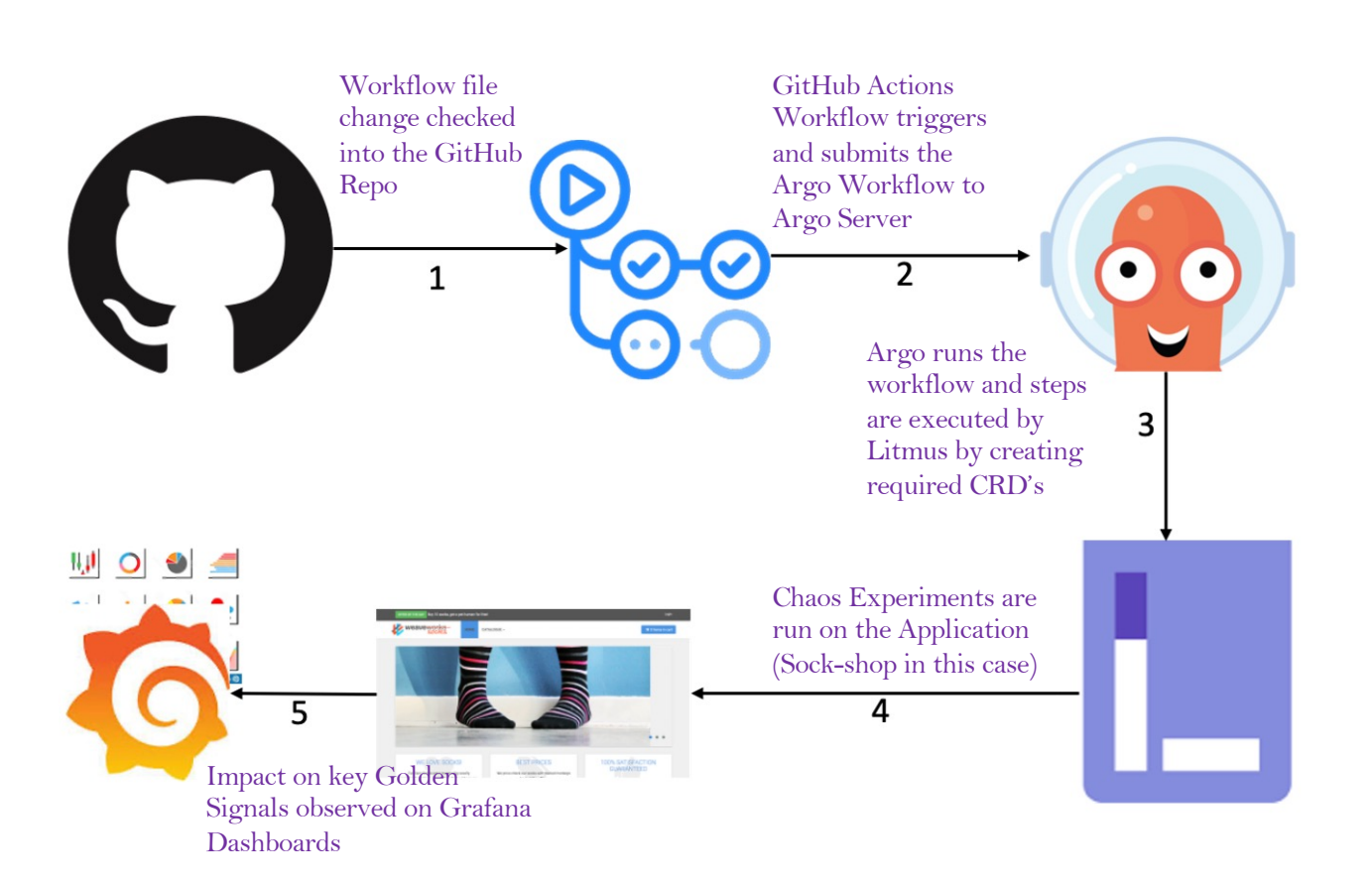
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Progression of Chaos Functionalities
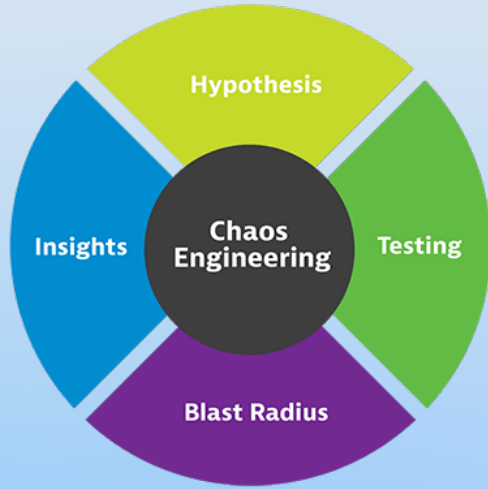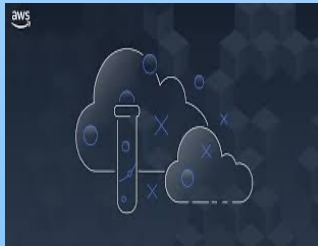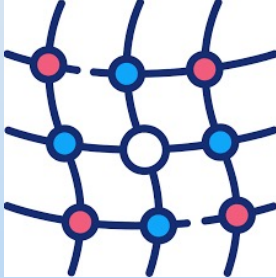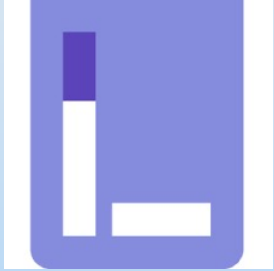

LEARNINGS THROUGH CHAOS

INCORPORATING CHANGES

- ❖ Simple Experiments – Manually Driven
- ❖ Complex Workflow based experiments
- ❖ ArgoCD Integration - Complete GitOps Based flows
- ❖ CI/CD Integration for Automated Chaos Experiments – Jenkins, GitHub Actions
- ❖ Technical Domains – Public Clouds (Azure, AWS), Kubernetes based environments, Private Cloud/On-Prem Based Chaos Experimentation

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Chaos Workflow Example with LitmusChaos

Workflow file change checked into the GitHub Repo

1

GitHub Actions Workflow triggers and submits the Argo Workflow to Argo Server

2

Argo runs the workflow and steps are executed by Litmus by creating required CRD's

3

Chaos Experiments are run on the Application (Sock-shop in this case)

4

Impact on key Golden Signals observed on Grafana Dashboards

5

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Key Points – Cloud Native Chaos Toolsets

- ➢ Open-Source with Enterprise versions

- ➢ Compatible with all flavors of K8s, k3s, managed k8s etc. as well as Cloud platforms

- ➢ Detailed API and CRD allowing complex logic/scenario implementations

- ➢ GitOps Support(Argo Workflow), Observability Support (Prometheus Exporter), GitHub Actions Support

- ➢ Great Documentation

- ➢ Enterprise version like Harness Chaos module, Gremlin, Azure Chaos Studio

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Experience the Chaos practices and Path for SRE enablement in context to your Organization.
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