LET'S TURN OFF THE DATABASE

CHAOS ENGINEERING @ PORSCHE INFORMATIK

Hello! I'm...

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MTD16 Graduate @ FH OÖ Hagenberg
in 08/2020

Java Software Developer @ Porsche Informatik
since 09/2020

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WTH is Chaos Engineering?


CHAOS

cha·os

noun /kāˈŏsˈ/

Source: Oxford Languages, thefreedictionary.com

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   ➡ compare Chaos theory

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01

WTH is Chaos Engineering?

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

principlesofchaos.org

Basic idea

01 Define a **‘Steady State’**

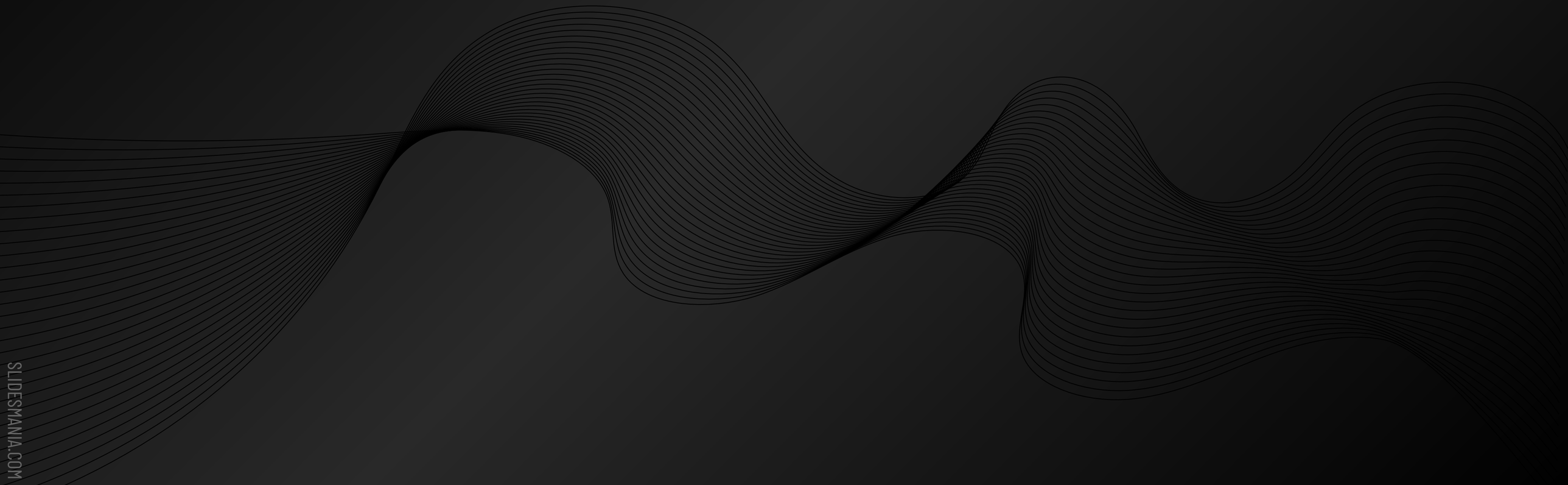
02 Create a **Hypothesis**

03 Introduce **Variables**

04 Check for **Differences**

As the effort required to disrupt a system increases, so does its reliability.

Advanced principles



Advanced principles

Base Hypothesis on Steady State

Focus on measurable outputs defined as steady state behavior. Verify that the system works, not how.

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Vary Real-World Events

Prioritize variables either by potential impact or expected frequency. Use events that happen in real life.

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Run Experiments in Production

Experiment directly on production traffic to guarantee authenticity and relevance of captured requests.

Advanced principles

Automate Experiments

Integrate automation into systems that manages both execution of experiments and their analysis.

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Integrate automation into systems that manages both execution of experiments and their analysis.

Minimize Blast Radius

Experimenting in production can affect customers. Any resulting fallout must be minimized and contained.

Advanced principles

Measurable Steady State

Use Real-Life Events

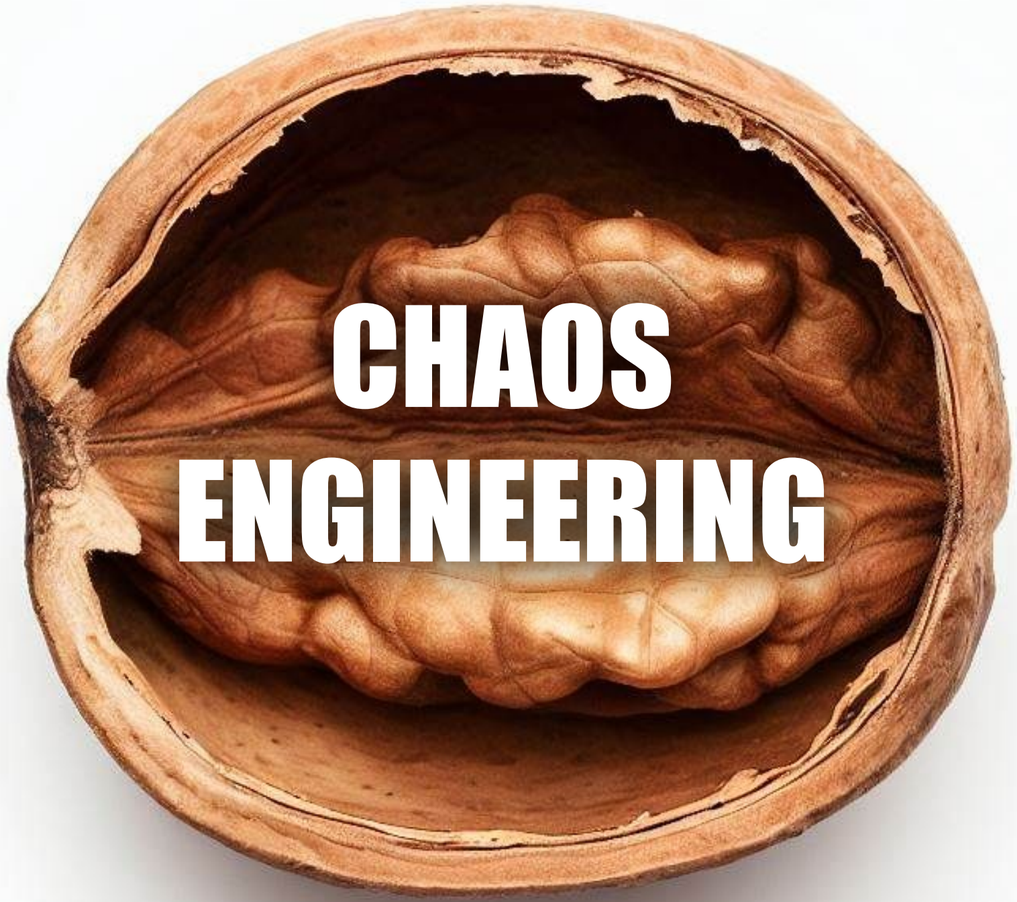
Test in Production

Automate Chaos Tests

Minimize Fallout

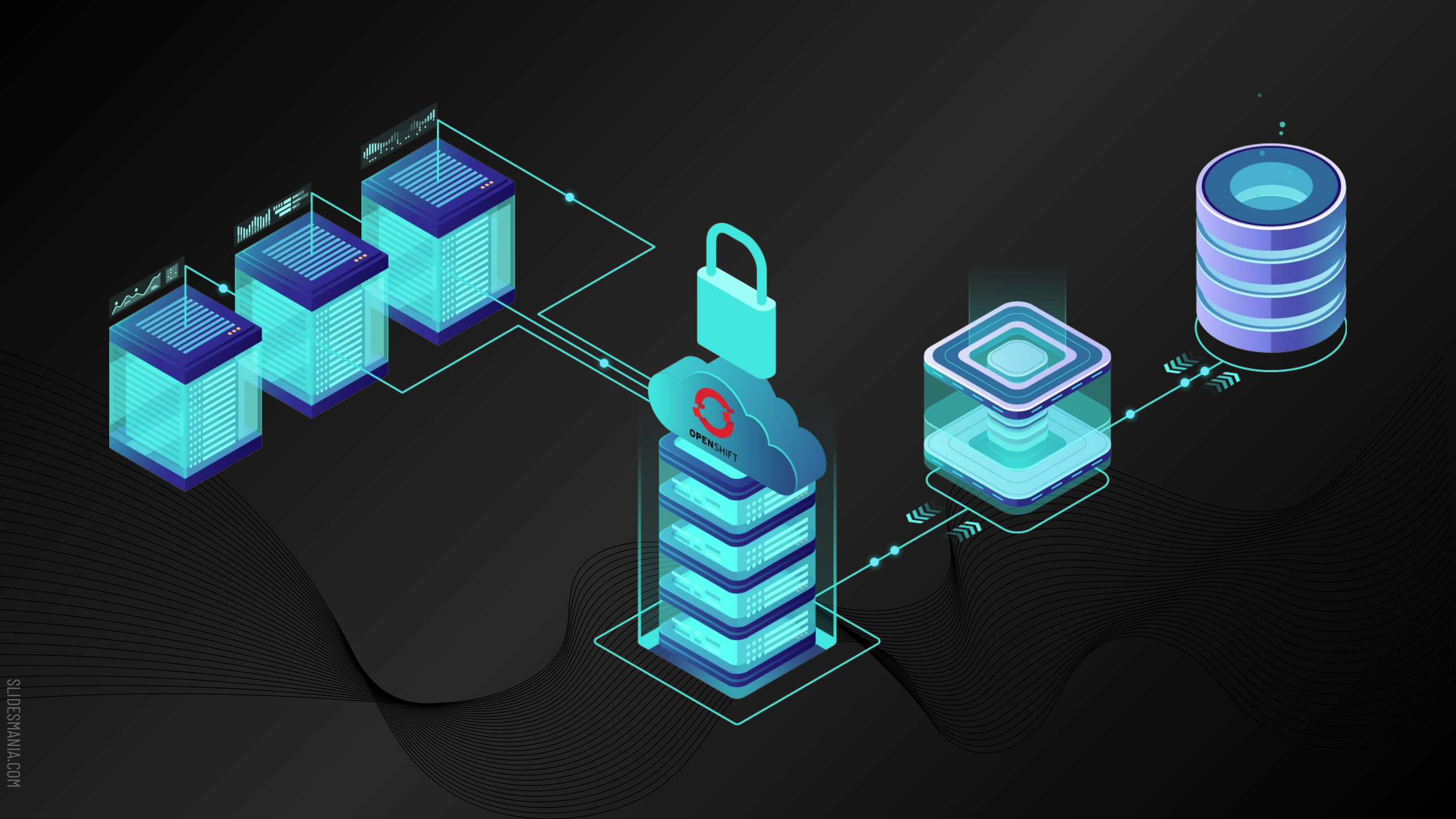
Where other practices address velocity and flexibility, Chaos [Engineering] specifically tackles systemic uncertainty in these distributed systems.

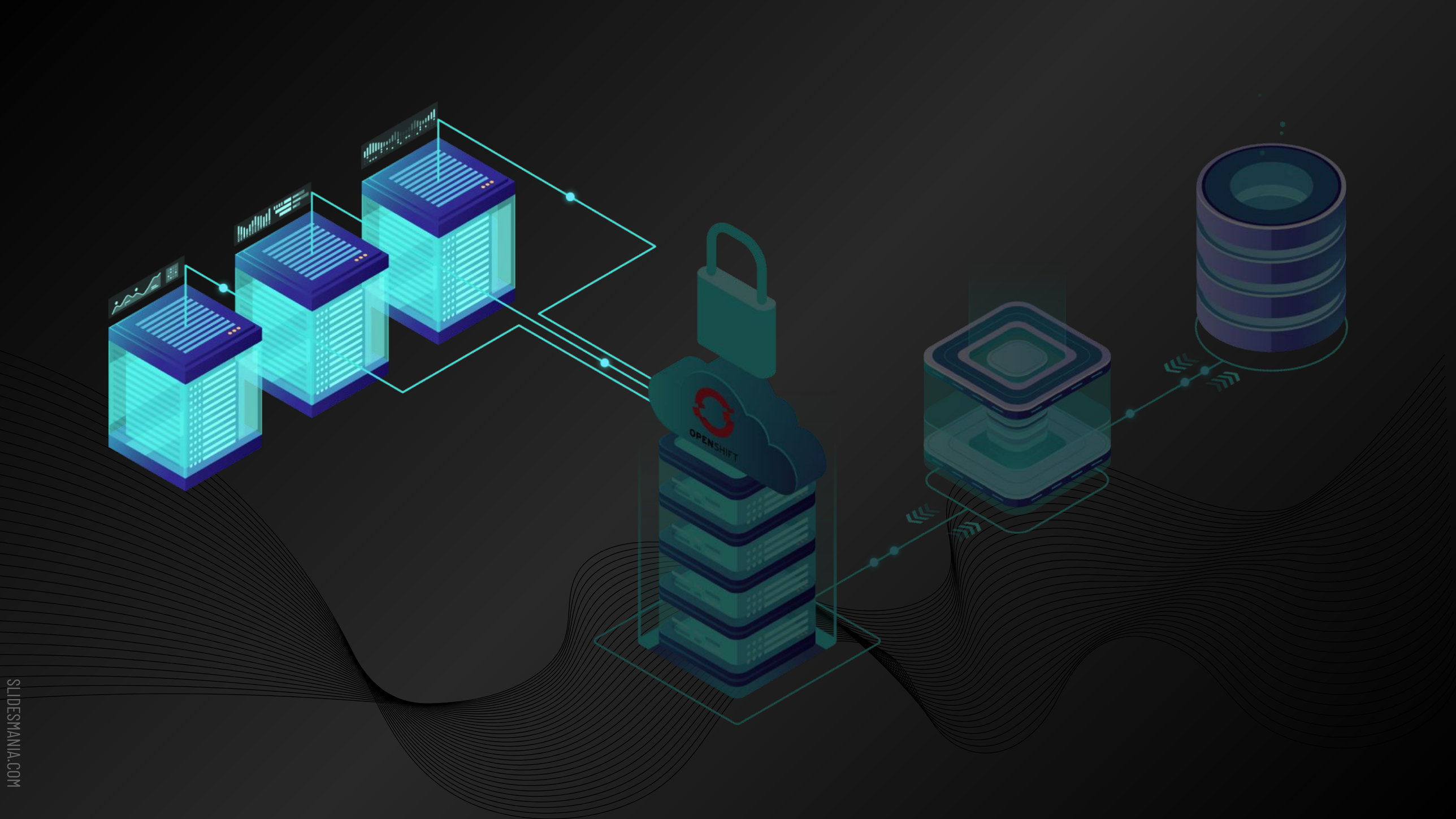
principlesofchaos.org

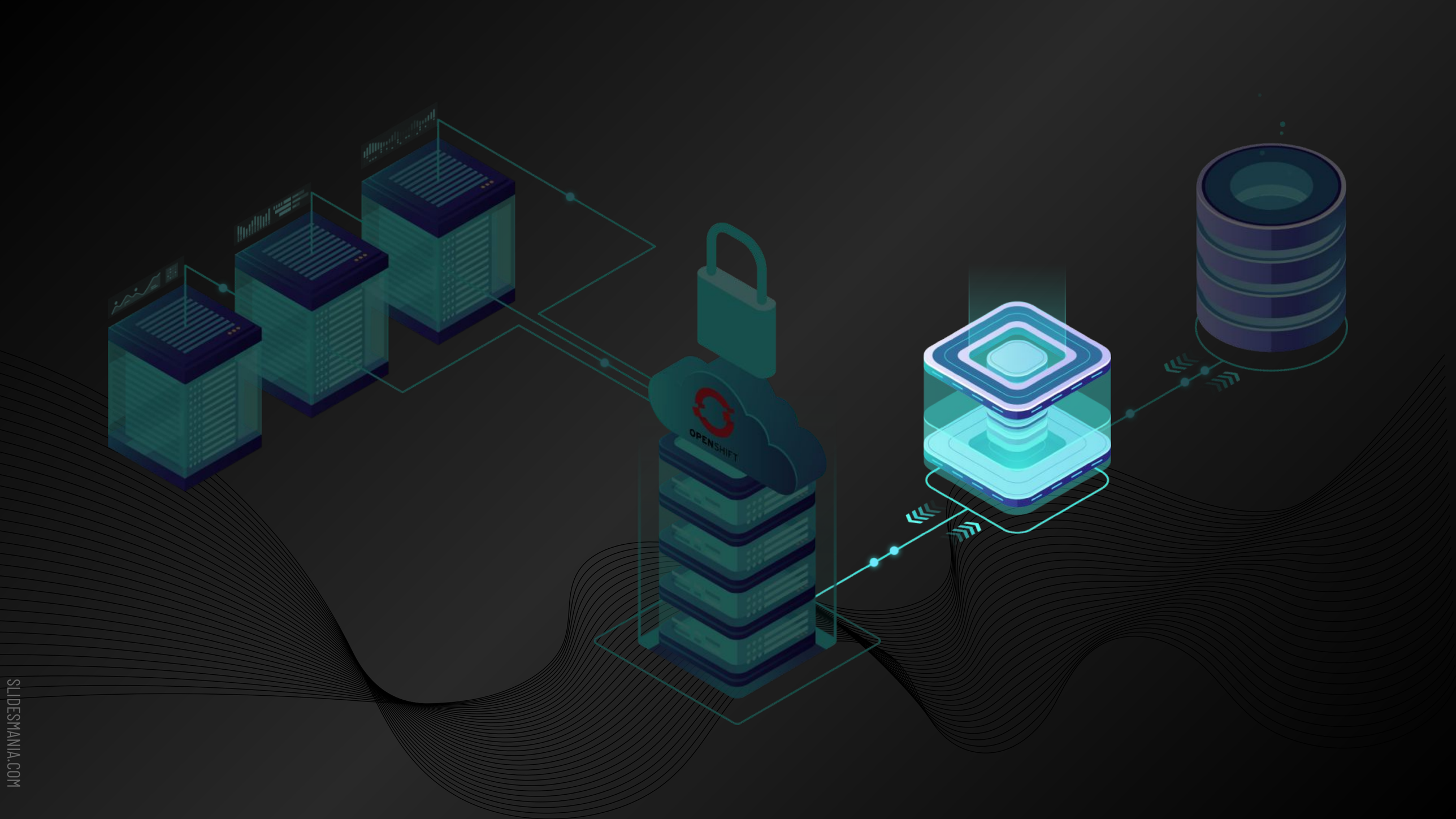


02

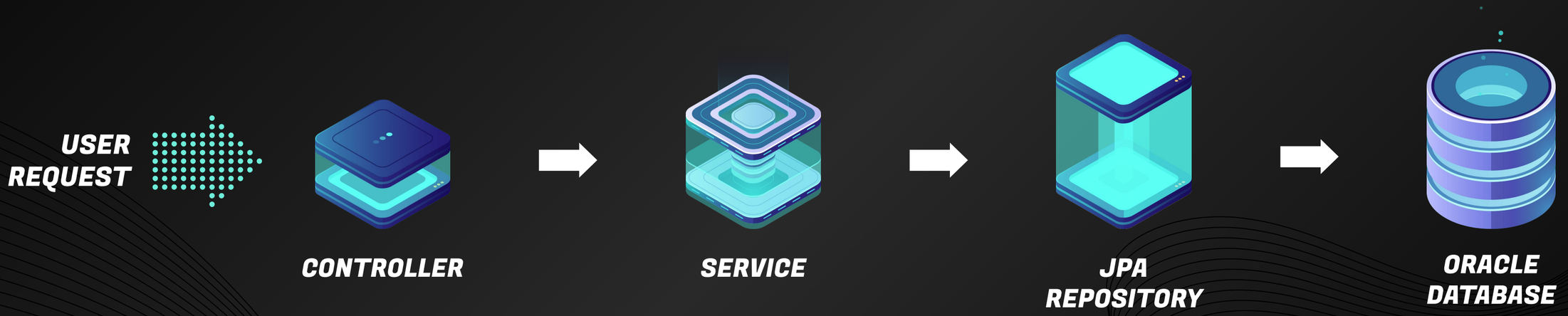
PHS Identity Provider (IDP)



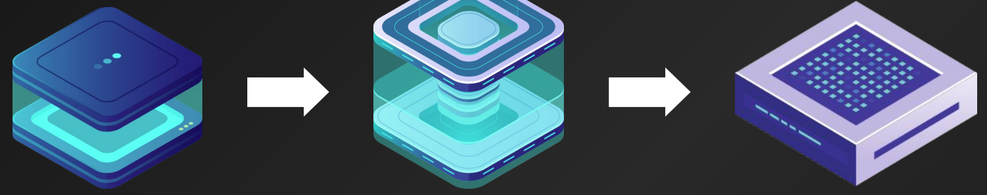




IDP architecture



DDD architecture

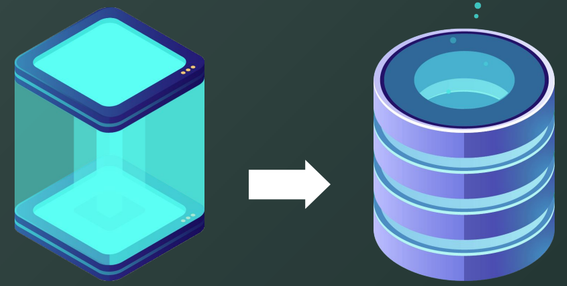


CONTROLLER

SERVICE

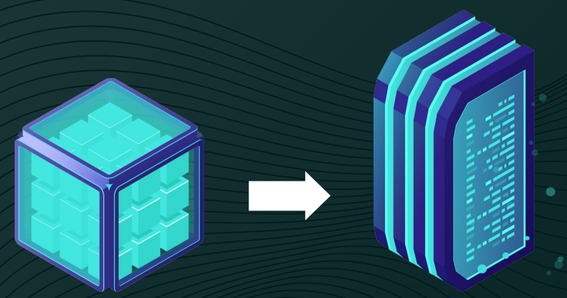
ADAPTER

@PrimaryDataStore



JPA REPOSITORY

ORACLE DATABASE



ELASTICSEARCH REPOSITORY

ELASTICSEARCH DATABASE

@BackupDataStore

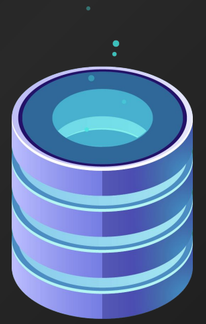
03

Architecture of Chaos

Components

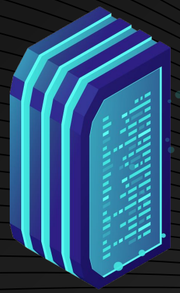
PHS IDP

The target application to implement Chaos Engineering for.



Oracle

The primary database holding all available data. Supports all IDP operations.



Elasticsearch

The backup database holding data required for critical IDP use cases, but not all.

King Louie

A docker container created to artificially cause and manage system failures.

Components

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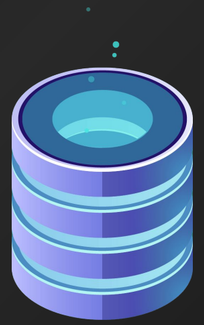

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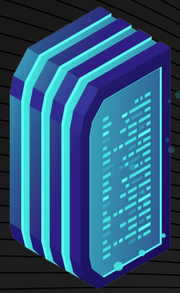

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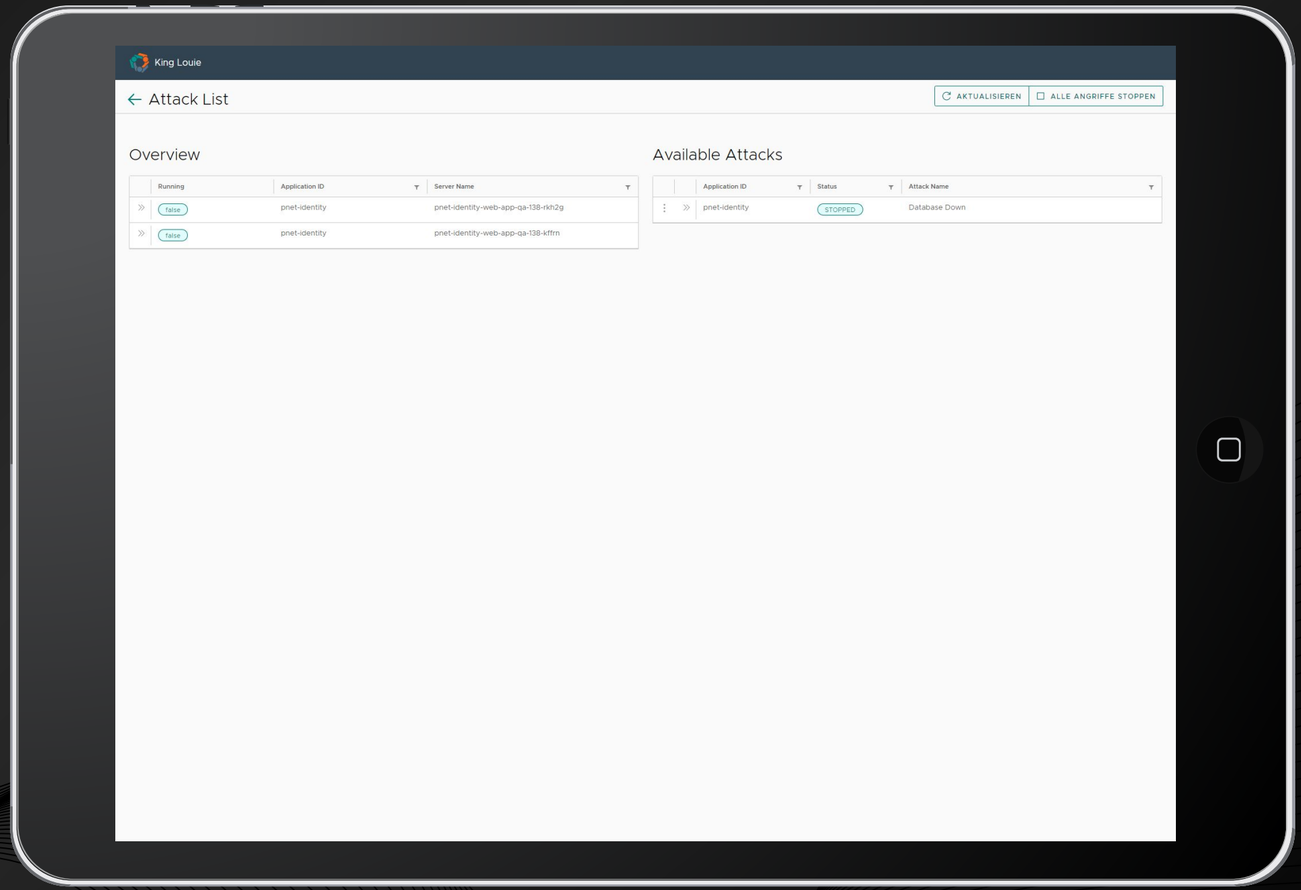
King Louie

A docker container artificially cause and system failures.

King Louie

- ➔ Minimal GUI to overview and manually manage attacks
- ➔ Jobs to automatically create and remove attacks
- ➔ Direct URL to disable attacks in case it breaks login



King Louie

- Minimal GUI to overview and manually manage attacks
- Jobs to automatically remove attacks in
- login

FEAT. CHAOS MONKEY FOR SPRING BOOT

Chaos Monkey for Spring Boot

This project provides a Chaos Monkey for Spring Boot and will try to attack your running Spring Boot App.

View on GitHub

Chaos Monkey for Spring Boot

inspired by Chaos Engineering at Netflix

codecentric.github.io/chaos-monkey-spring-boot

Chaos Monkey

Endpoints

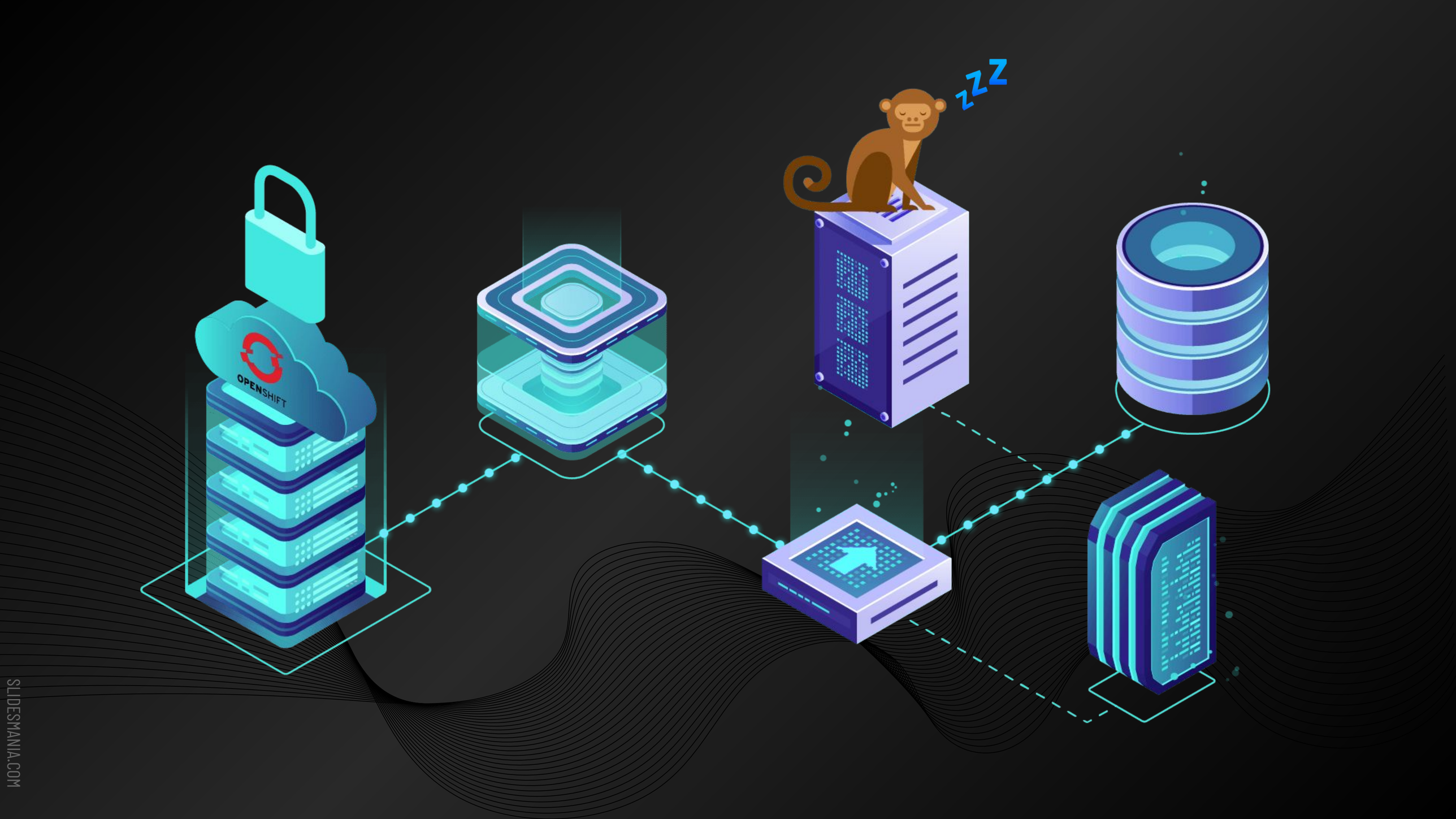
Built-in endpoints exposed via JMX or HTTP to allow updating of the configuration at runtime.

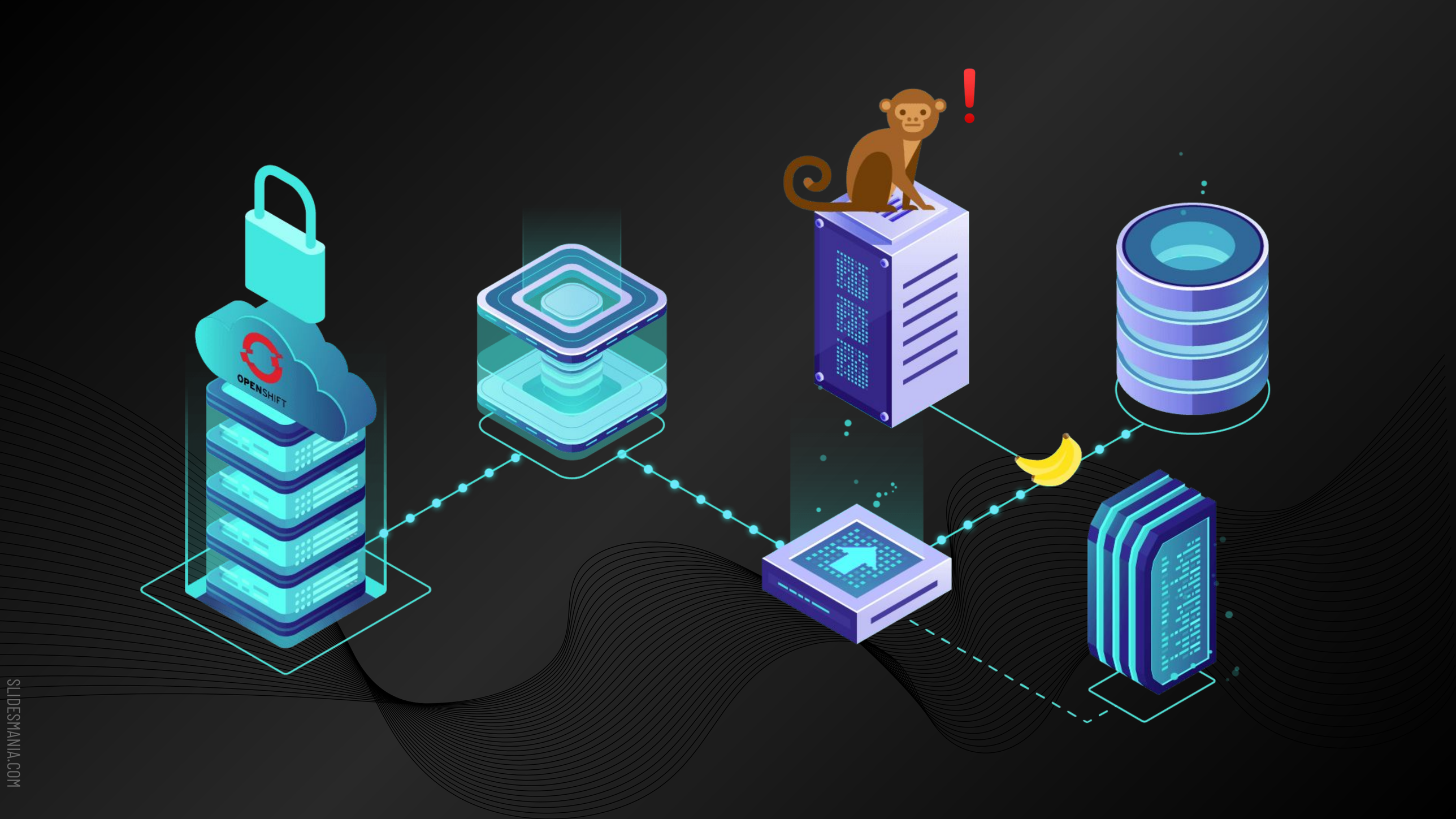
Watchers

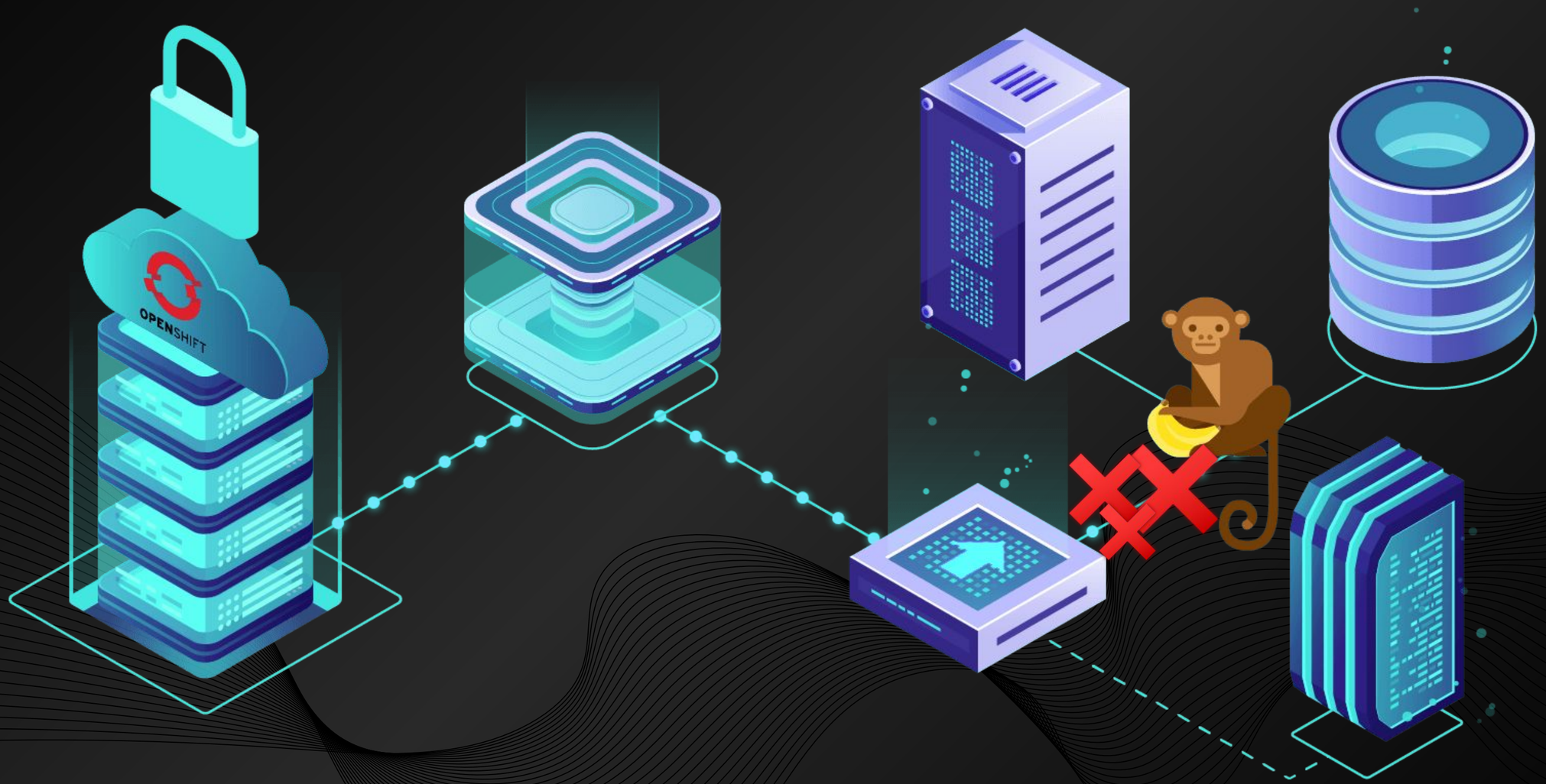
Components that scan the app for classes based on certain watcher type conditions.

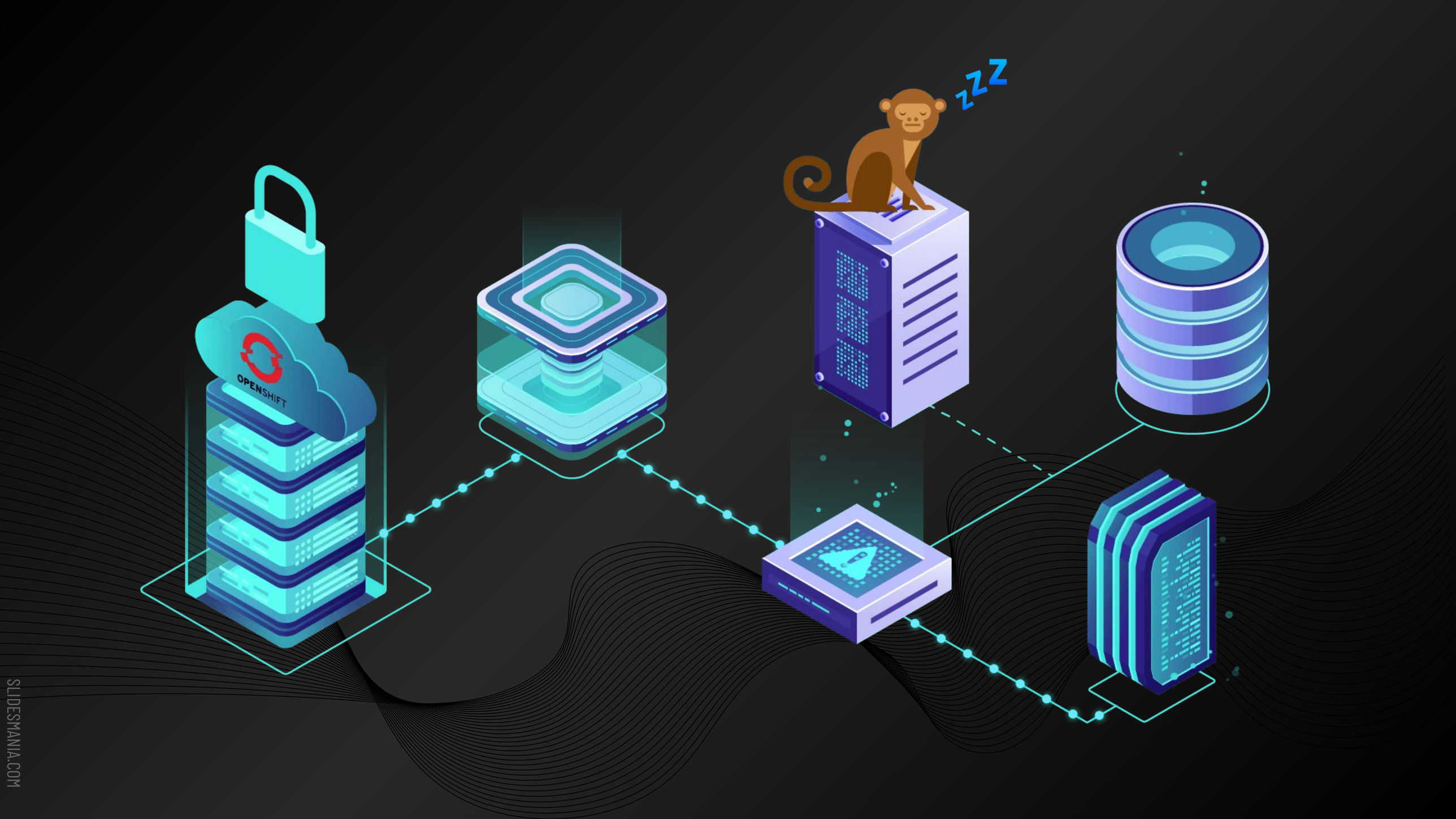
Assaults

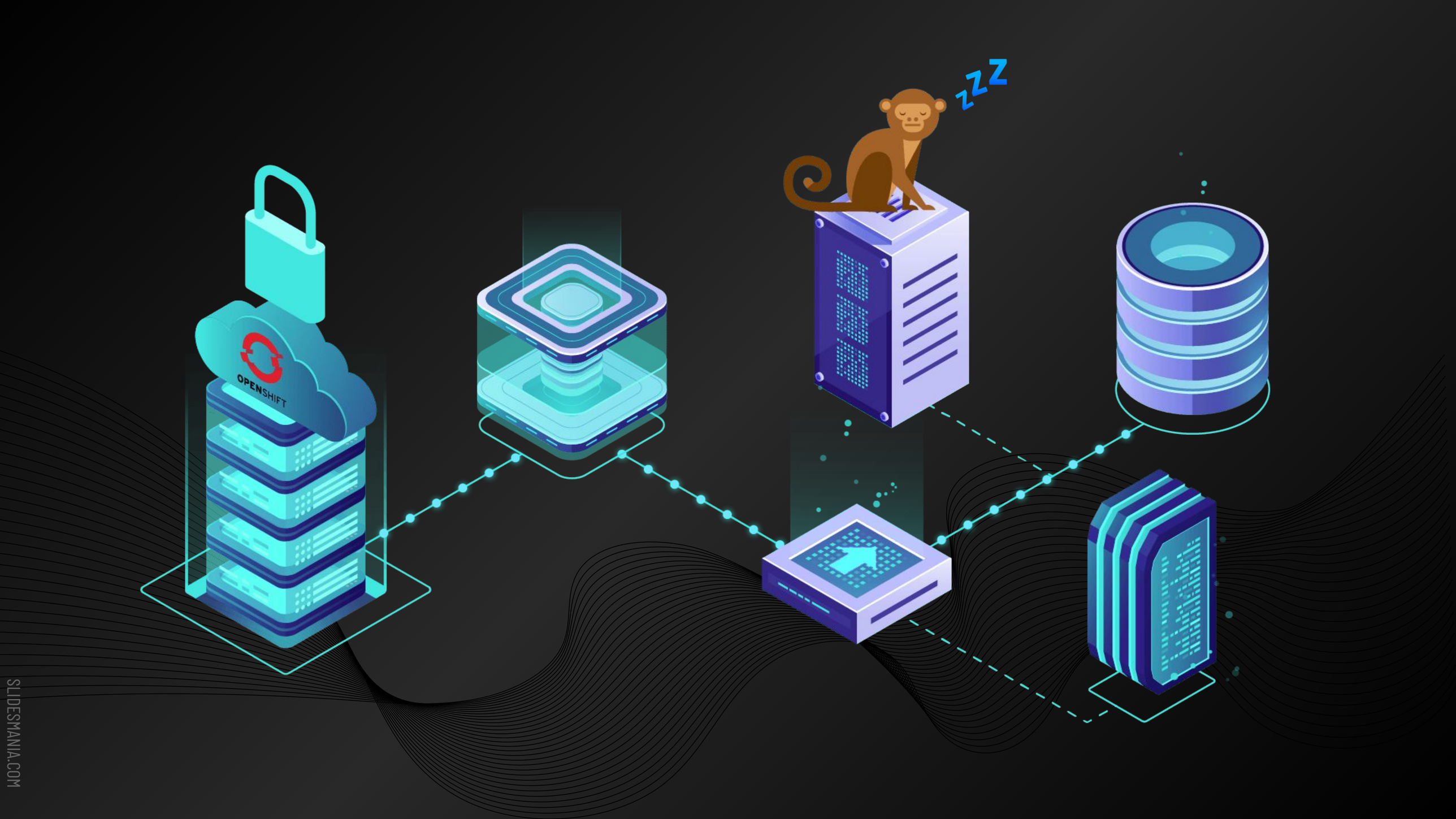
Attack the app based on the configuration with request or runtime assaults.











DATABASE OUTAGE

LIVE DEMO

We are hiring!

REFER ME:

Carolin Schuntermann

got the drive?

https://www.porscheinformatik.com/en/career/

Credits

Presentation Template: SlidesMania
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