

Lowering the Barrier to Kubernetes Proficiency

Navigating the Stormy Seas of Information Overload

Angel Rivera
Developer Advocate



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agenda

- why : Kubernetes : ?
- intro : Kubernetes
- implementing : Kubernetes

Hi I'm Angel

Developer Advocate.

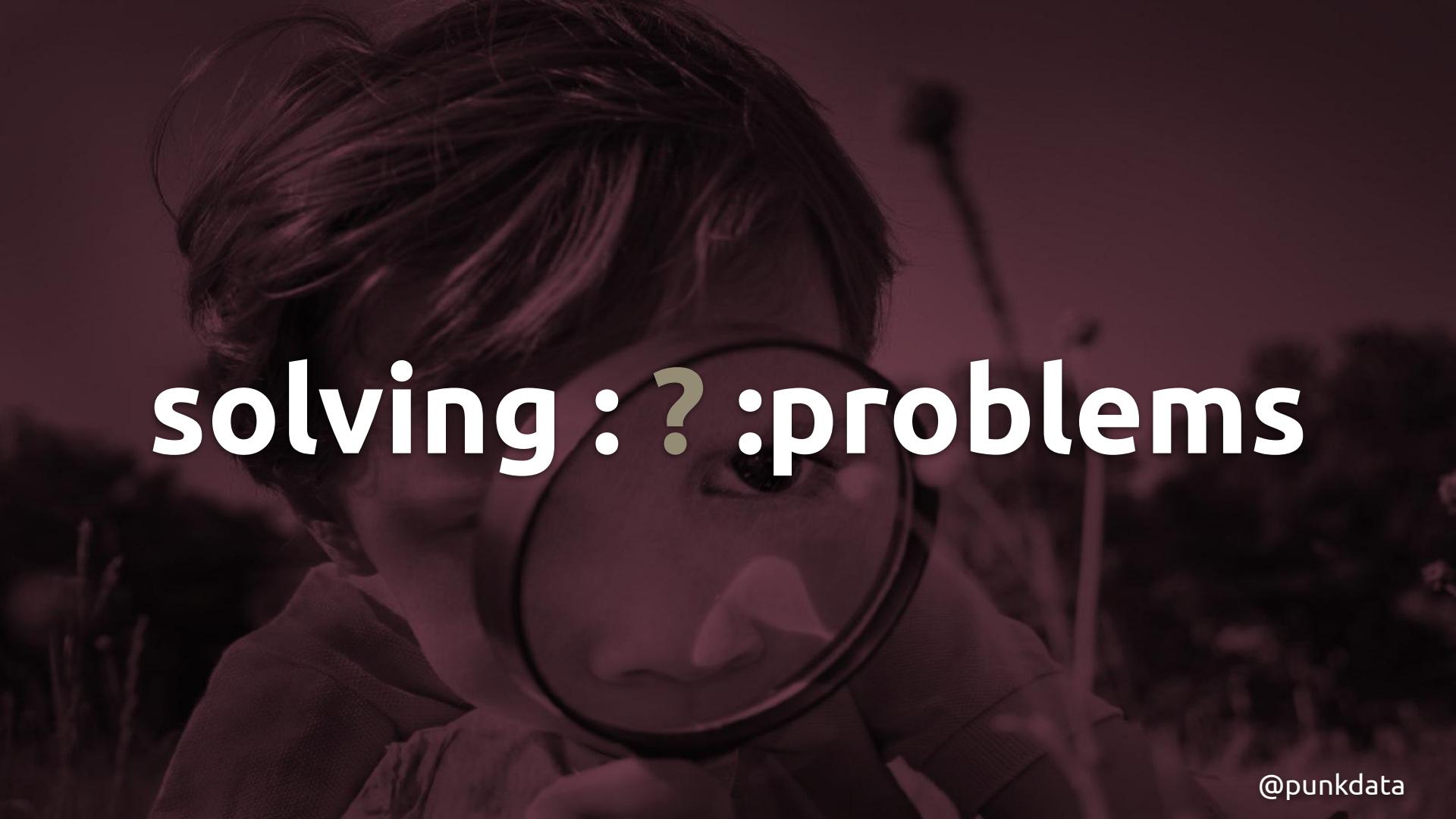
My job is to **inspire**
developers!



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why : Kubernetes : ?

A close-up photograph of a woman with long, dark brown hair. She is looking down and slightly to the side, focusing her gaze through a magnifying glass held directly in front of her eye. The magnifying glass is circular and reflects some light, creating a bright spot on her face. Her expression is contemplative and focused. The background is dark and out of focus.

solving: ? :problems



new : hotness
tech :junkie

A dynamic basketball photograph set against a dark background. A player in a dark jersey with 'MIAMI' and '20' is in the foreground, looking up and shooting a basketball. Another player in a dark jersey with 'SIMMONS' and '25' is positioned behind him, with their right arm extended high to block the shot. The basketball is captured mid-air above the shooter's hand.

keeping :up :with :joneses

A man with dark hair and a beard, wearing a light-colored suit jacket over a white shirt, is sitting at a desk and looking down at a laptop. The laptop screen is filled with a dense, abstract pattern of binary code (0s and 1s), error messages like "error489", "error56", and "virus", and various symbols such as '@' and 'X'. The background is a dark, slightly blurred office environment.

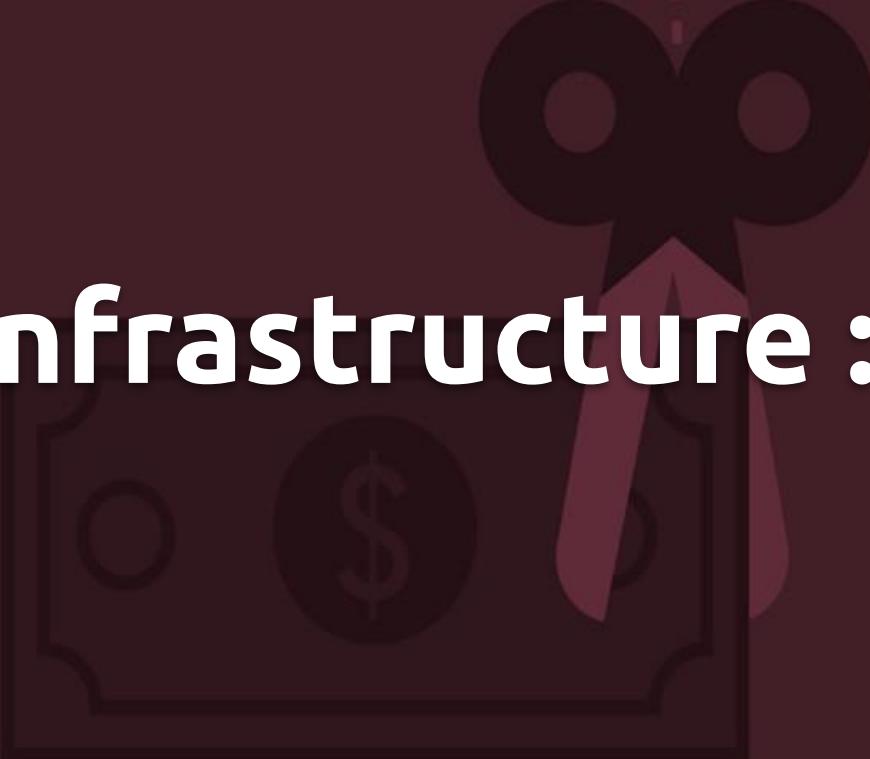
the boss : told : me to

A photograph of two people sitting on a couch, looking at a laptop screen together. One person is pointing at the screen. The scene is dimly lit, with a potted plant visible in the background.

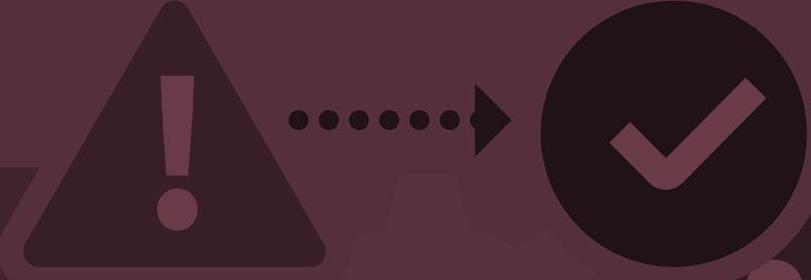
common : reasons



faster : software dev : cycles



cut : infrastructure : costs

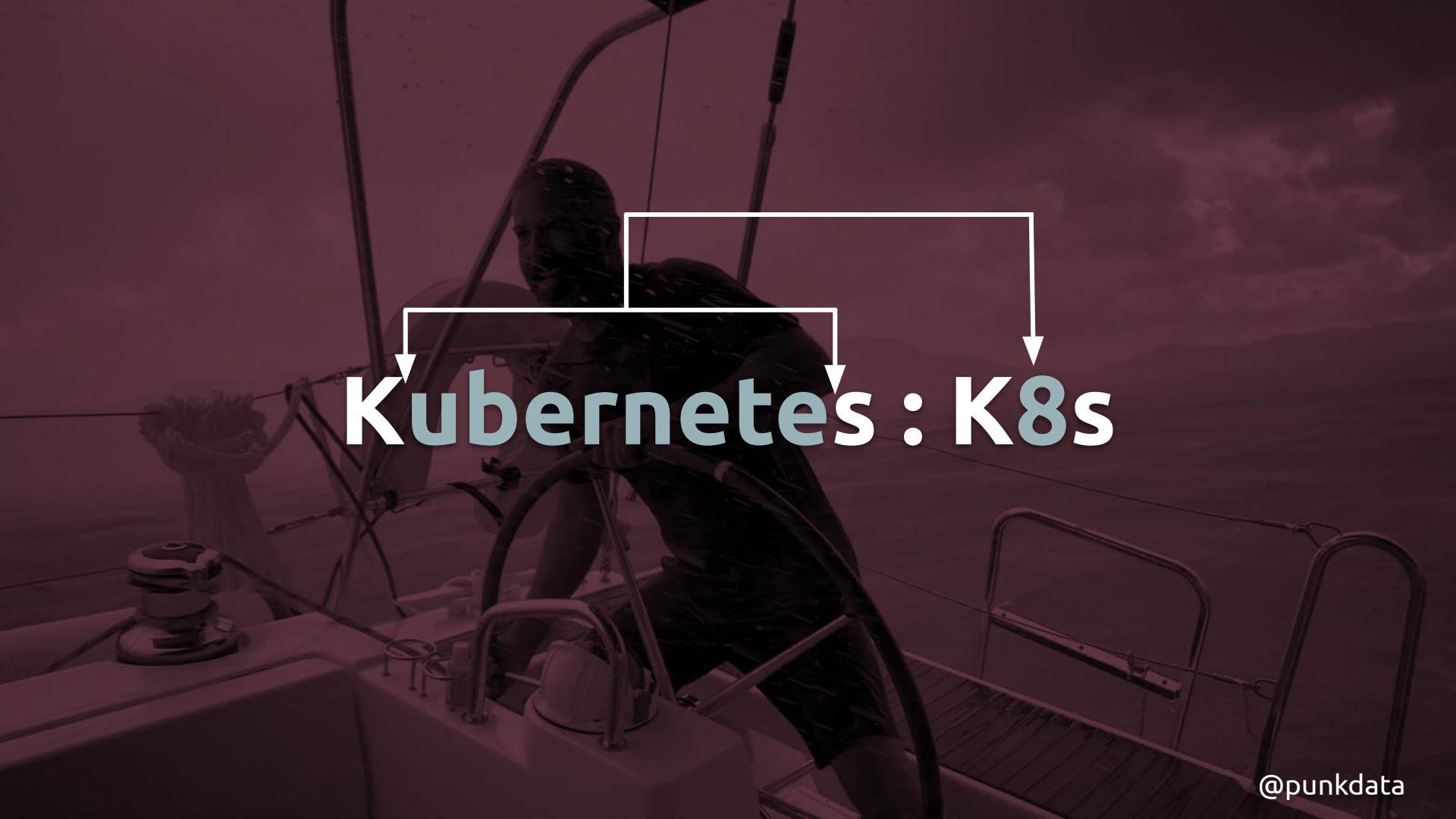


improved : availability : scalability



A large, semi-transparent watermark of the Kubernetes logo is centered in the background. The logo consists of a dark red hexagon containing a white steering wheel icon. The text "intro : Kubernetes" is overlaid on this watermark.

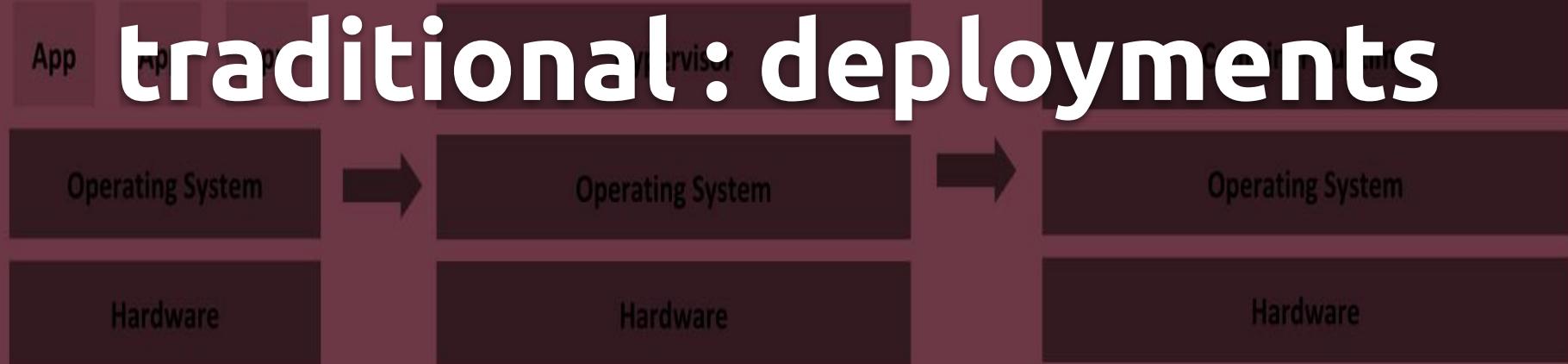
intro : Kubernetes

A photograph of a sailboat's deck and rigging against a dark, cloudy sky. A person wearing a dark hooded jacket is visible in the background, looking towards the horizon.

Kubernetes : K8s



traditional: deployments



Traditional Deployment

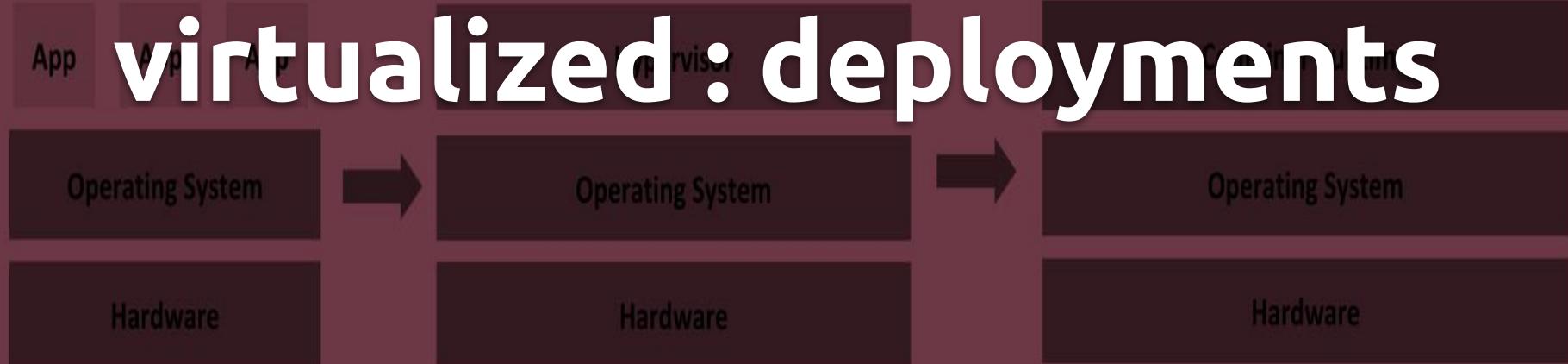
Virtualized Deployment

Container Deployment
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App	App	App	App
Bin/ Library		Bin/ Library	
Operating System		Operating System	
Virtual Machine		Virtual Machine	

App	App	App
Bin/ Library	Bin/ Library	Bin/ Library
Container	Container	Container

virtualized: deployments



Traditional Deployment

Virtualized Deployment

Container Deployment

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container: deployments



Traditional Deployment



Virtualized Deployment

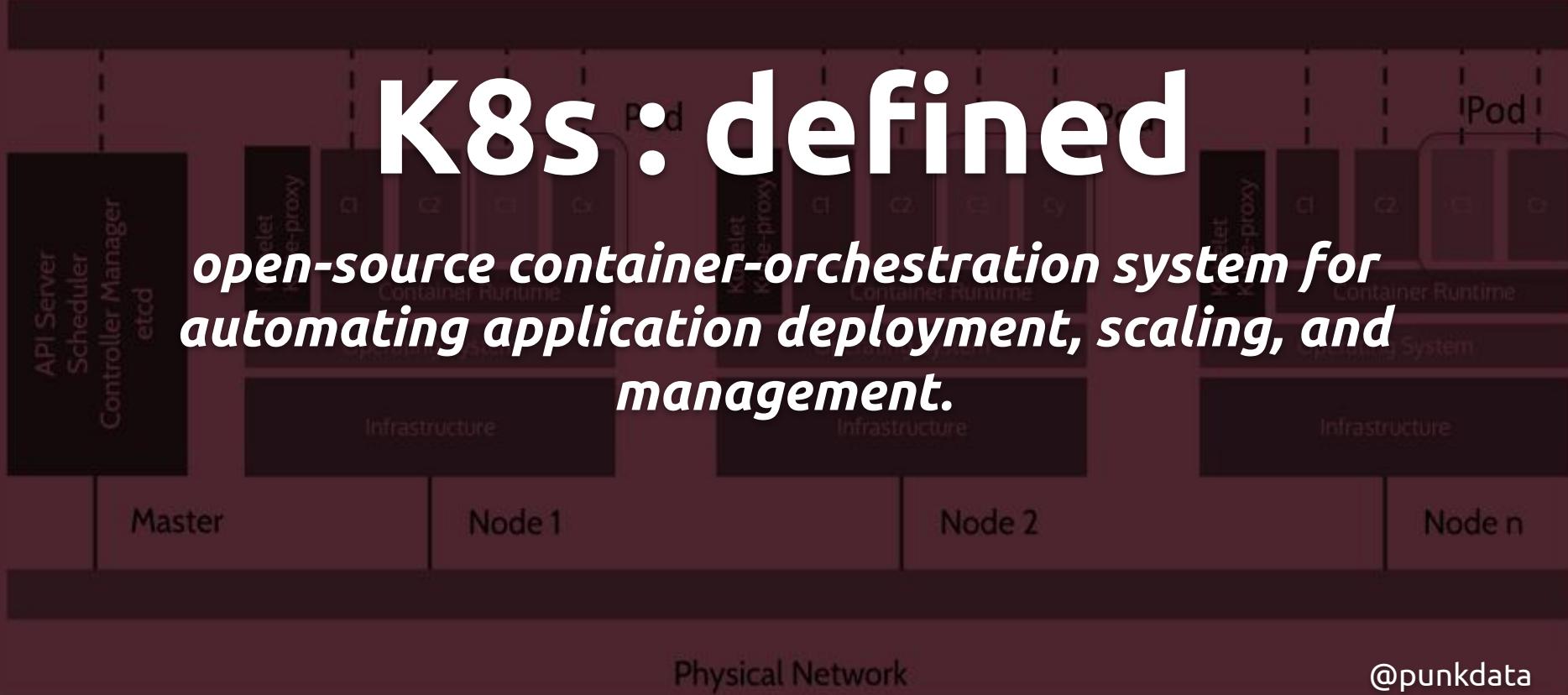
Container Deployment
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Kubernetes Architecture

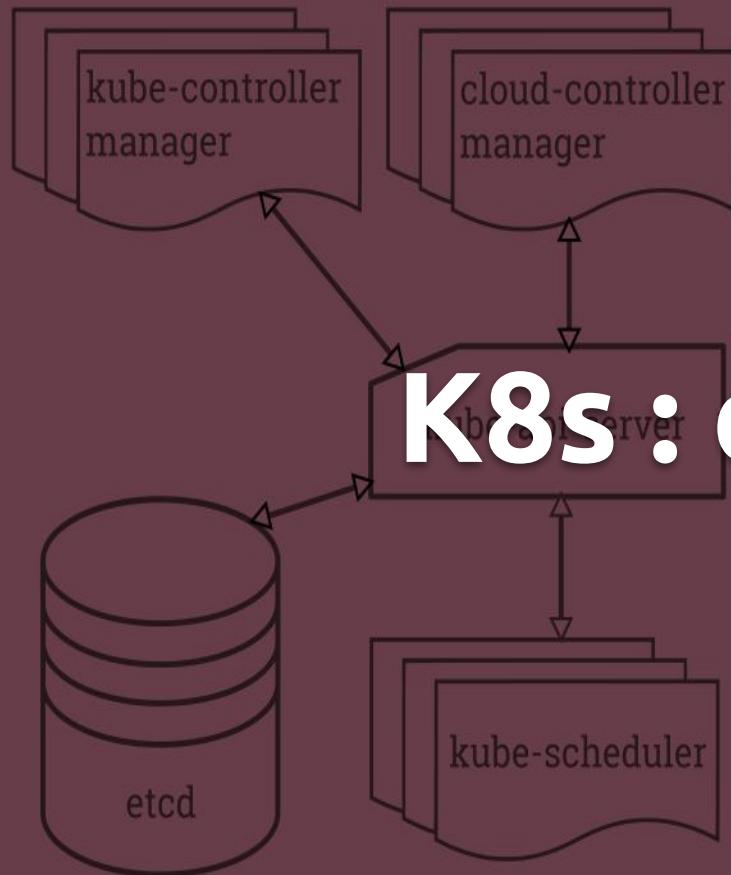
Overlay Network (Flannel/OpenVSwitch/Weave)

K8s : defined

open-source container-orchestration system for automating application deployment, scaling, and management.



Kubernetes Control Plane



Cloud

K8s : decomposed

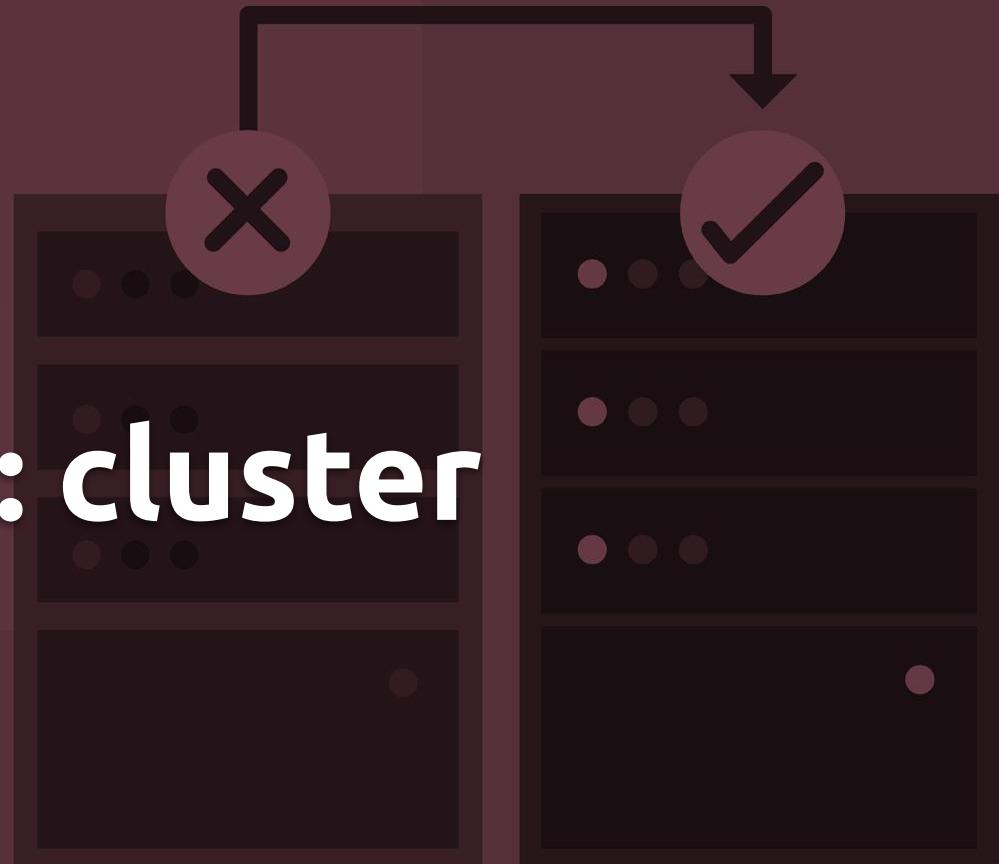


Kubernetes Nodes

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K8s : cluster





Master
node

Worker node

Pod

Container

Container

K8s : worker : nodes

Worker node

Pod

Container

Container



Master
node

Worker node

Pod

Container

Container

c

K8s: pods

Worker node

Pod

Container

Container



Master
node

Worker node

Pod

Container

Container

K8s : control : plane components

C

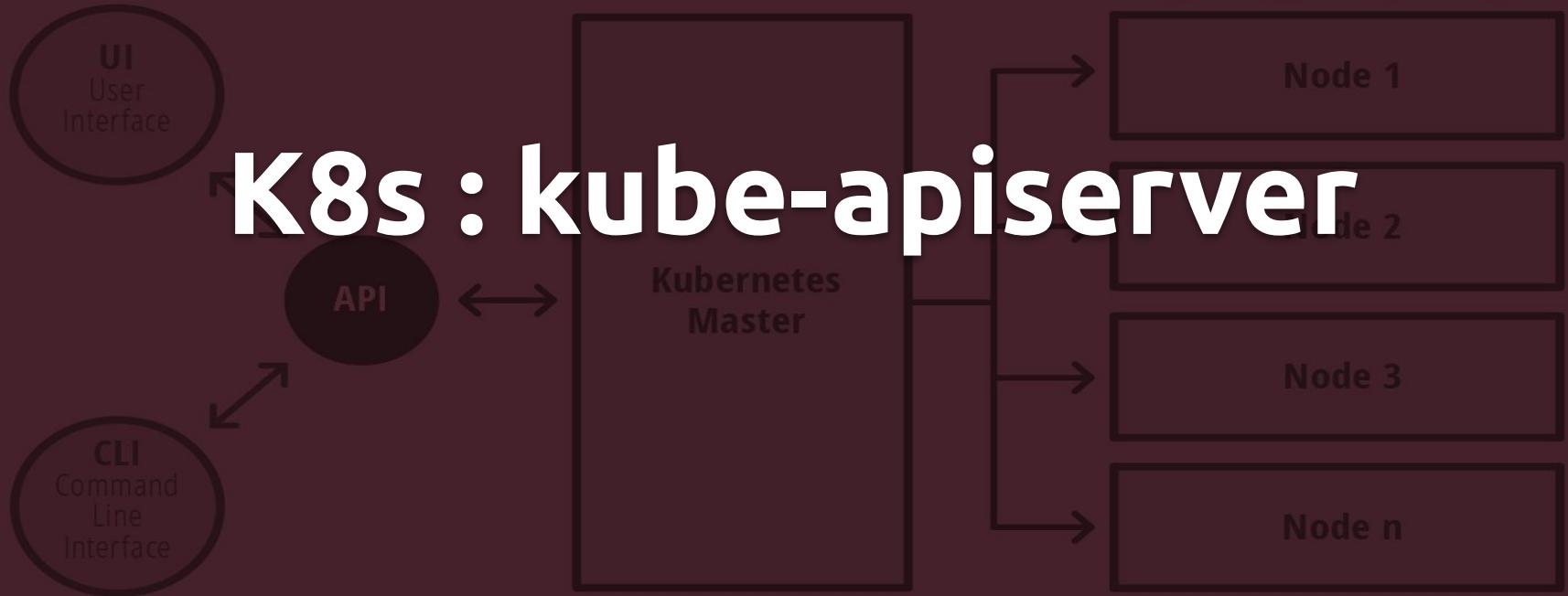
Worker node

Pod

Container

Container

K8s : kube-apiserver



K8s : etcd

K8s : kube-scheduler

K8s : kube-controller-manager

K8s : node : components

K8s: kubelet

K8s : kube-proxy

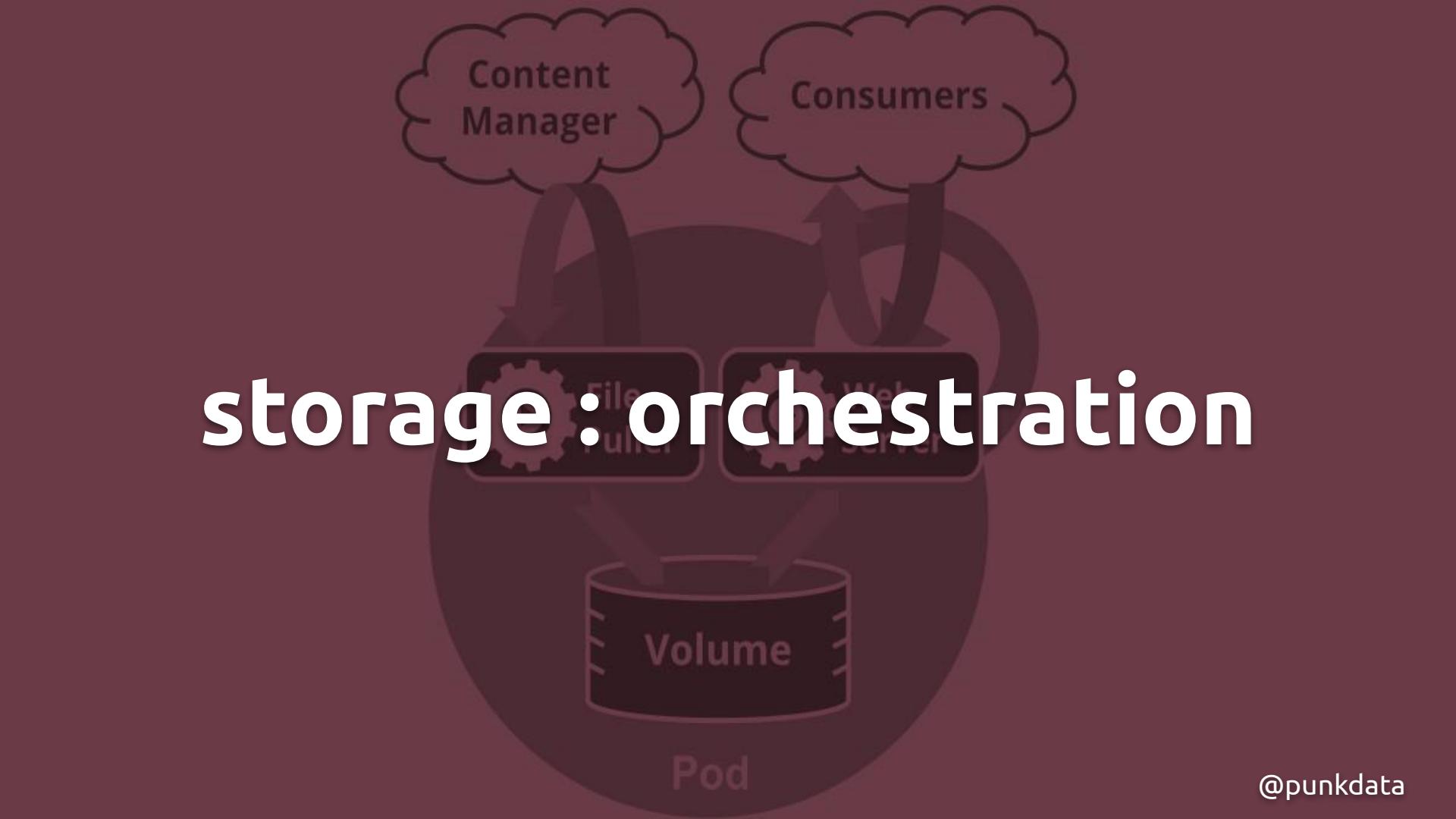
K8s : container : runtime

A woman with long dark hair is lying in a hammock, looking upwards. She has a tattoo on her upper arm. The background shows a large tree with many branches and leaves.

benefits : K8s



service : discovery
load : balancing



storage:orchestration



automated : rollouts : rollbacks



automatic : bin : packing



self : healing



secret : configuration management

A dark background featuring silhouettes of four people in a meeting room. Two people are seated at a table, facing each other. A third person is standing behind them, gesturing with their hands. A fourth person is standing to the right, also gesturing. Three speech bubbles are positioned above the people, containing three dots each, suggesting a conversation or presentation.

implementing : K8s



skill : sets

security : rbac

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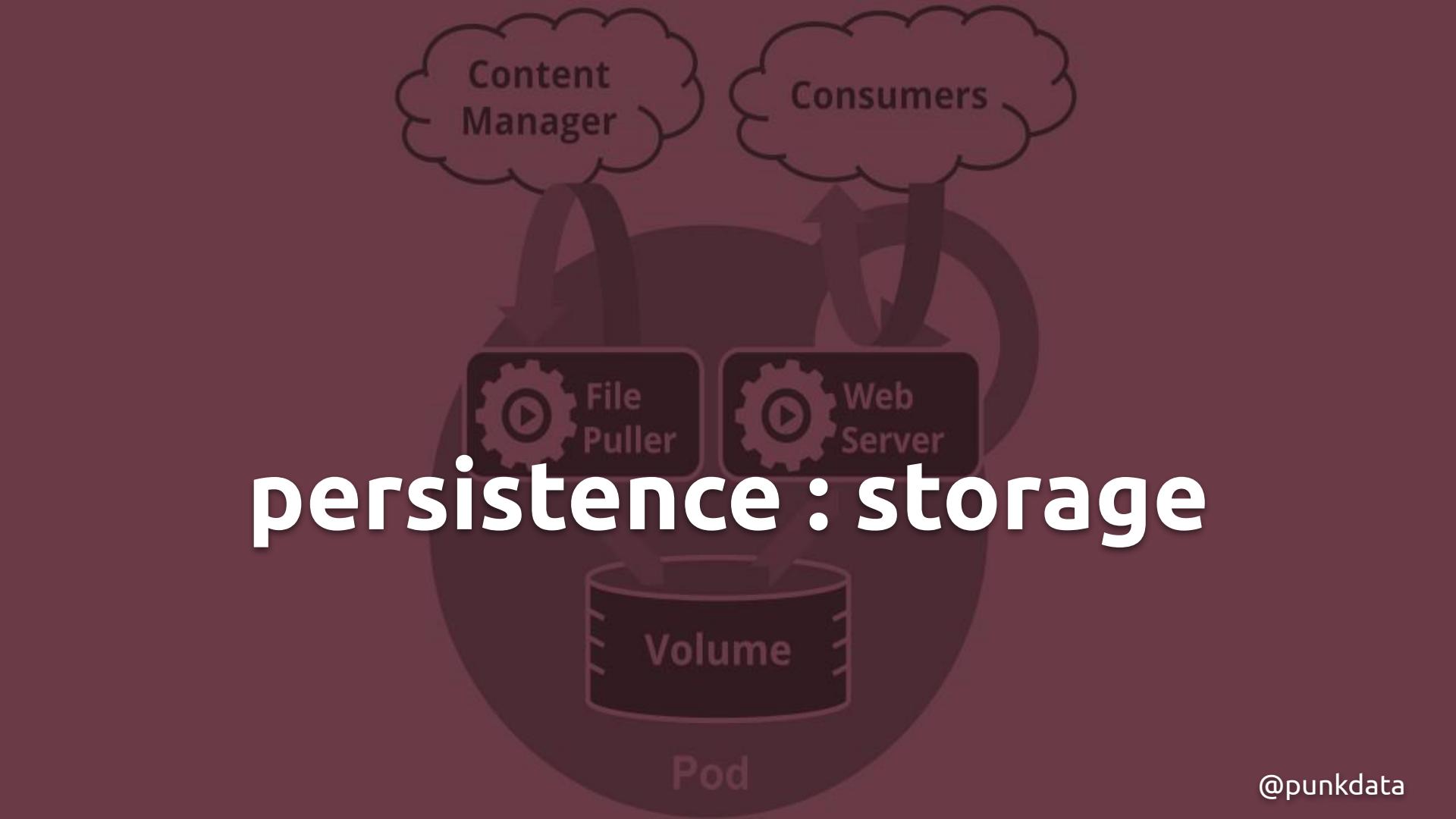
yaml



deep : understanding : containers

networking : fundamentals

application : programming : interfaces



persistence : storage

monitoring : logging

infrastructure : as : code

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ci/cd : devops : practices

secure : test : build : deploy
monitor : iterate

automate: everything

A dark background featuring a hand interacting with a futuristic interface. The interface includes several large interlocking gears in the upper left, a search bar with a magnifying glass icon and a list of terms like 'Innovation', 'Branding', 'Solution', etc., in the lower left, and a world map with location pins and industry icons (Manufacturing, Supply Chain, Product, Design, Commerce, Delivery, Inventory, Manufacturing, Freight) in the lower right. The overall theme is industrial automation and global connectivity.

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A dark, moody portrait of a person wearing a crown and holding a staff, with a hand pointing upwards.

flavors : of : K8s



self : hosted : K8s

(more difficult)

managed : K8s : services

(gke : eks : aks : lke : dke)

developer : K8s : resources

Countrywide Legacy

minik8s : <https://microk8s.io/>

minikube : <https://kubernetes.io/docs/tasks/tools/install-minikube/>

community : <https://kubernetes.io/community/>



thank : you