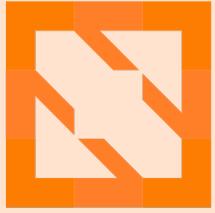




KubeCon



CloudNativeCon

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Europe 2022

# Production scale containerized game platform practice in ByteDance

Chenyu Jiang, ByteDance  
Viktor Farcic, Upbound



# Speaker



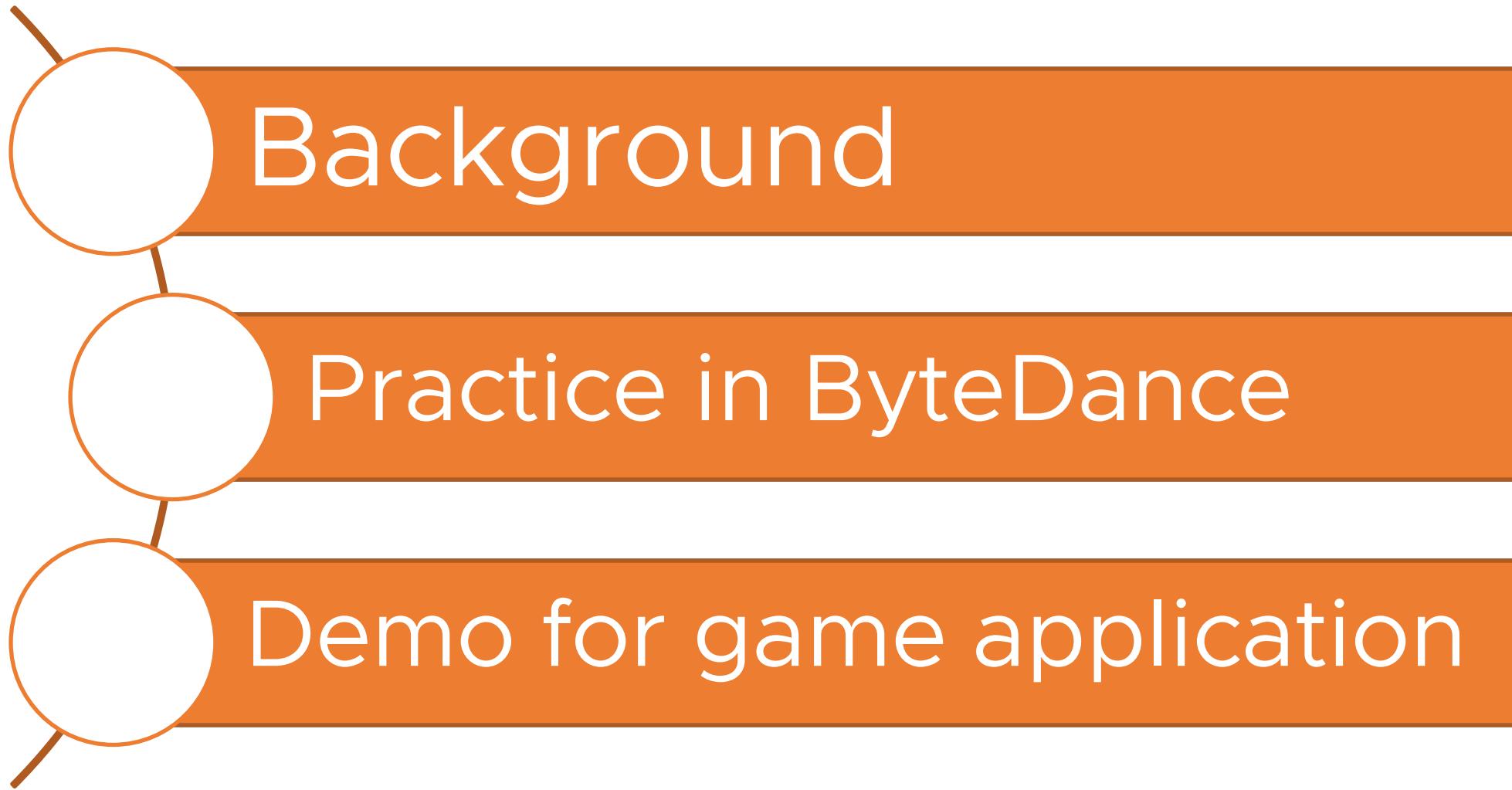
**Chenyu Jiang**  
Software engineer  
*ByteDance, Inc*



**Viktor Farcic**  
Advocate, *Upbound, Inc*



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# Background



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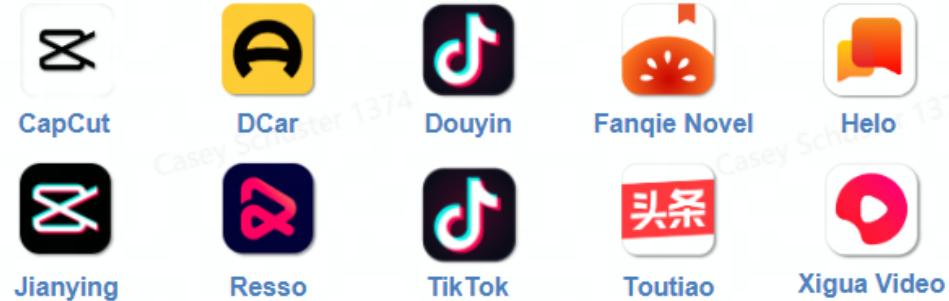
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# ByteDance

## Product Portfolio

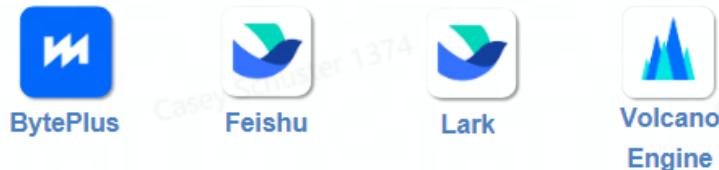
### Creation and Communication



### Digital Entertainment

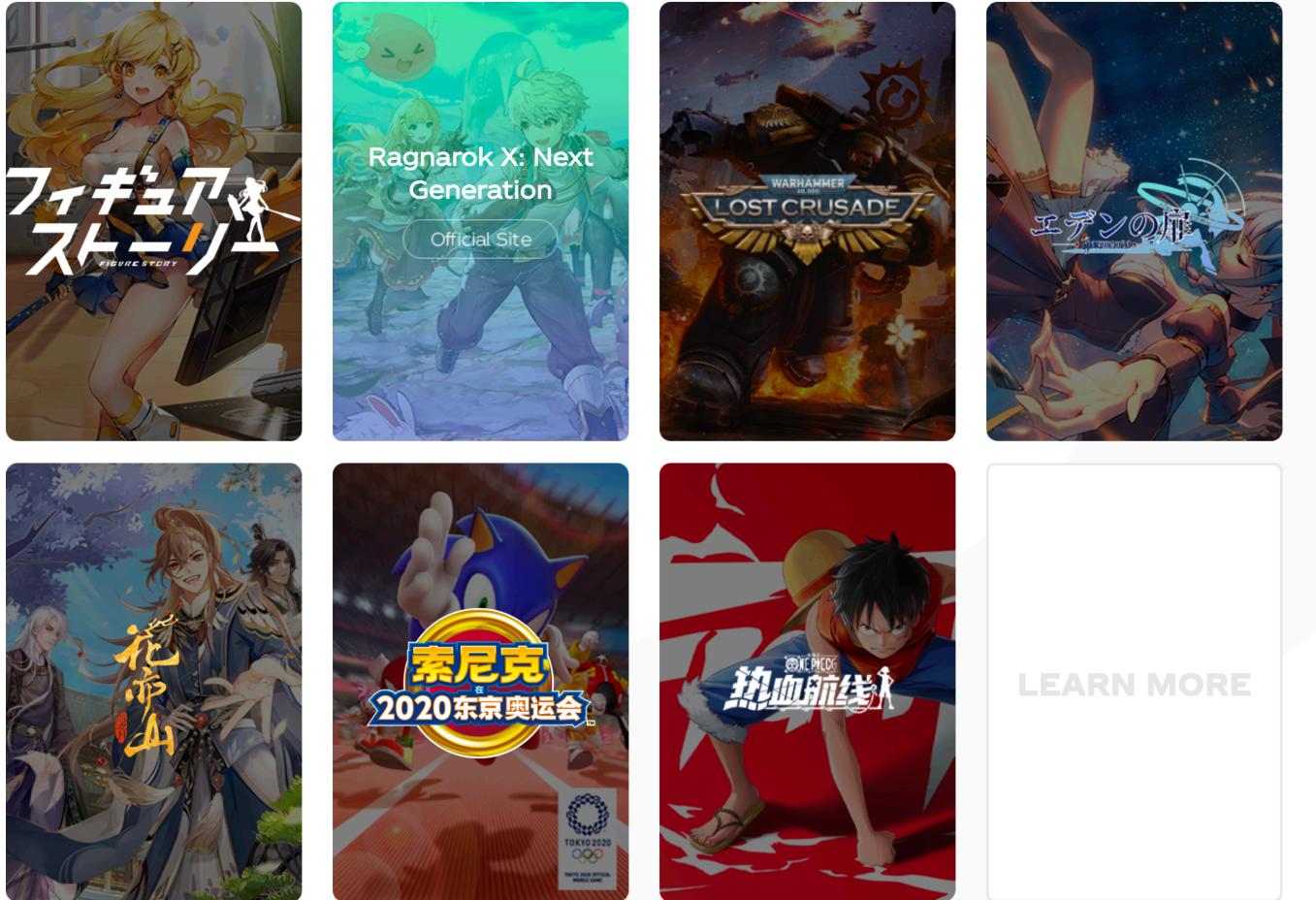


### Enterprise Service



# Games in ByteDance

## OUR GAMES



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# Challenge in Games

## Large scale

- ❖ Rapidly grow of games amount
- ❖ Millions of players

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## Low latency around the world

- ❖ Different cloud provider
- ❖ Complicate game architecture

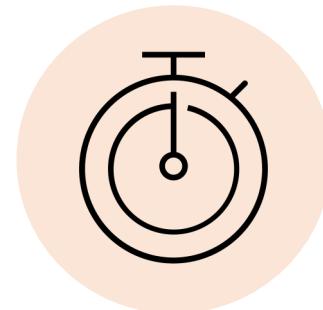
## DevOps

- ❖ Large amount of instances
- ❖ Different IaaS resource in multi cloud

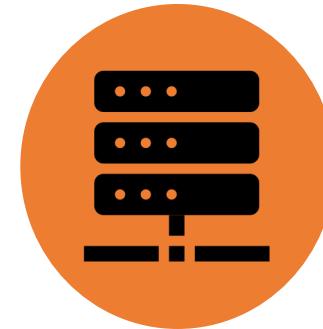
# Benefit to go cloud native



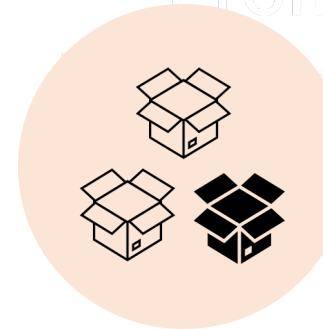
By using the containers, we can do autoscaling at ease and choose the best machine for hosting



We can deploy the containers easily to host the server in different region to provide better experience



It's nature to support the high availability in kubernetes and easy to recover the service



Compared to the typical way of deployment, containerized provide more flexibility in configuring images

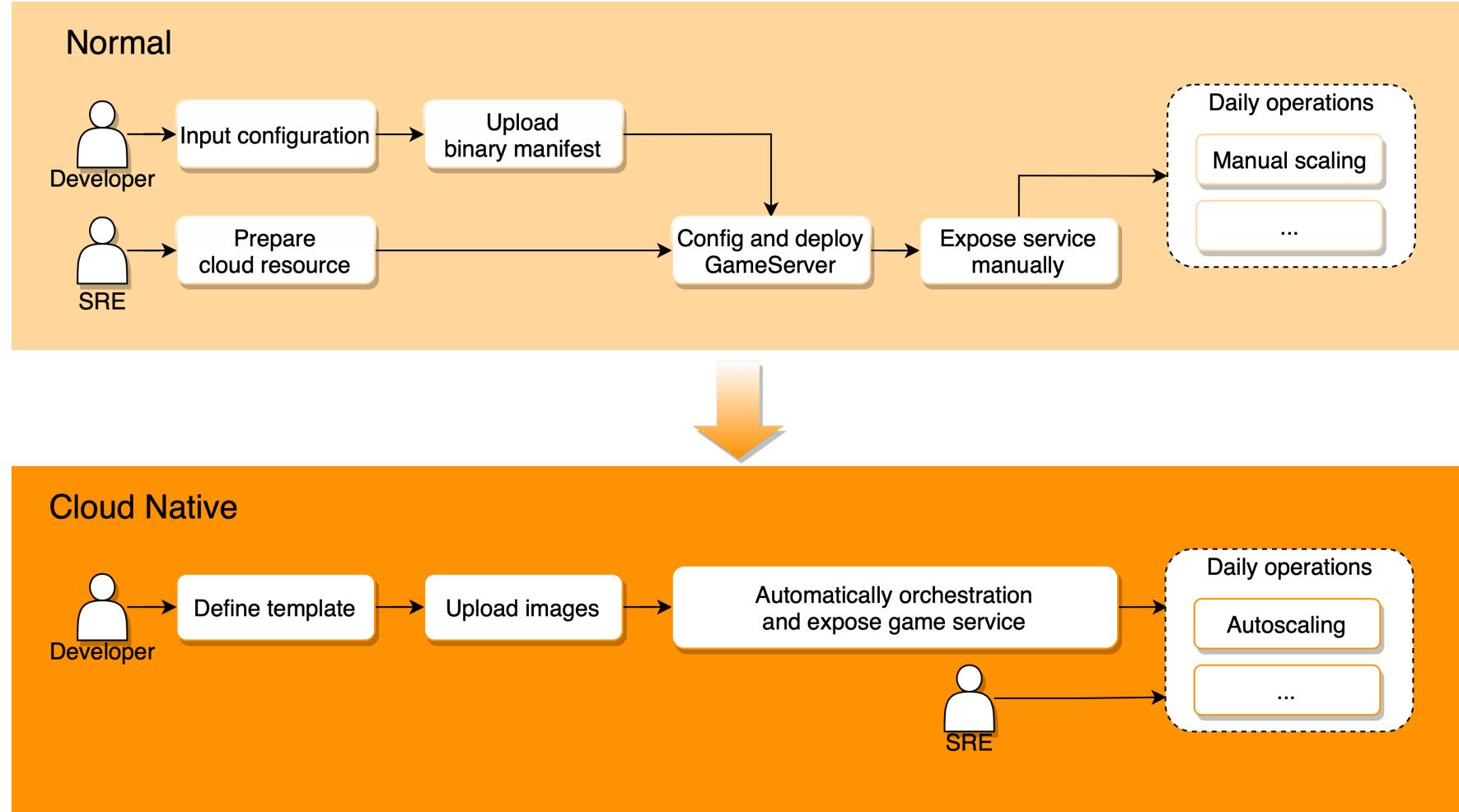
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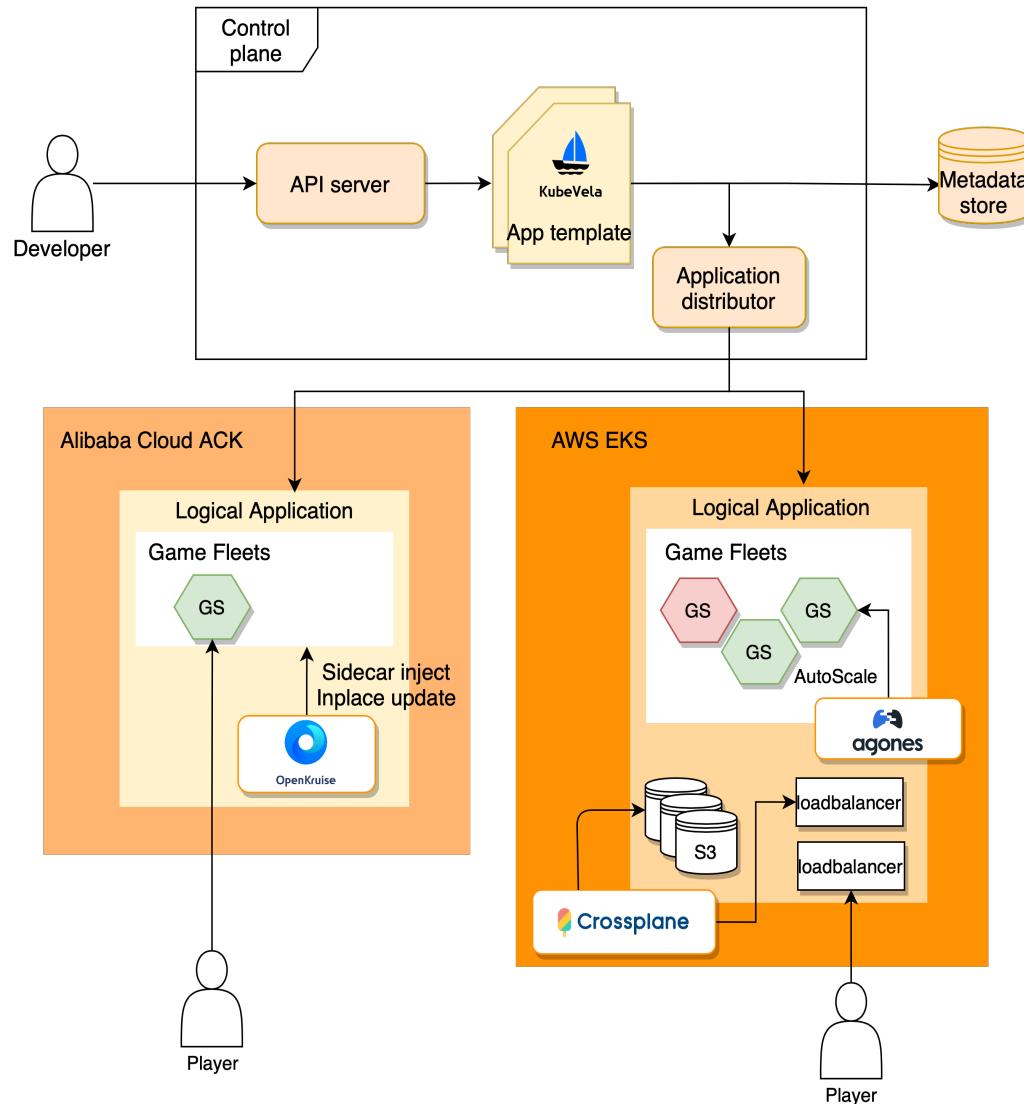
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# Practice in ByteDance

# Workflow evolution



# High level system design

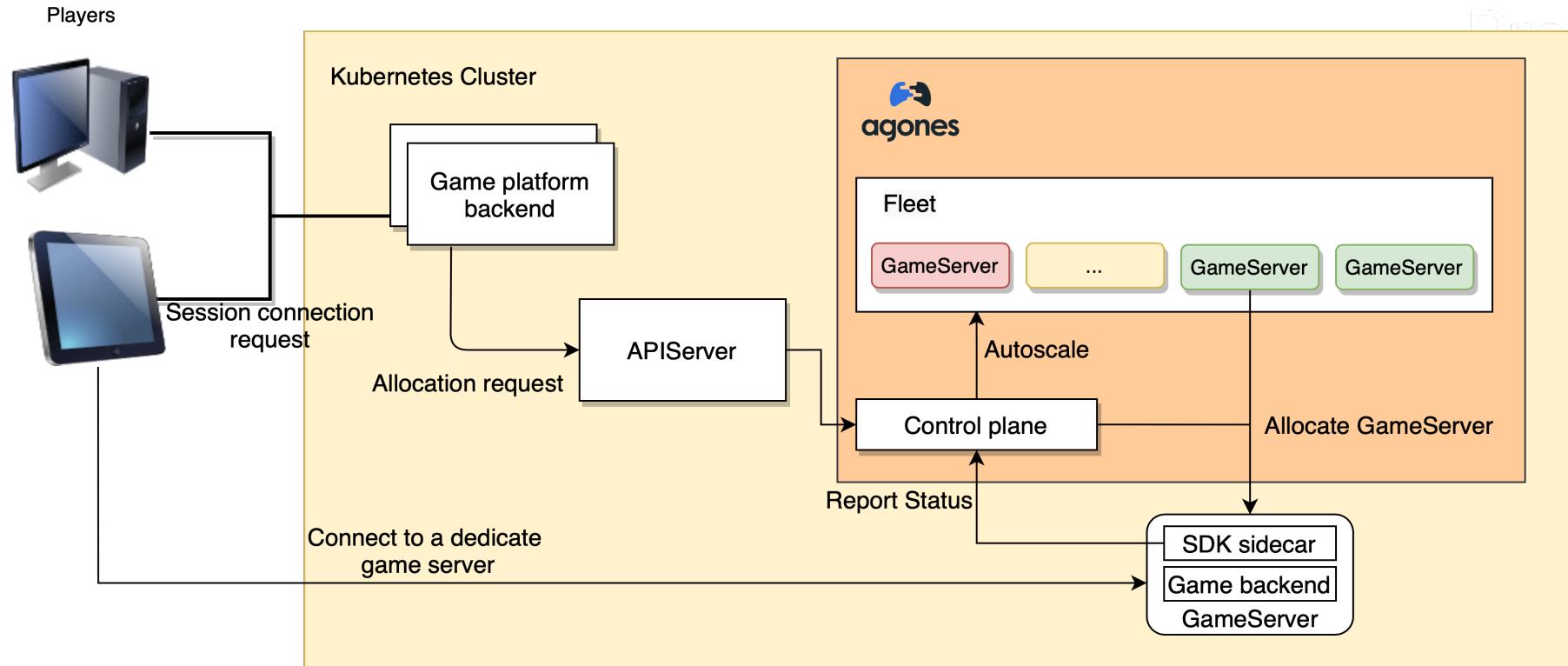


- Crossplane
- Kubevela
- OpenKruise
- Agones

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# Agones

Challenge for hosting game server



Agones provide containerized management for dedicated game server

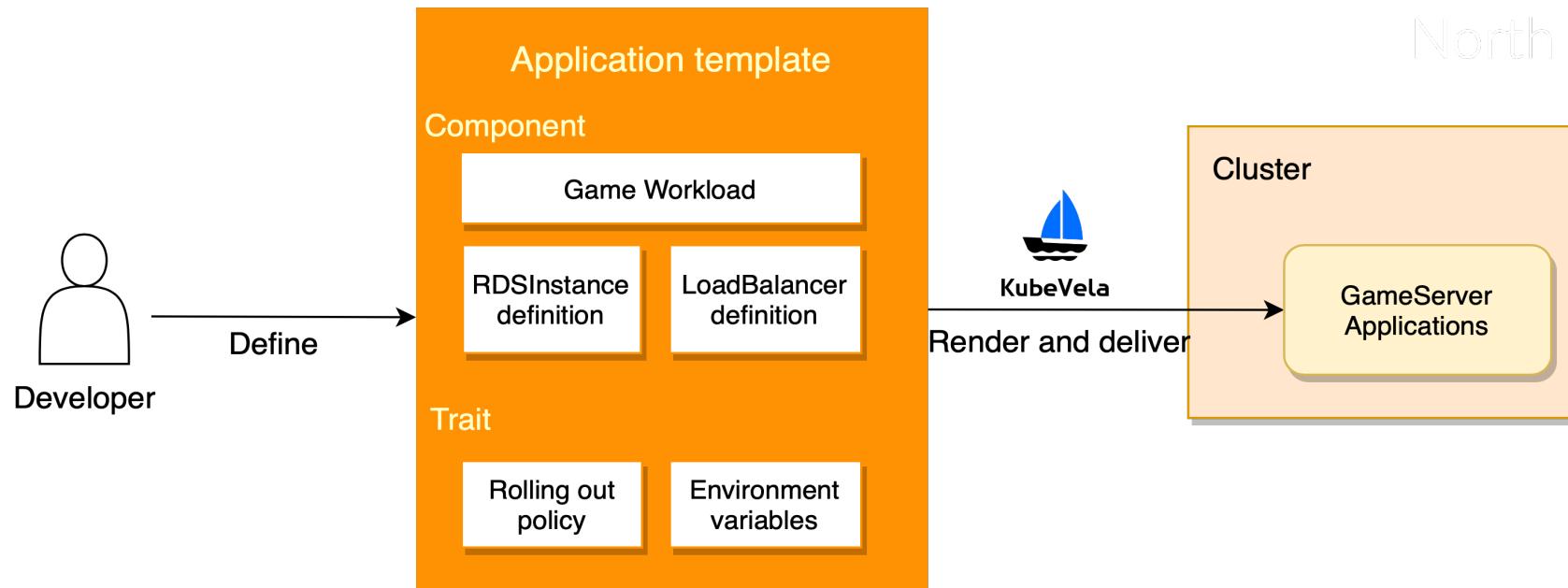
# KubeVela

Challenge for complicated application orchestration



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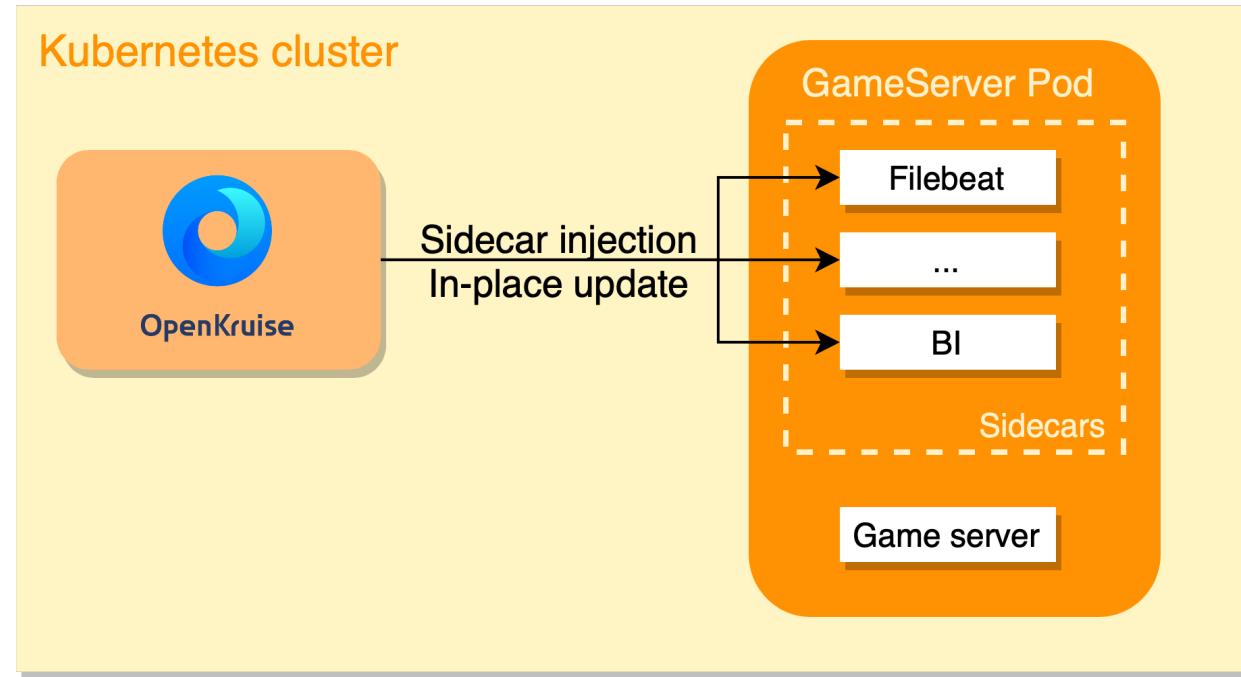
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In KubeVela, define the components, dependencies and operation rules in one place with standard

# OpenKruise

Challenge of runtime operations

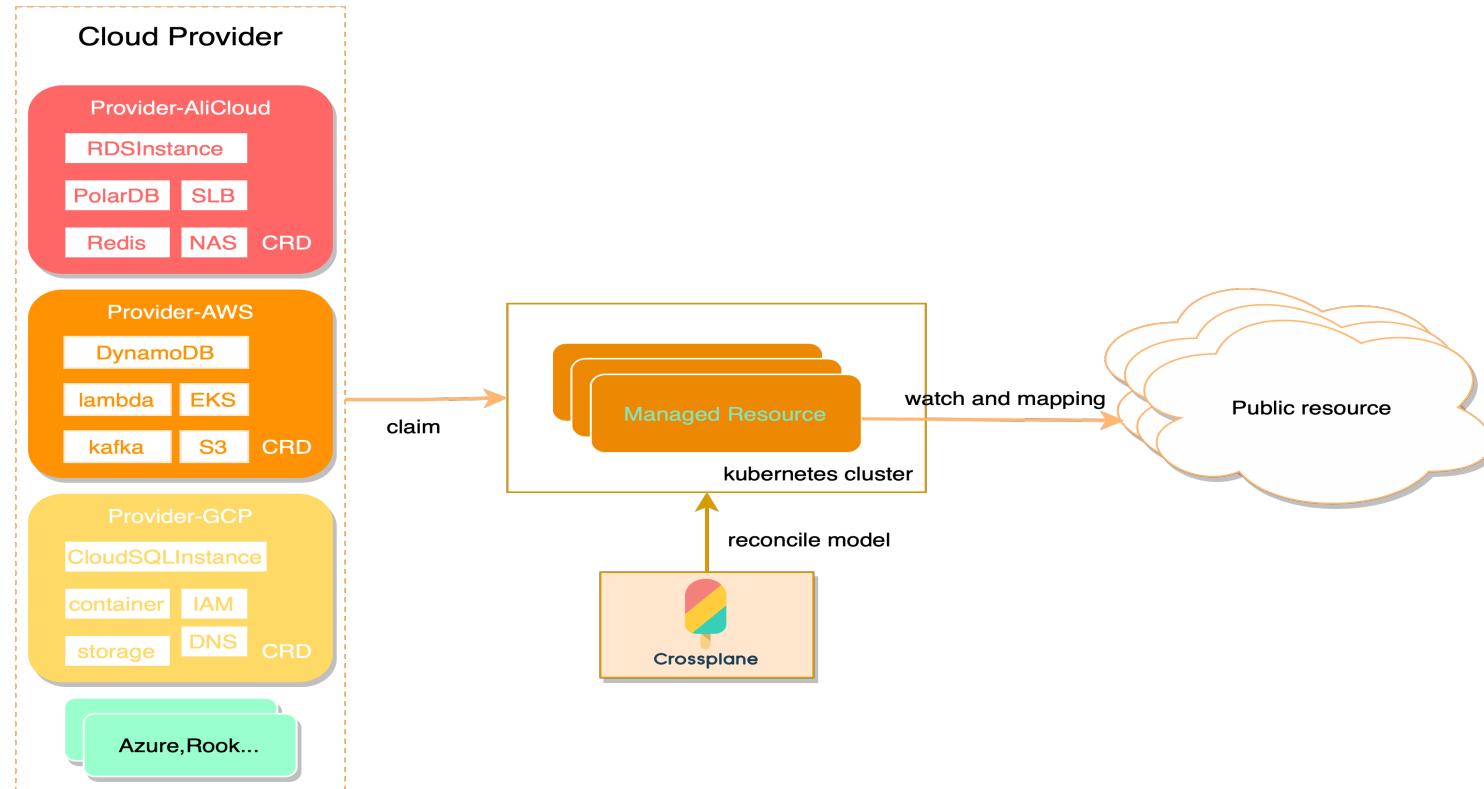


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Provide advance operations for the runtime containers  
and better operations and playing experiences

# Crossplane

Challenge for multi cloud resource



Crossplane help us provide ability in managing IaaS inside Kubernetes cluster

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# Conclusion



- ❖ Kubernetes brings high flexibility and efficient for Games' deployment
- ❖ Games naturally choose different cloud provisioners, which brings the multi cloud scenario
- ❖ Unified orchestration and management experience benefit developers and players greatly
- ❖ Cloud native is the trend for the game platform provider

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# A simple demo for running a game application

# Thanks for listening