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DevOps Challenge - Experience Report

Horror and Success Story

Noah Ispas

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Noah Ispas

- Software Engineer @anynines

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- Software Engineer @anynines
- Used to work with Java (monoliths)

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- Software Engineer @anynines
- Used to work with Java (monoliths)
- Got to know Node.js and Microservices

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- Helping customer getting their Software in the cloud

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Noah Ispas

- Software Engineer @anynines
- Used to work with Java (monoliths)
- Got to know Node.js and Microservices
- Helping customer getting their Software in the cloud
- Developing custom software around Cloud Foundry

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Agenda

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Agenda

- Horror Story

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Agenda

- Horror Story
  - Initial Situation

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Agenda

- Horror Story
  - Initial Situation
  - Transformation

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Agenda

- Horror Story
  - Initial Situation
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  - Big Bang

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- Horror Story
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  - Big Bang
  - What went wrong?

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- Horror Story
  - Initial Situation
  - Transformation
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  - What went wrong?
  - Chaos Prevention

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Agenda

- Horror Story
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- Horror Story
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  - What went wrong?
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- Success Story
  - Initial Situation
  - Requirements/Constraints

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  - Challenges
  - Solutions

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  - Solutions
  - Recap

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  - What went wrong?
  - Chaos Prevention
- Success Story
  - Initial Situation
  - Requirements/Constraints
  - Challenges
  - Solutions
  - Recap
- Lessons Learned/Advices

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Horror Story

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Initial Situation

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Initial Situation

- Small Company

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Initial Situation

- Small Company
- Java EE Monolith

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Initial Situation

- Small Company
- Java EE Monolith
- Very old legacy component

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Initial Situation

- Small Company
- Java EE Monolith
- Very old legacy component
- Small test suites

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Initial Situation

- Small Company
- Java EE Monolith
- Very old legacy component
- Small test suites
- Classic Dev and Ops silo

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Initial Situation

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Initial Situation

Developers

Operators

anynines

Initial Situation

Developers

Java Monolith

Operators

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Initial Situation

Developers

Operators

Java Monolith

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Initial Situation

Knowledge Barrier

Developers

Operators

Java Monolith

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“

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“

You build it, you run it

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“

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Initial Situation

Bare Metal

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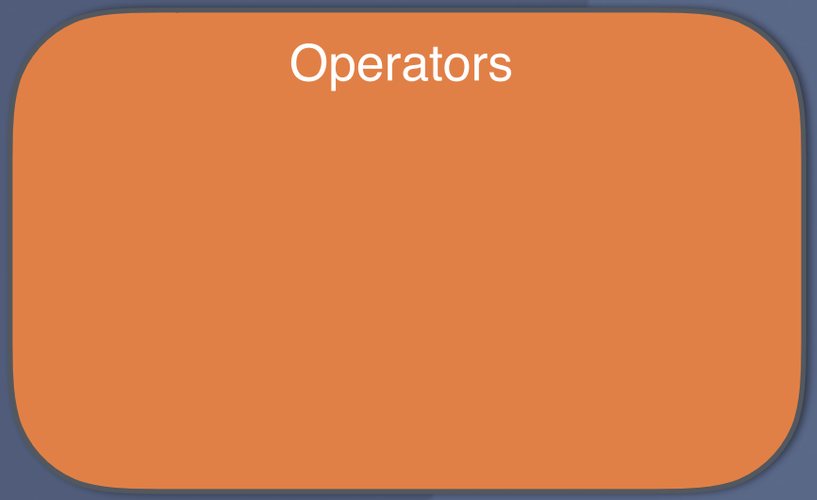
Initial Situation



Bare Metal

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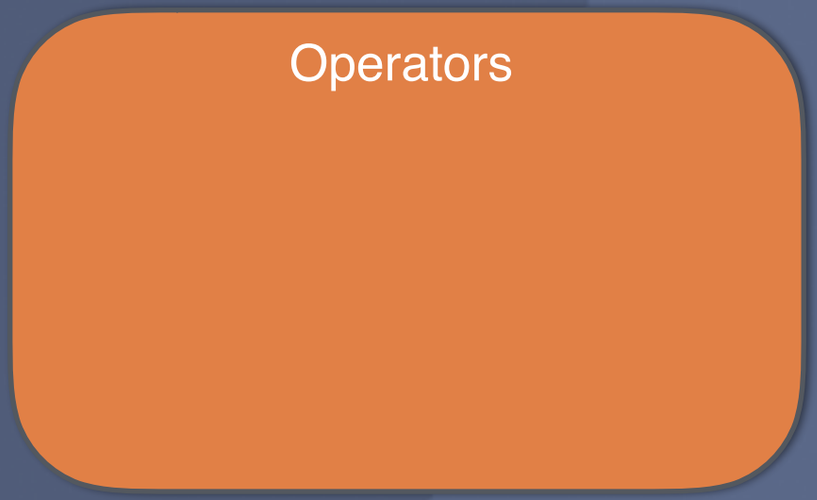
Initial Situation



Bare Metal

Performance Issues

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Transformation

Operators

Bare Metal

JBoss

Java Monolith

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Transformation

Operators

Bare Metal

JBoss

Java Monolith

Performance Limit

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Transformation

Operators

Bare Metal

JBoss

Java Monolith

Performance Limit

No Resilience

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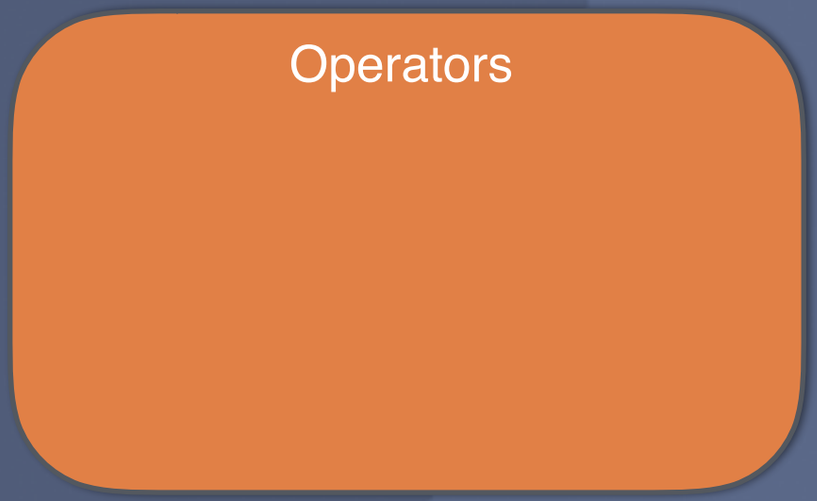
Transformation



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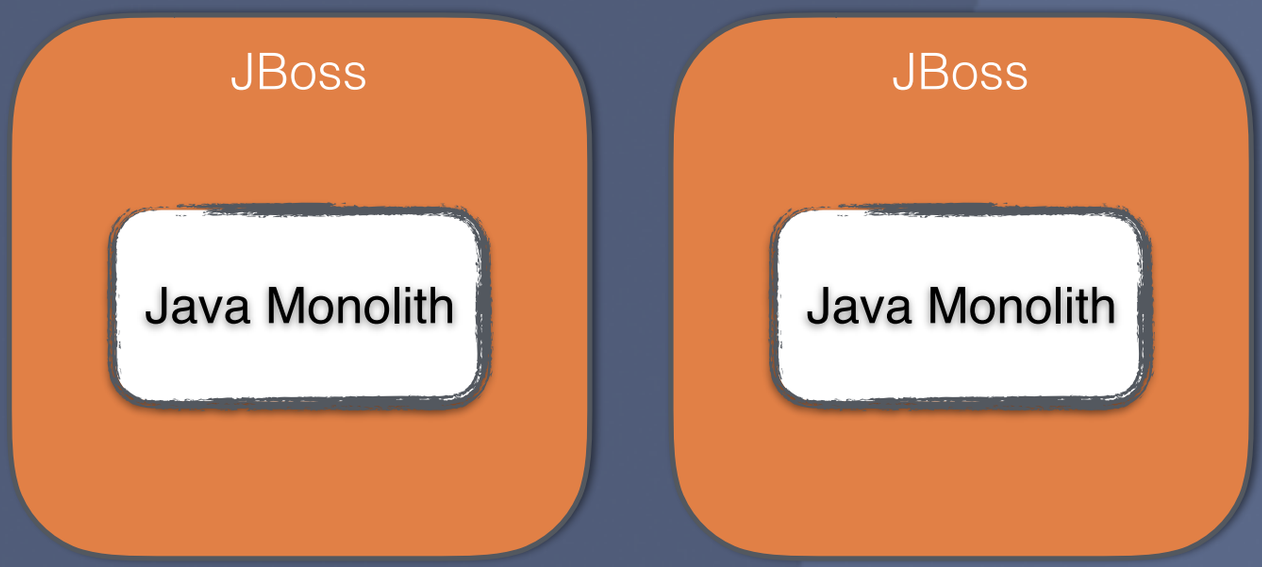

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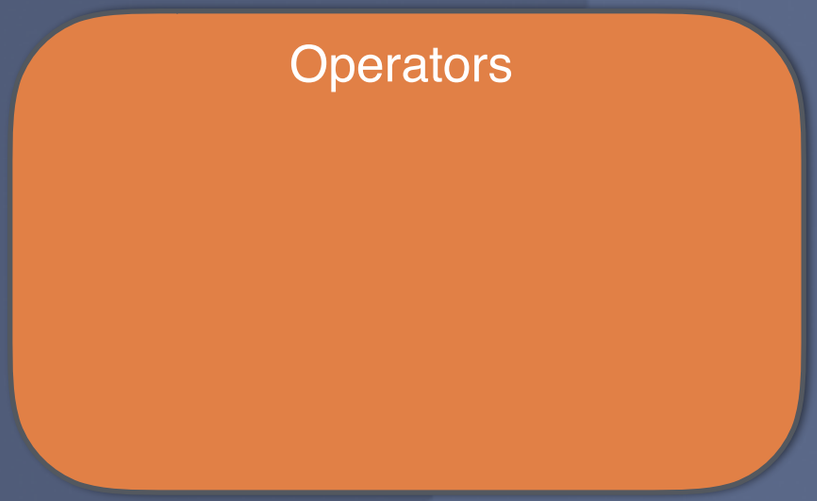
Transformation



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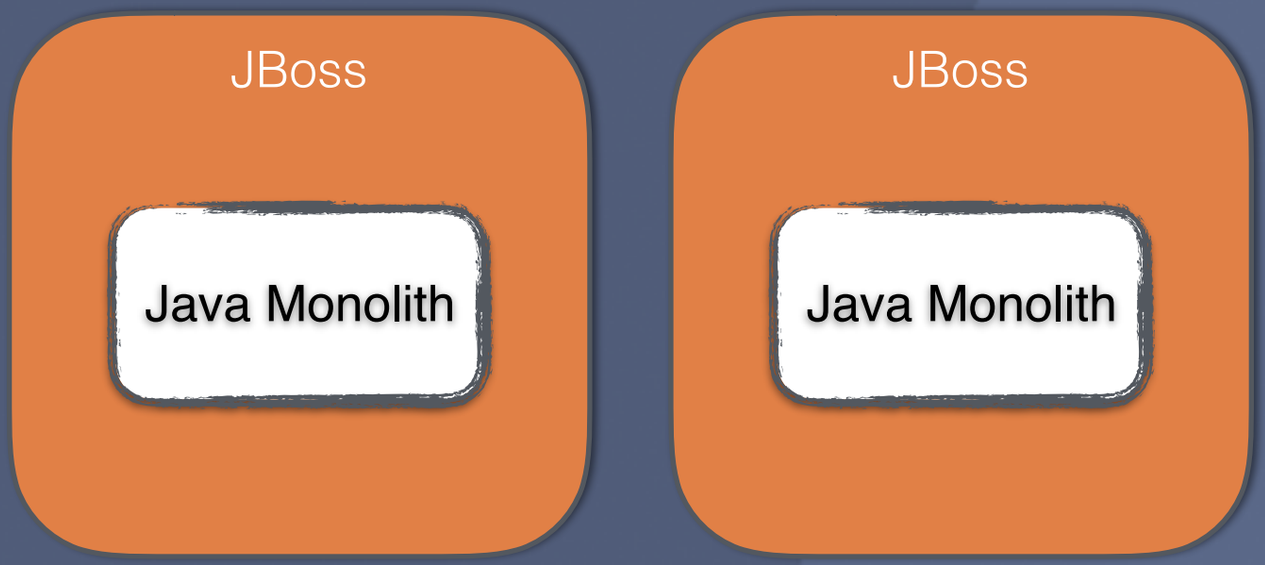

Singletons

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Transformation

Knowledge Barrier

Developers

Operators

Java Monolith

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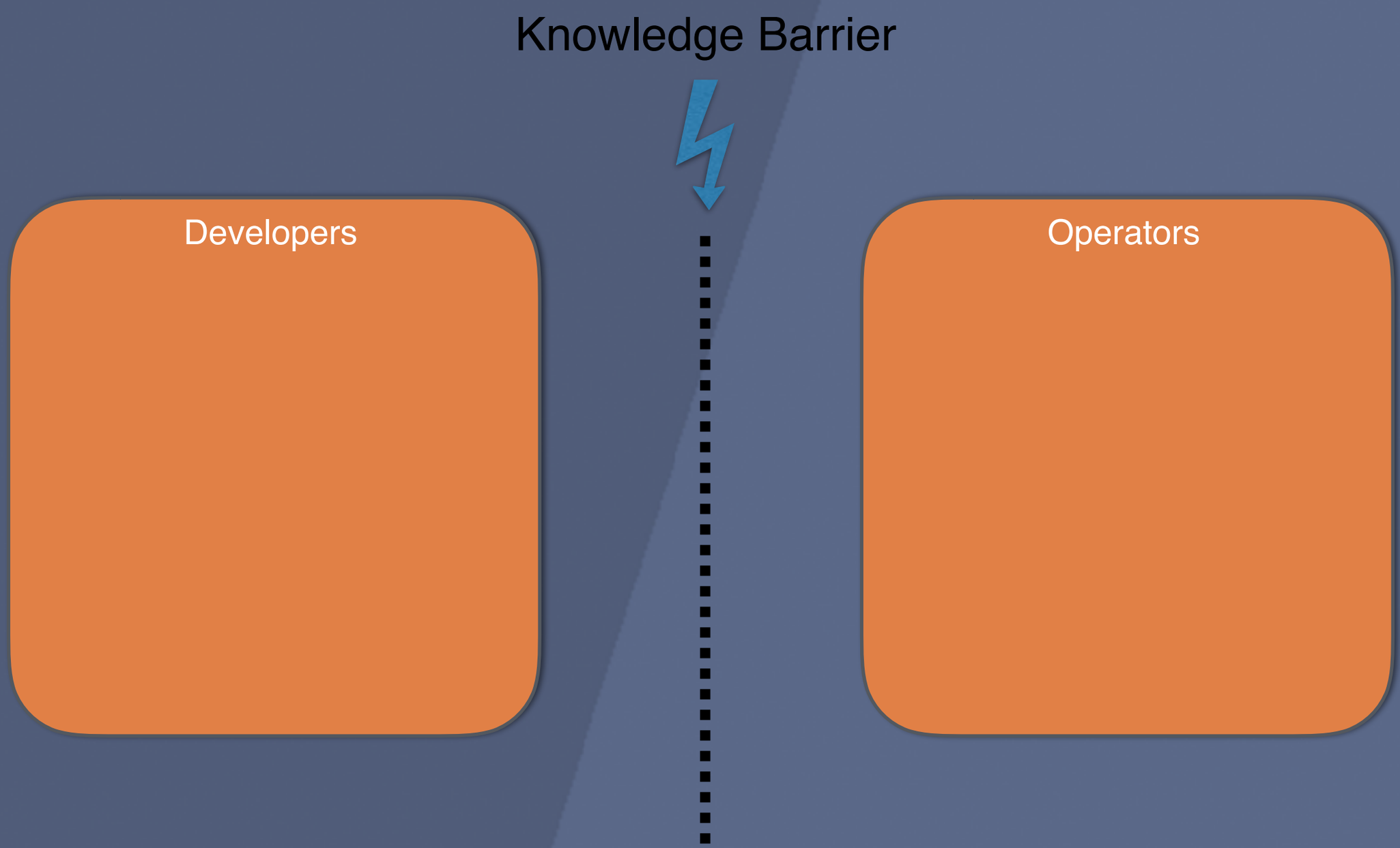
Transformation



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Transformation

Knowledge Barrier

Developers

Operators

Java Monolith

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Transformation

Operators

Bare Metal

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Transformation

Operators

Bare Metal

JBoss

Java Monolith

JBoss

Java Monolith

Kubernetes

DB

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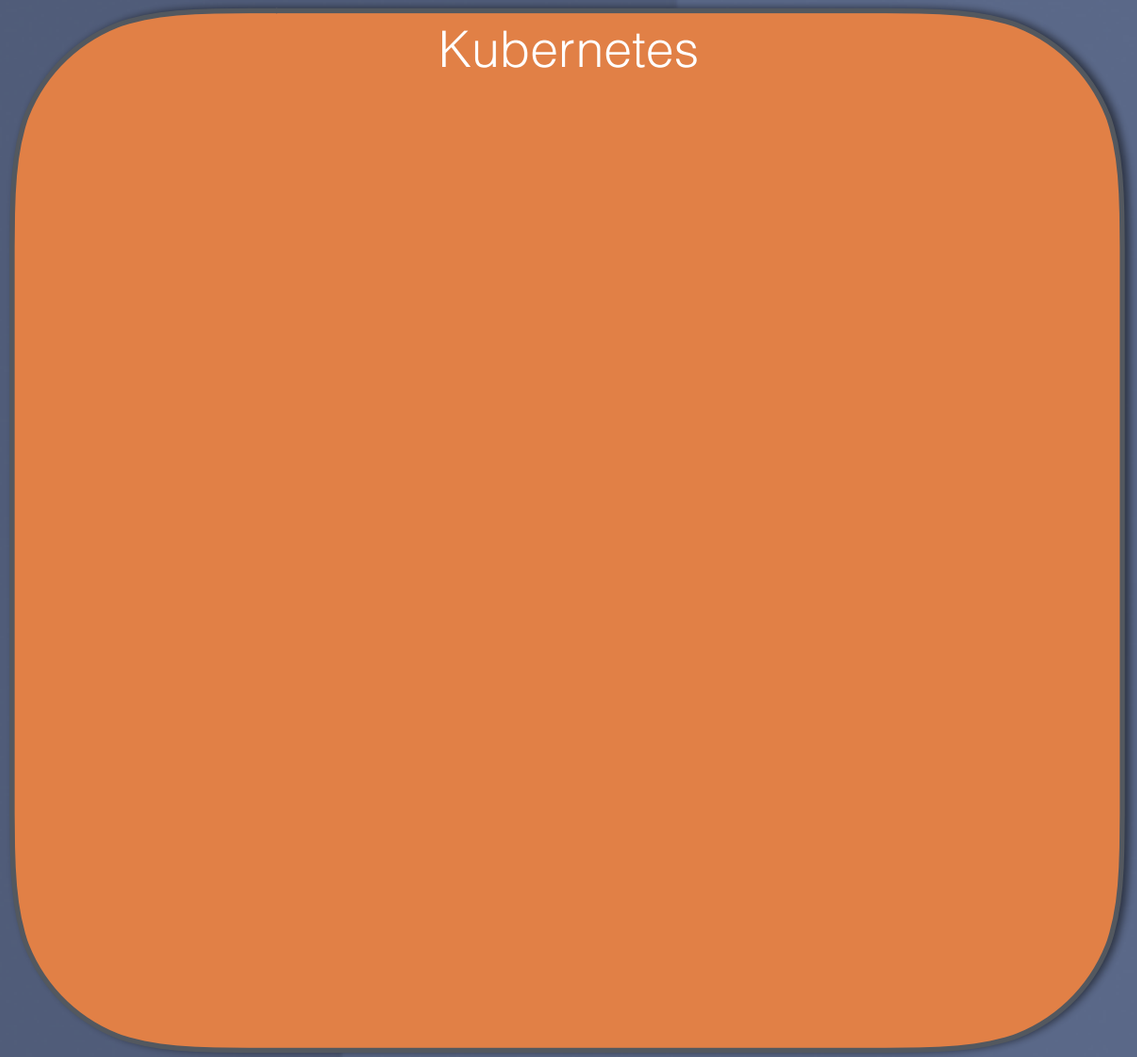
Transformation



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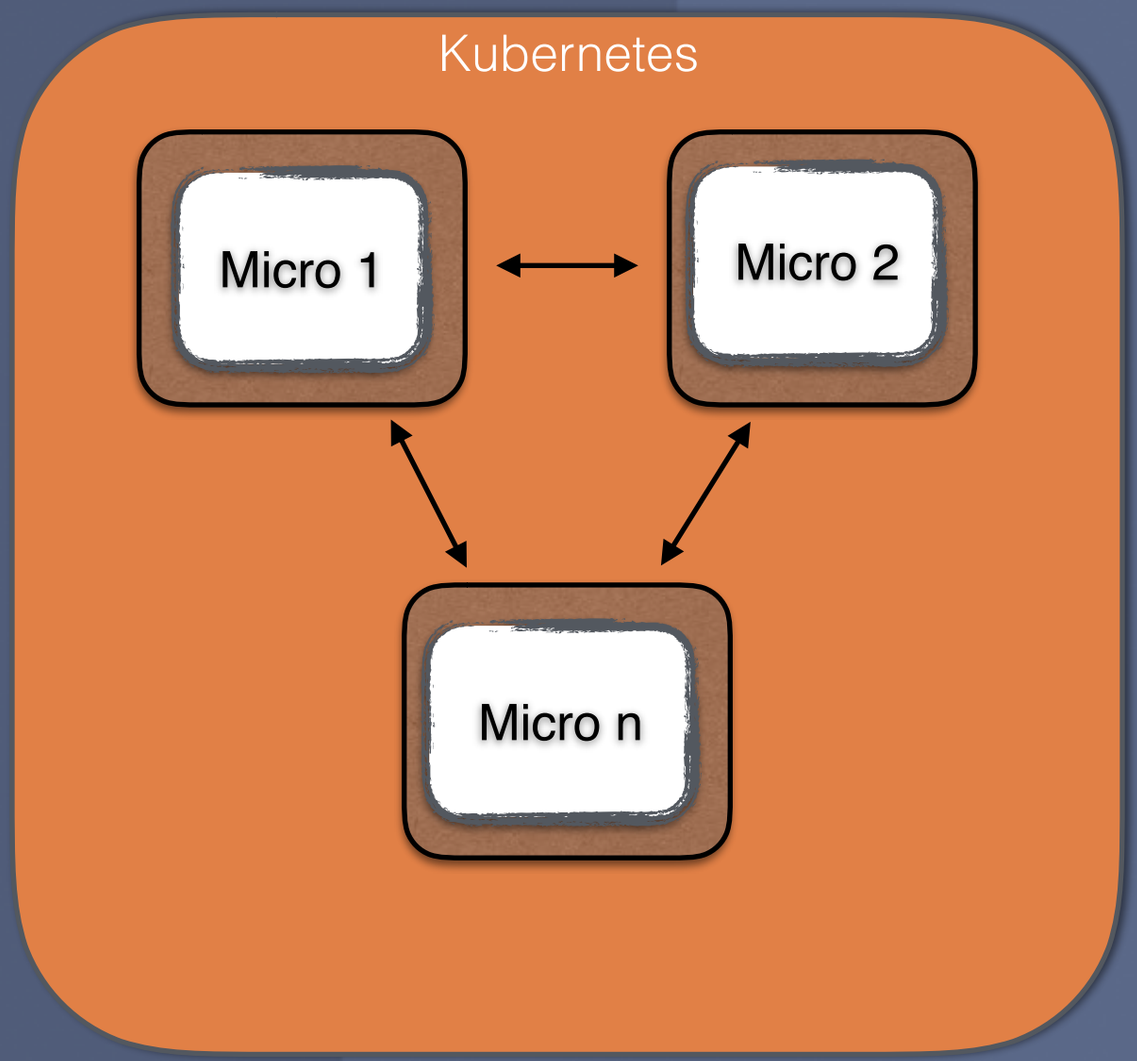
Transformation



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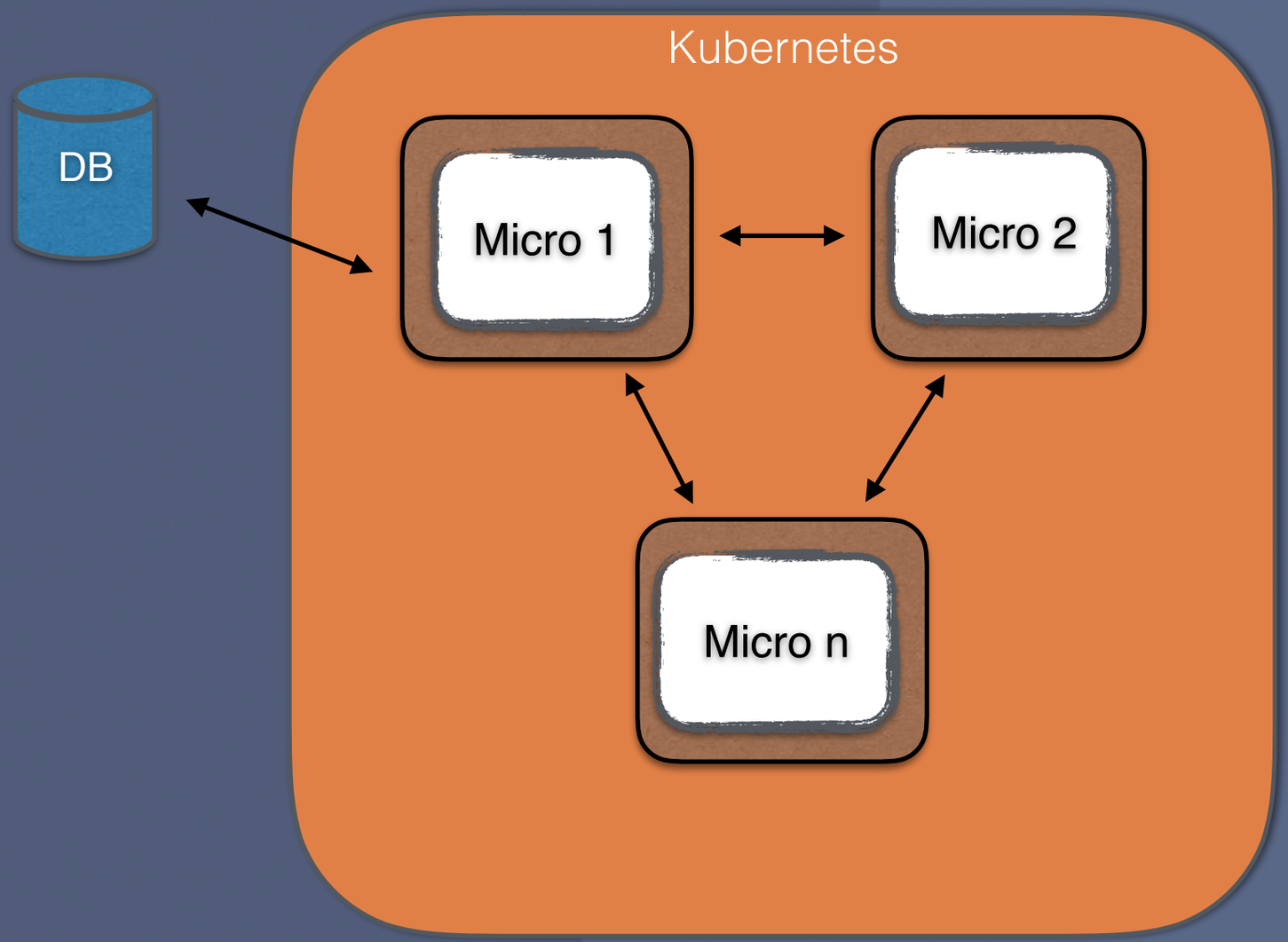
Transformation



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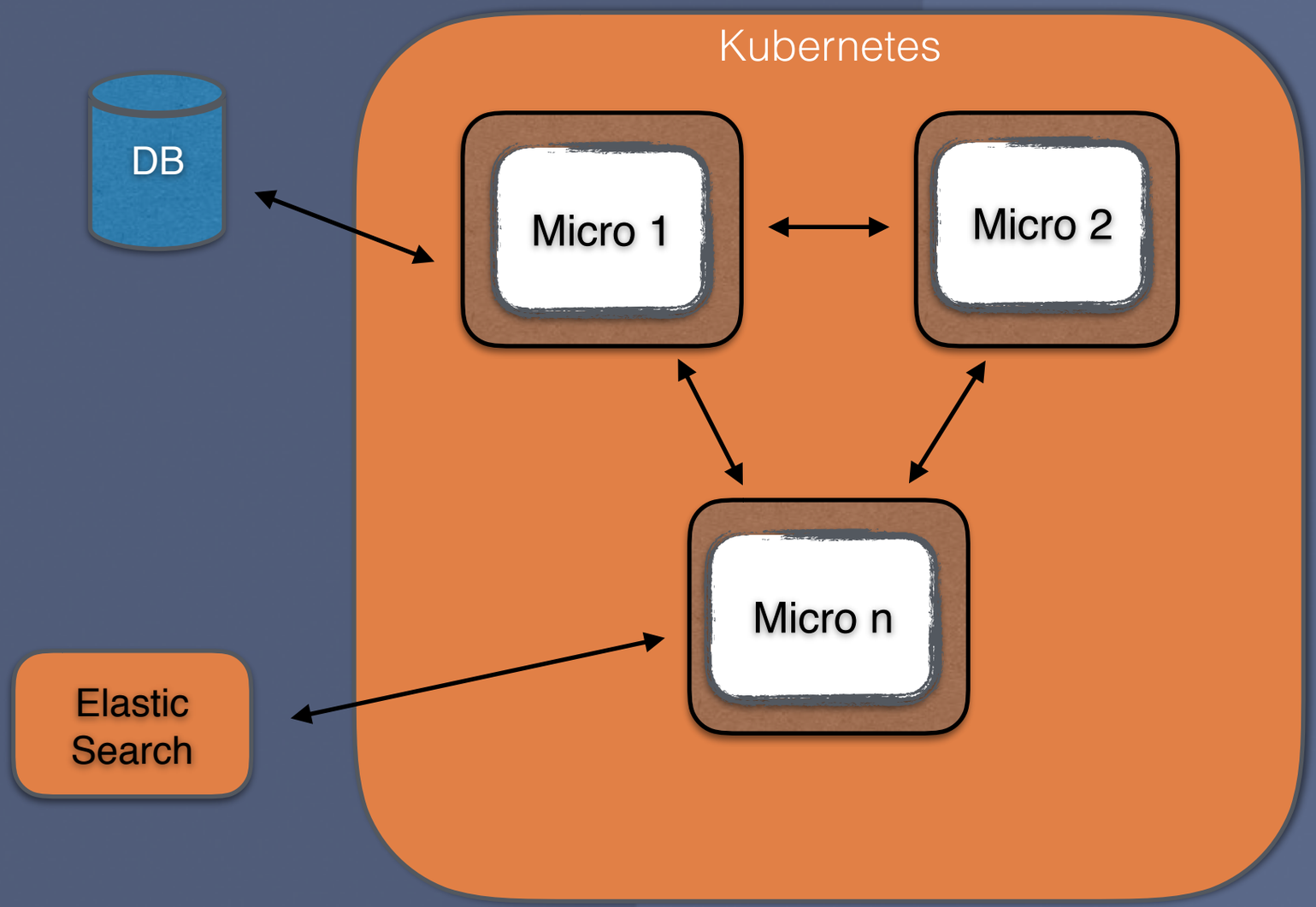

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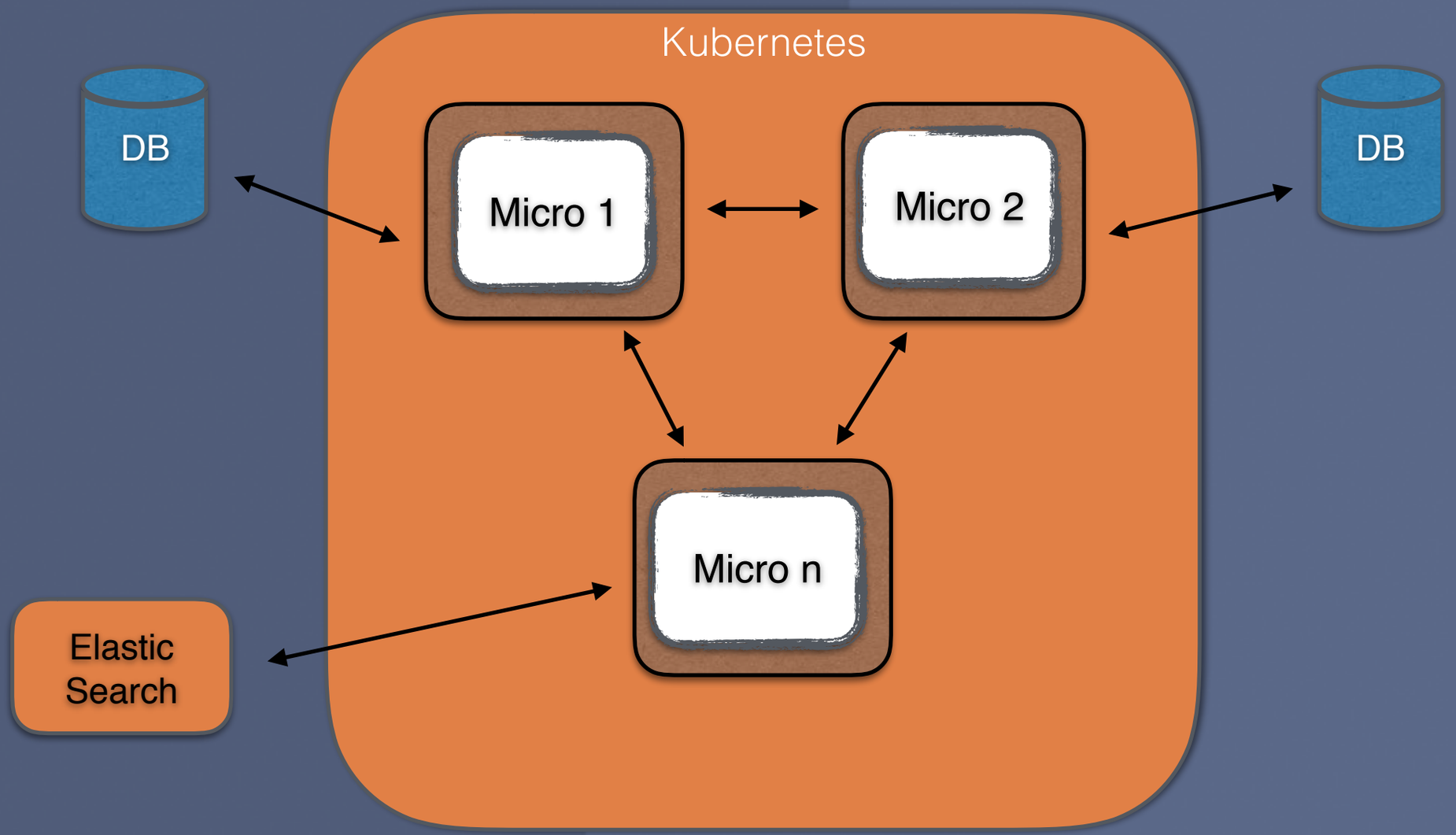

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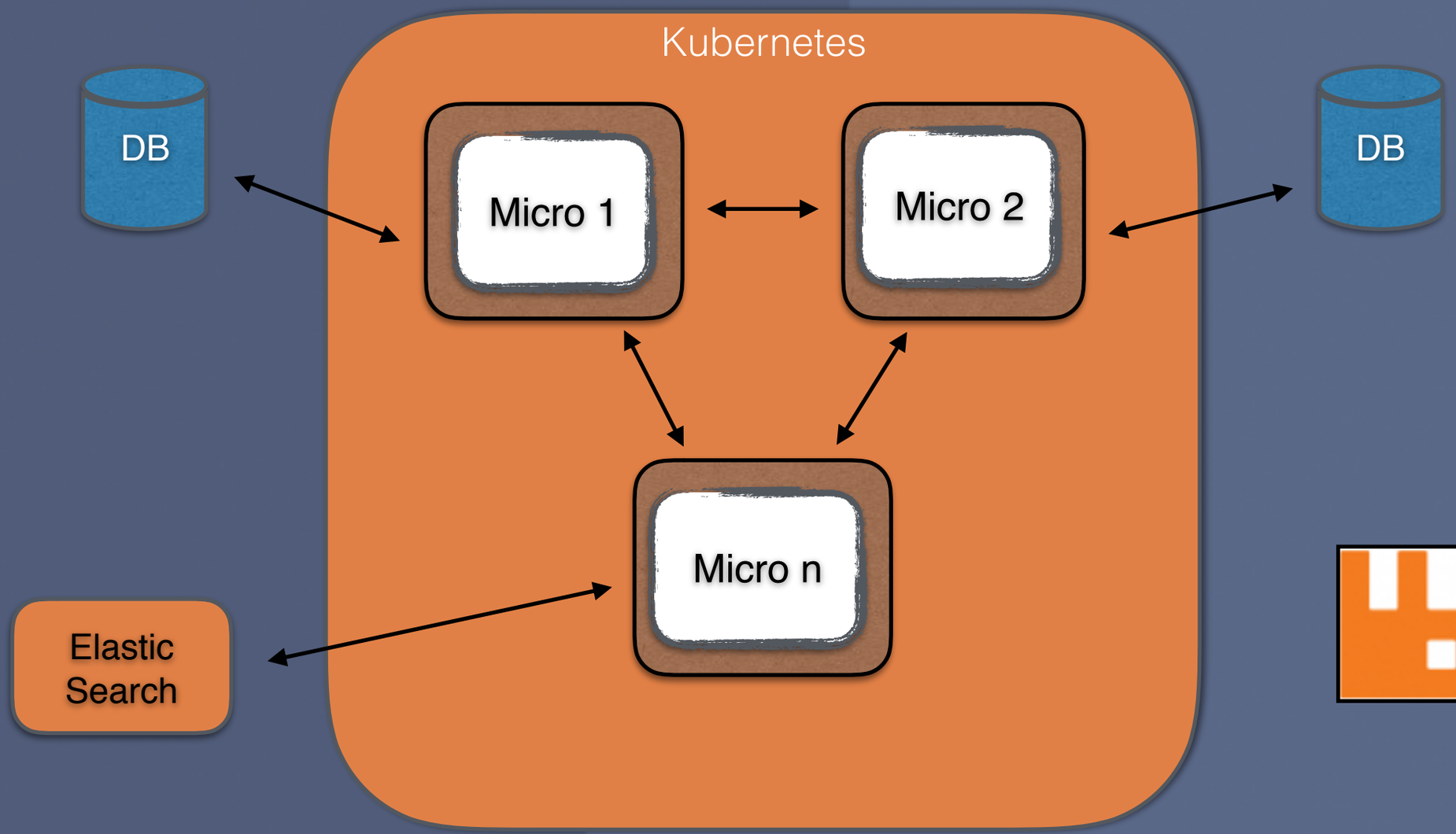
Transformation



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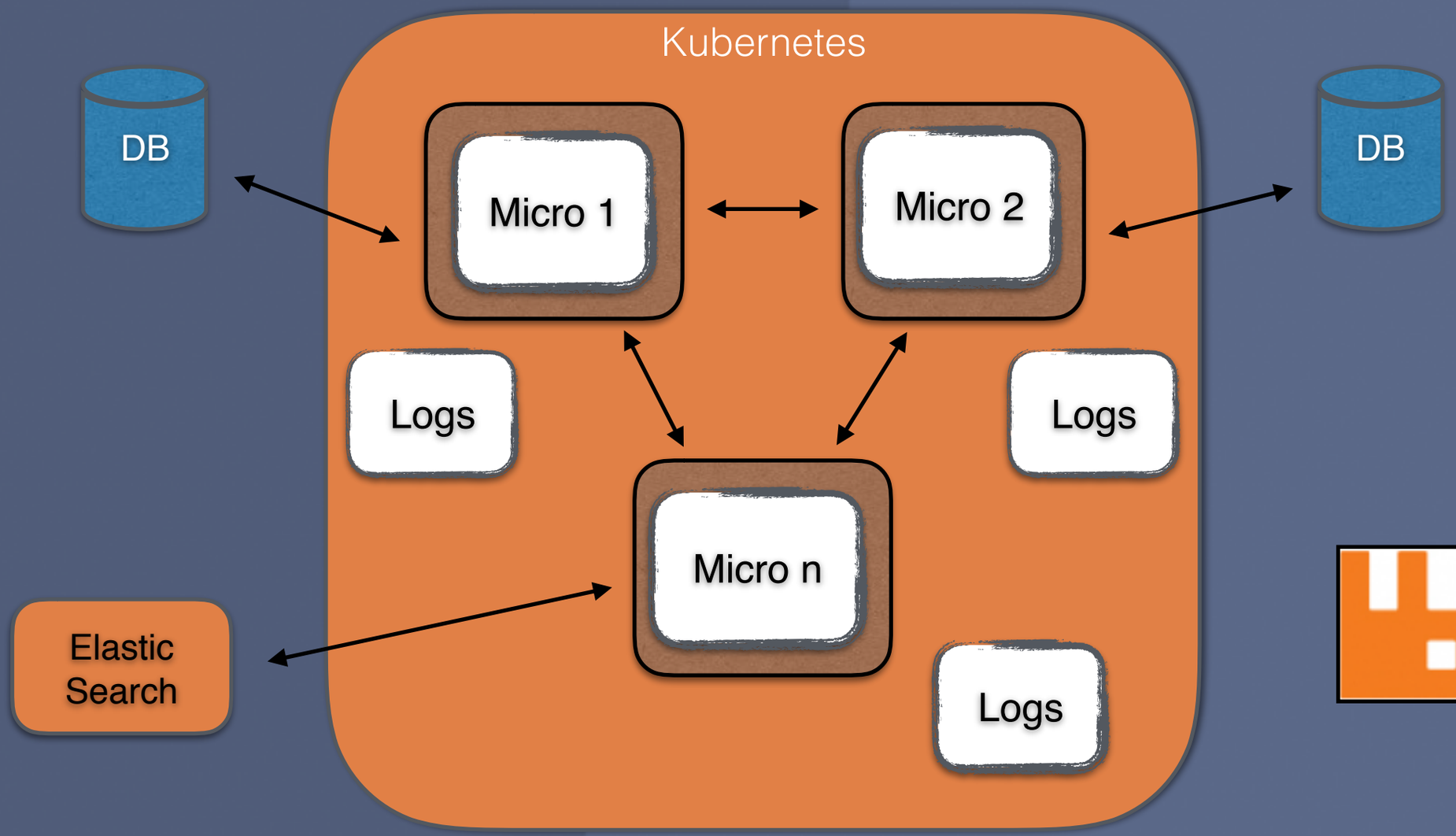
Transformation



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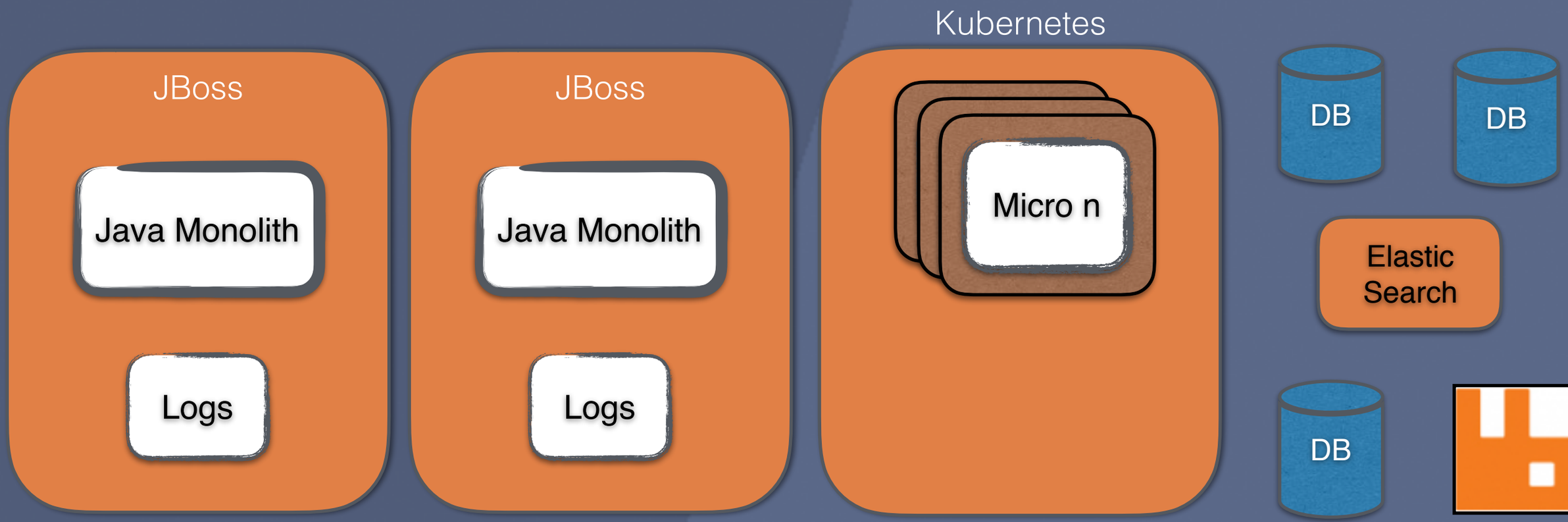
Big Bang

Bare Metal



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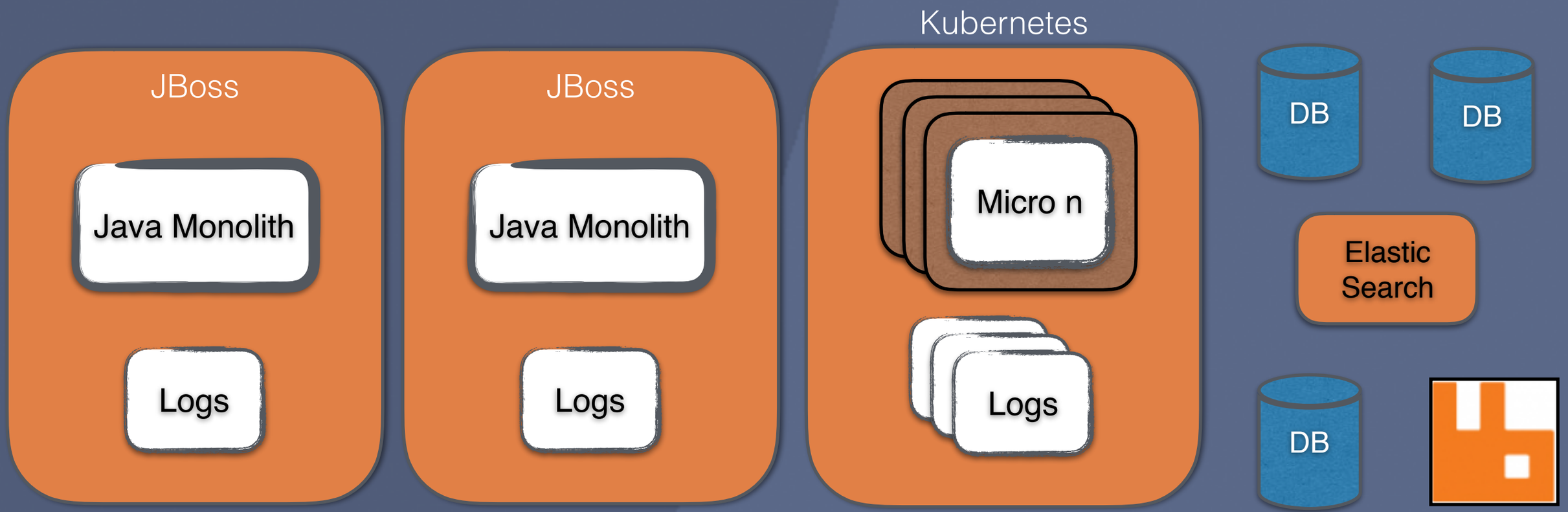
Big Bang

Bare Metal



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Big Bang

Bare Metal .....

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Conway’s Law

“

”

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Conway's Law

Organizations which design Systems … are constrained to produce designs which are copies of the communication structures of these organizations

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Inverse Conway’s Law

“

”

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Inverse Conway's Law

> *The organizational structure of a company is determined by the architecture of its product*

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Big Bang

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Big Bang

- Microservices Crashed

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Big Bang

- Microservices Crashed
- Logs were hard to read (not centralized, no tracing)

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Big Bang

- Microservices Crashed
- Logs were hard to read (not centralized, no tracing)
- Blaming on Devs

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Big Bang

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- Logs were hard to read (not centralized, no tracing)
- Blaming on Devs
- „You have to run it“, but there was no ops knowledge

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Big Bang

- Microservices Crashed
- Logs were hard to read (not centralized, no tracing)
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- „You have to run it“, but there was no ops knowledge
- „everything was better in the past“

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Big Bang

- Microservices Crashed
- Logs were hard to read (not centralized, no tracing)
- Blaming on Devs
- „You have to run it“, but there was no ops knowledge
- „everything was better in the past“
- Bleading Edge Kubernetes

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What went wrong?

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What went wrong?

- Trust Issues

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What went wrong?

- Trust Issues
- No Knowledge Sharing

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What went wrong?

- Trust Issues
- No Knowledge Sharing
- Fear of change

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What went wrong?

- Trust Issues
- No Knowledge Sharing
- Fear of change
- Blaming Culture

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What went wrong?

- Trust Issues
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- Introduction of too many things „at once“

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What went wrong?

- Trust Issues
- No Knowledge Sharing
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- Introduction of too many things „at once“
- Too less knowledge about DevOps practices

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What went wrong?

- Trust Issues
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- No transformation plan

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What went wrong?

- Trust Issues
- No Knowledge Sharing
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- Blaming Culture
- Introduction of too many things „at once“
- Too less knowledge about DevOps practices
- No transformation plan
- Poor C level support

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What went wrong?

- Trust Issues
- No Knowledge Sharing
- Fear of change
- Blaming Culture
- Introduction of too many things „at once“
- Too less knowledge about DevOps practices
- No transformation plan
- Poor C level support
- No Mindset Development

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Thomas Bradford
@kode4food

Folge ich

People, Culture, Collaboration, Customers, Code, and Processes. In that order.

Tweet übersetzen

09:13 - 3. Sep. 2018

1 Retweet **4** „Gefällt mir“-Angaben

1 4

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“

”

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“Individuals and interactions over processes and tools”

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Chaos prevention

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Chaos prevention

- Understand Conway's Law

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Chaos prevention

- Understand Conway's Law
- Throw Blaming Culture away

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Chaos prevention

- Understand Conway's Law
- Throw Blaming Culture away
- Gain and share knowledge about technologies and DevOps practices

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Chaos prevention

- Understand Conway's Law
- Throw Blaming Culture away
- Gain and share knowledge about technologies and DevOps practices
- Develop a DevOps mindset/culture

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Chaos prevention

- Understand Conway's Law
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- Make a plan

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Chaos prevention

- Understand Conway's Law
- Throw Blaming Culture away
- Gain and share knowledge about technologies and DevOps practices
- Develop a DevOps mindset/culture
- Make a plan
- Start with baby steps

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Chaos prevention

- Understand Conway's Law
- Throw Blaming Culture away
- Gain and share knowledge about technologies and DevOps practices
- Develop a DevOps mindset/culture
- Make a plan
- Start with baby steps
- Ensure C Level support

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“

”

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“Give a motivated team the environment and support they need, and trust them to get their job done”

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Success Story

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Success Story - Initial Situation

Success Story - Initial Situation

- Big Customer

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Success Story - Initial Situation

- Big Customer
- Ongoing Digital Transformation

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Success Story - Initial Situation

- Big Customer
- Ongoing Digital Transformation
- Cloud Platform (Cloud Foundry) in place

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Success Story - Initial Situation

- Big Customer
- Ongoing Digital Transformation
- Cloud Platform (Cloud Foundry) in place
- Mission was to develop a piece of Software that uses CF

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Success Story - Initial Situation

- Big Customer
- Ongoing Digital Transformation
- Cloud Platform (Cloud Foundry) in place
- Mission was to develop a piece of Software that uses CF
- No access to infrastructure

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Success Story - Requirements/Constraints

Success Story - Requirements/Constraints

- Cost Efficient

Success Story - Requirements/Constraints

- Cost Efficient
- Resilient

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Success Story - Requirements/Constraints

- Cost Efficient
- Resilient
- a9s On Call for Incidents

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Success Story - Requirements/Constraints

- Cost Efficient
- Resilient
- a9s On Call for Incidents
- AWS native

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Success Story - Requirements/Constraints

- Cost Efficient
- Resilient
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- AWS native
- Serverless technologies

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Success Story - Requirements/Constraints

- Cost Efficient
- Resilient
- a9s On Call for Incidents
- AWS native
- Serverless technologies
- Scrum

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Challenges

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Process Divergence

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Process Divergence

Kanban

Process Divergence

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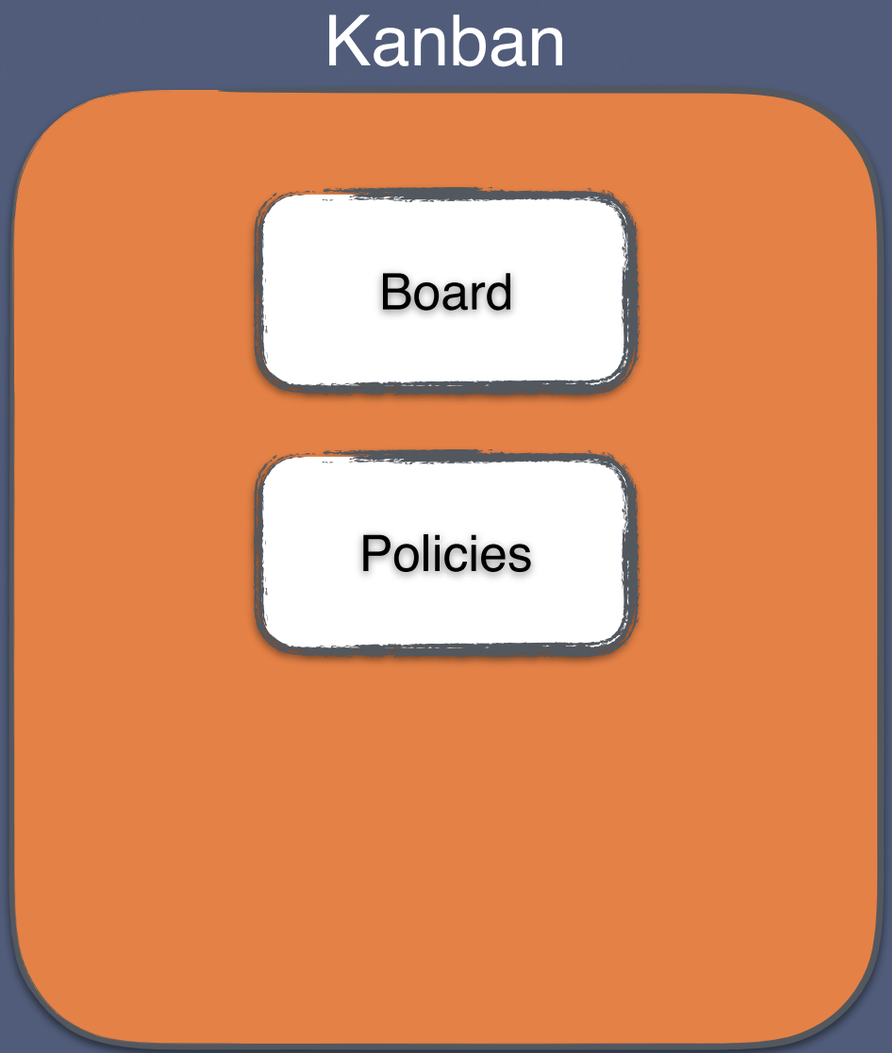
Process Divergence



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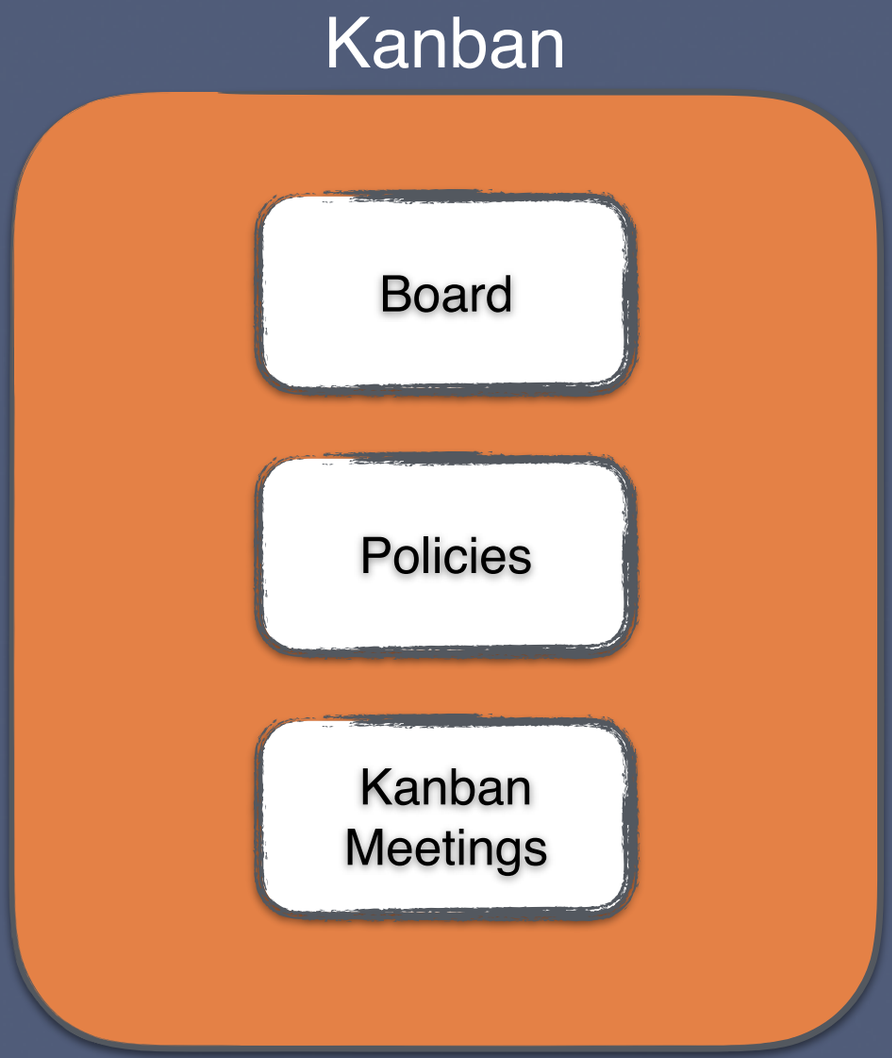
Process Divergence



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Process Divergence

Kanban

Board

Policies

Kanban Meetings

Scrum

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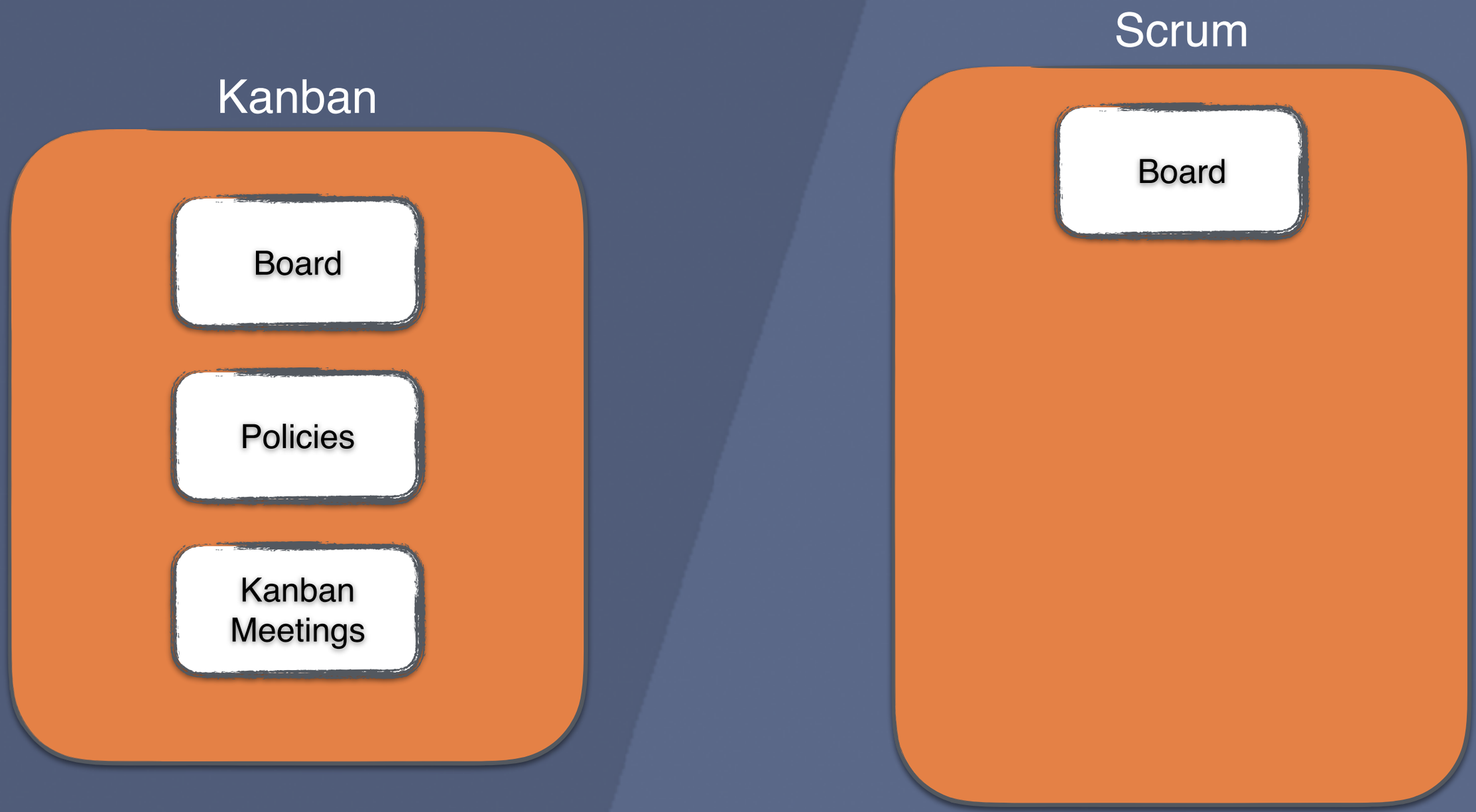
Process Divergence



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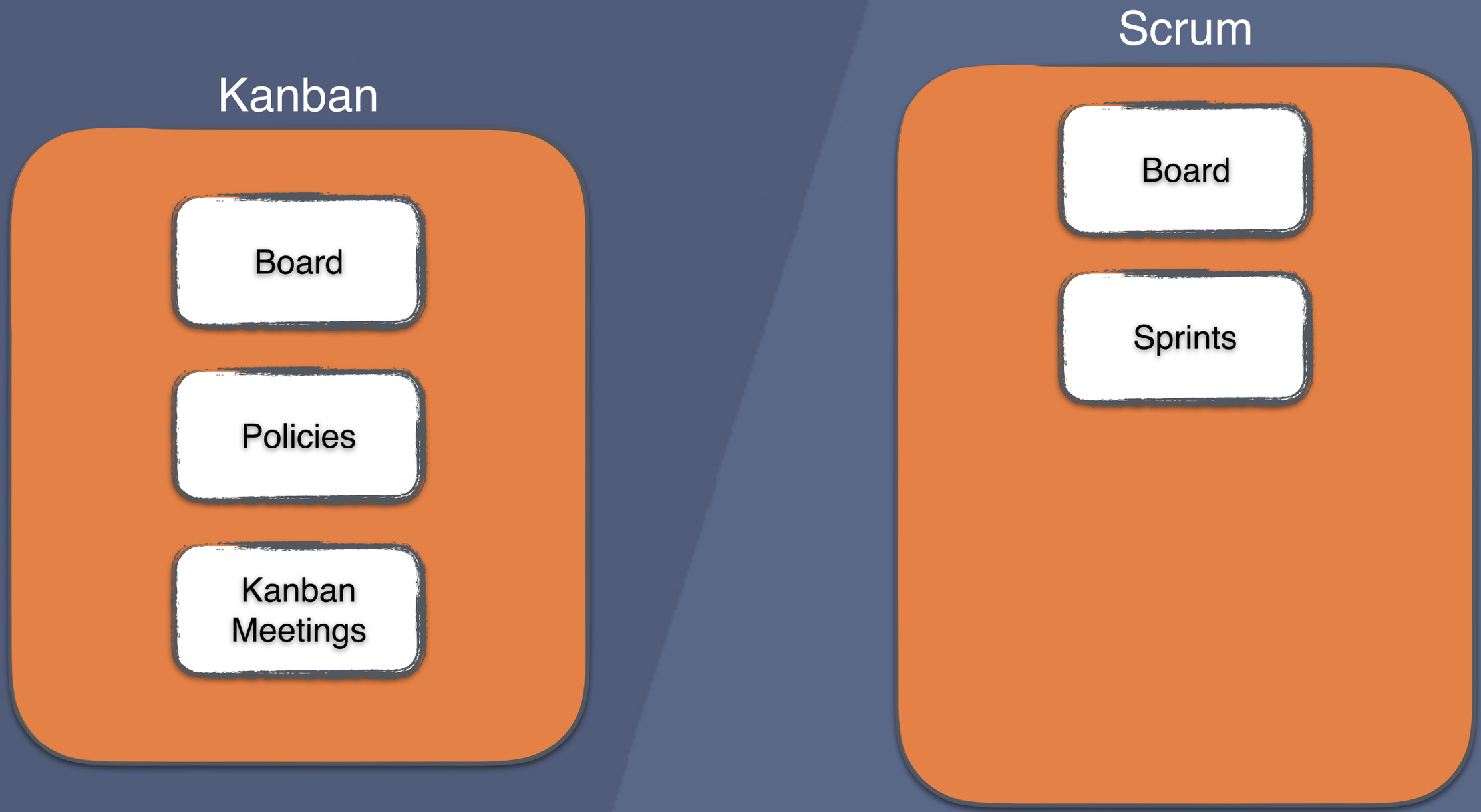
Process Divergence



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Process Divergence

Kanban

Board

Policies

Kanban Meetings

Scrum

Board

Sprints

Planning

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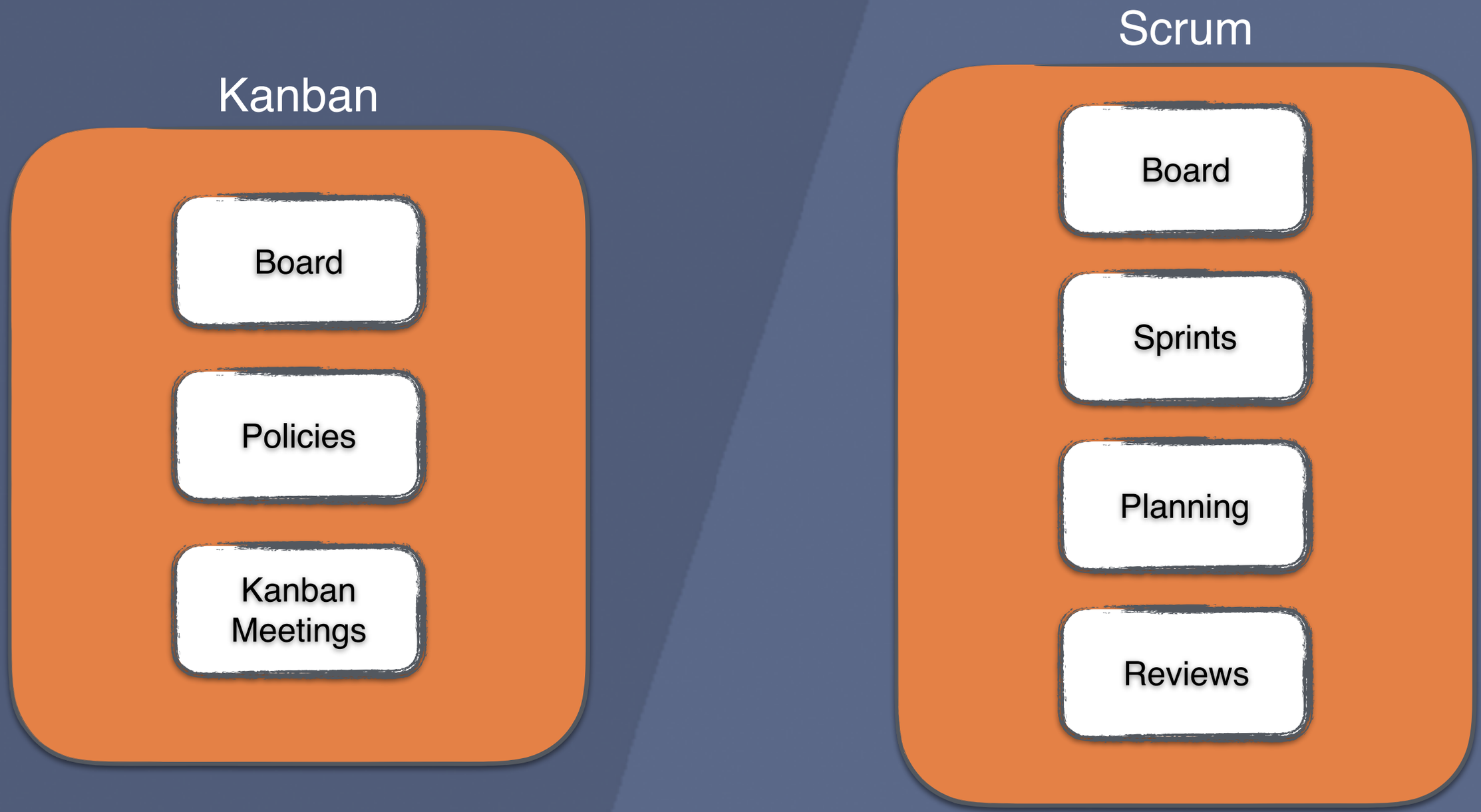
Process Divergence



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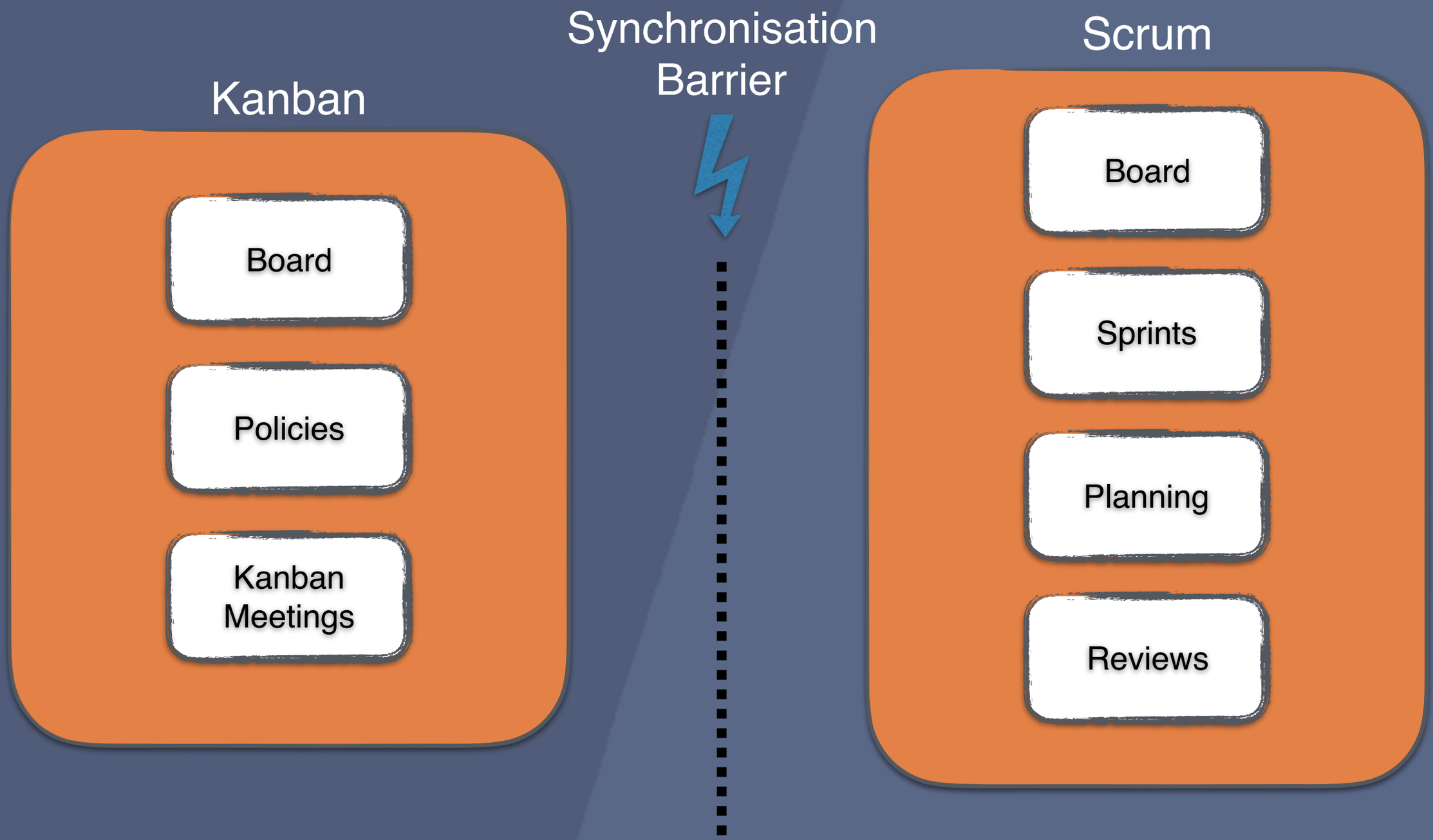
Process Divergence



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Context/Security Divergence

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Context/Security Divergence

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Context/Security Divergence

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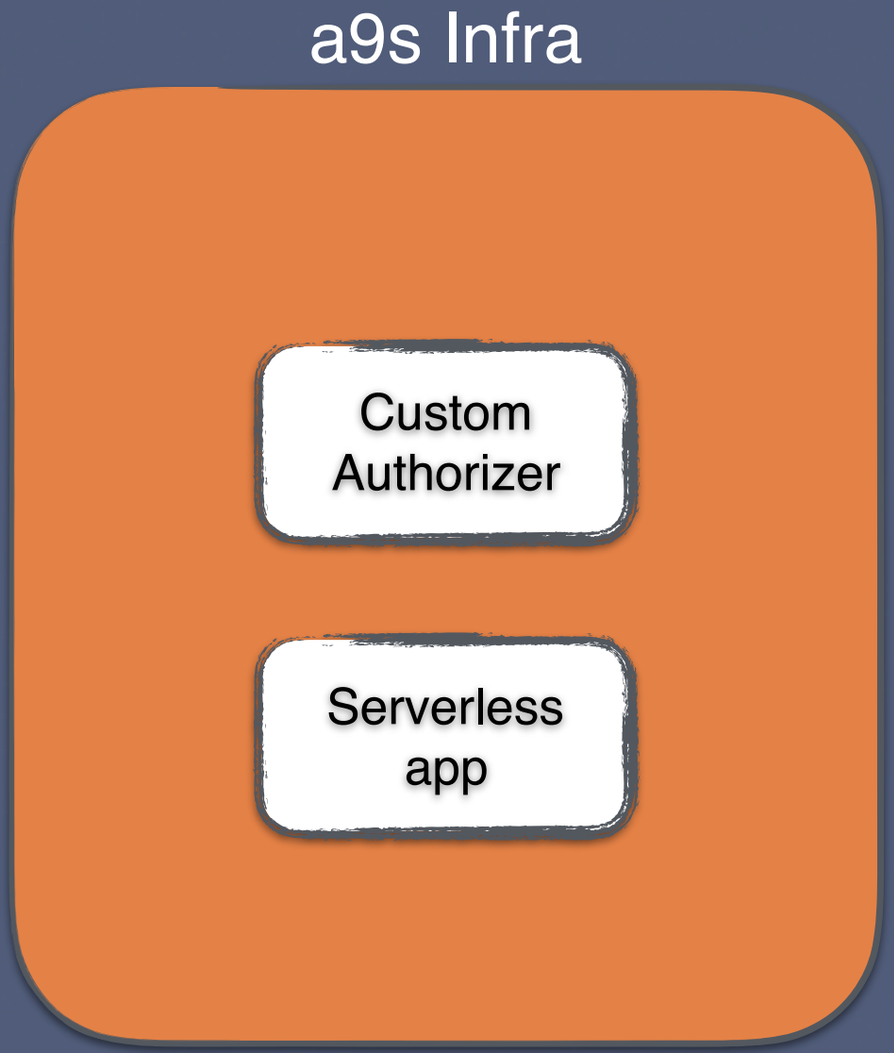
Context/Security Divergence



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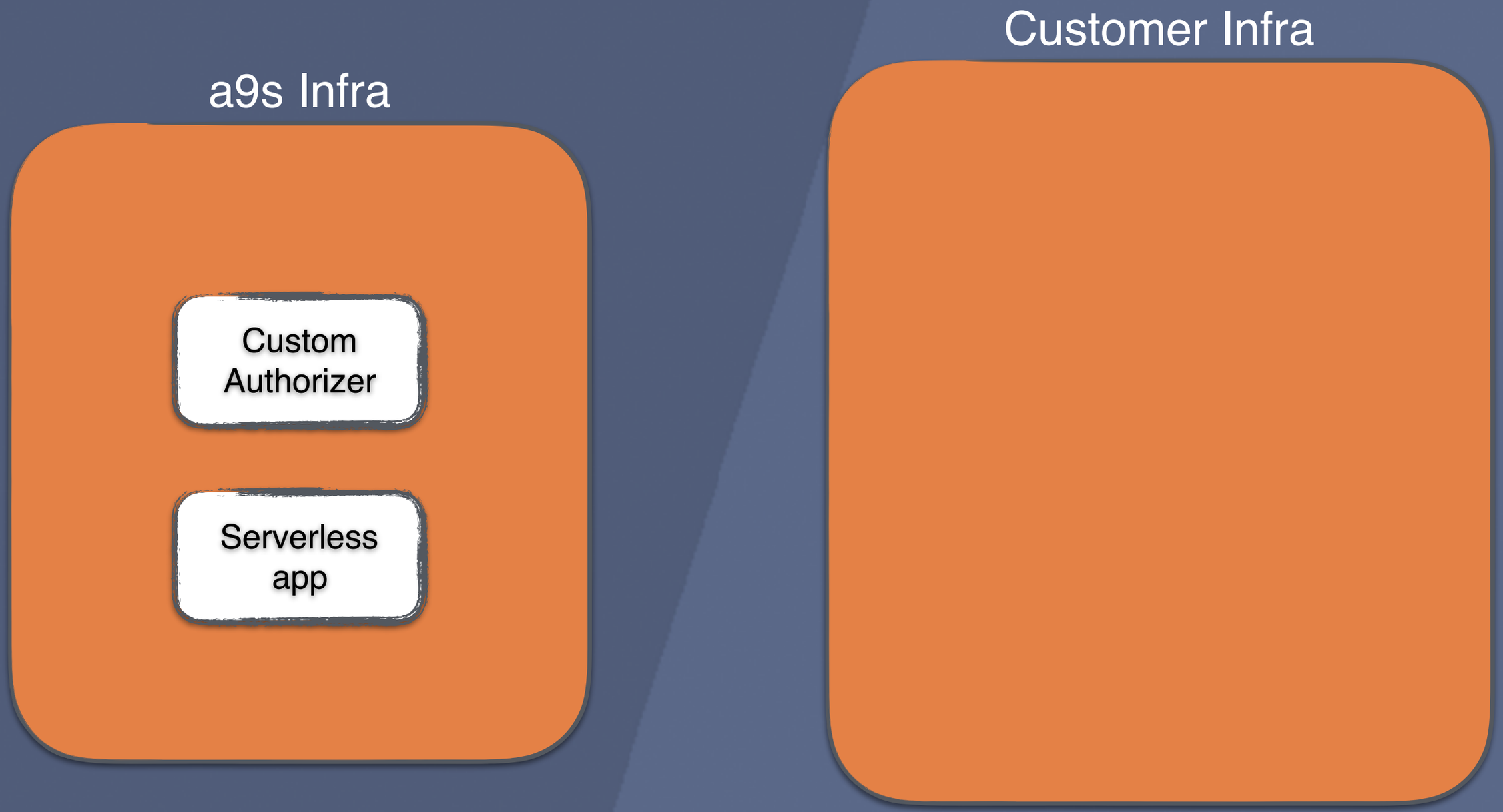
Context/Security Divergence



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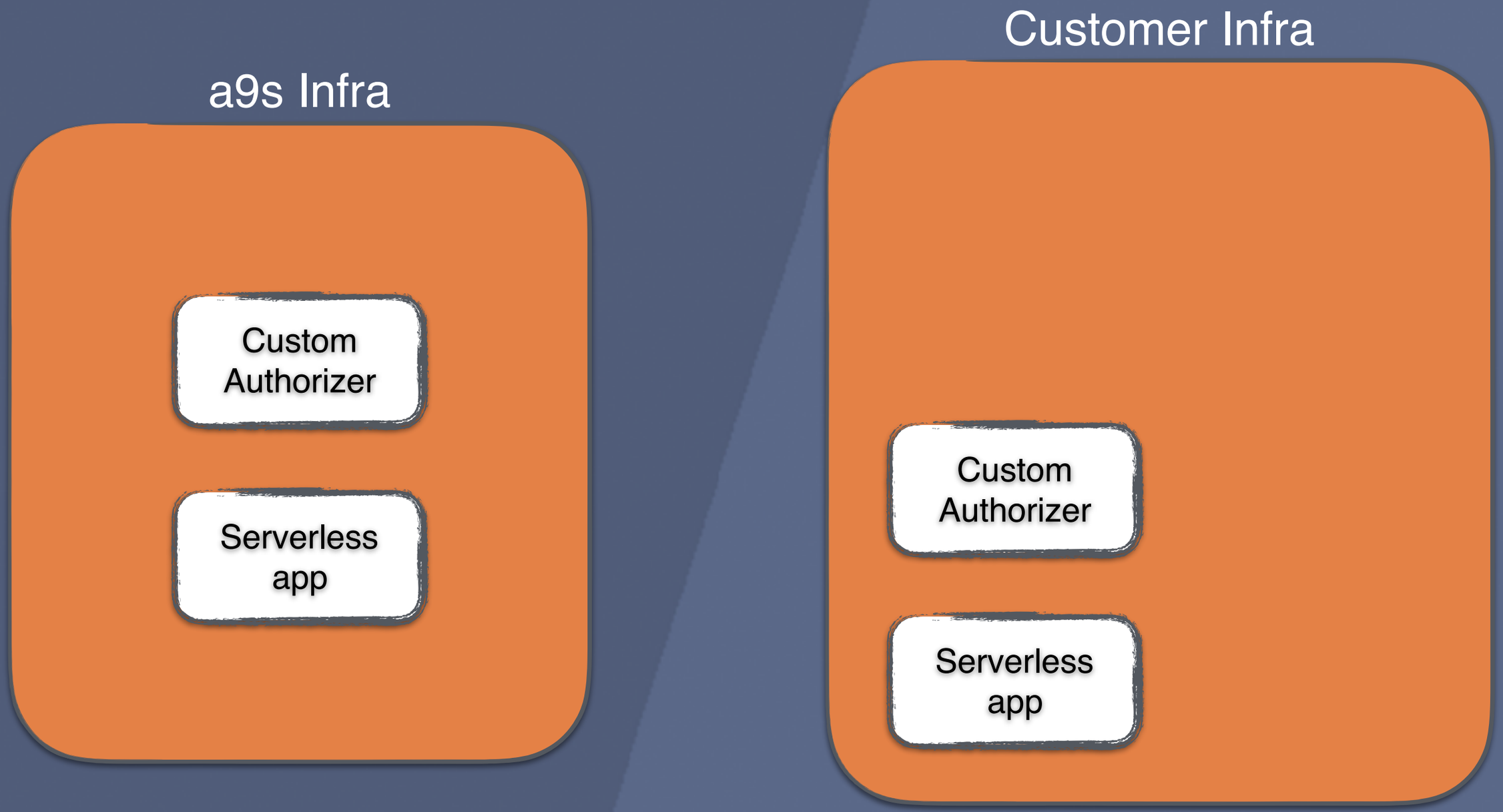

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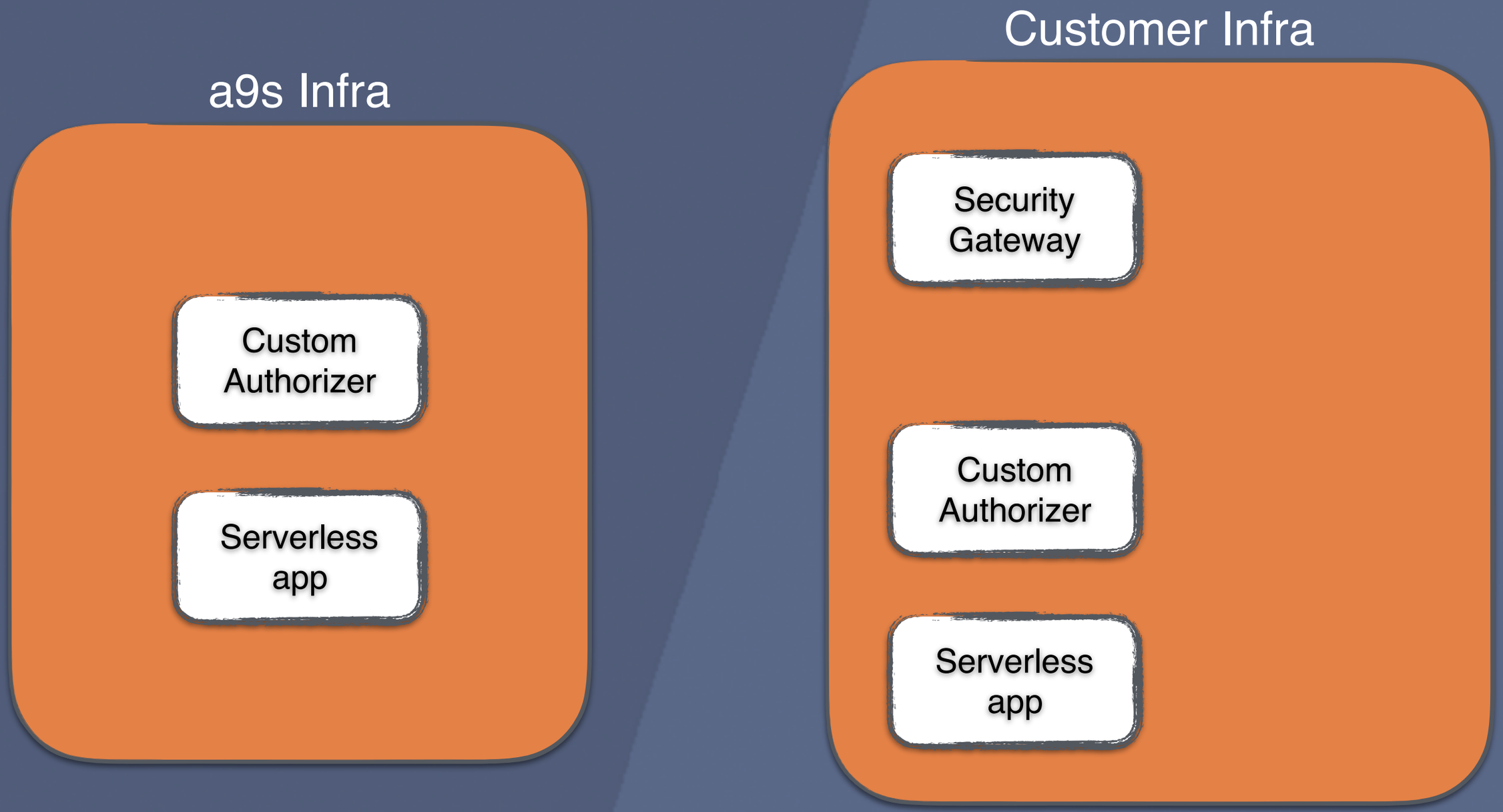

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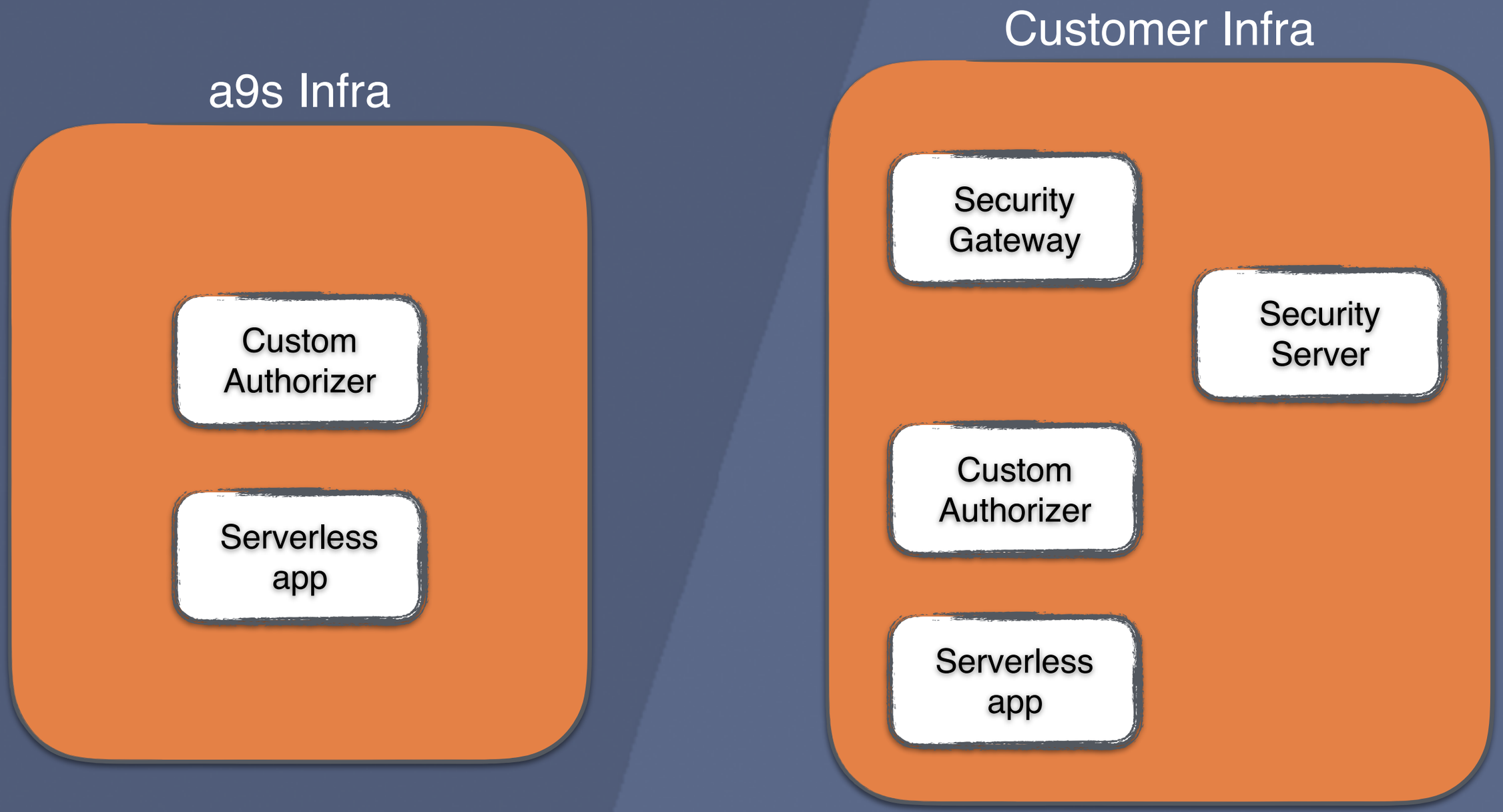

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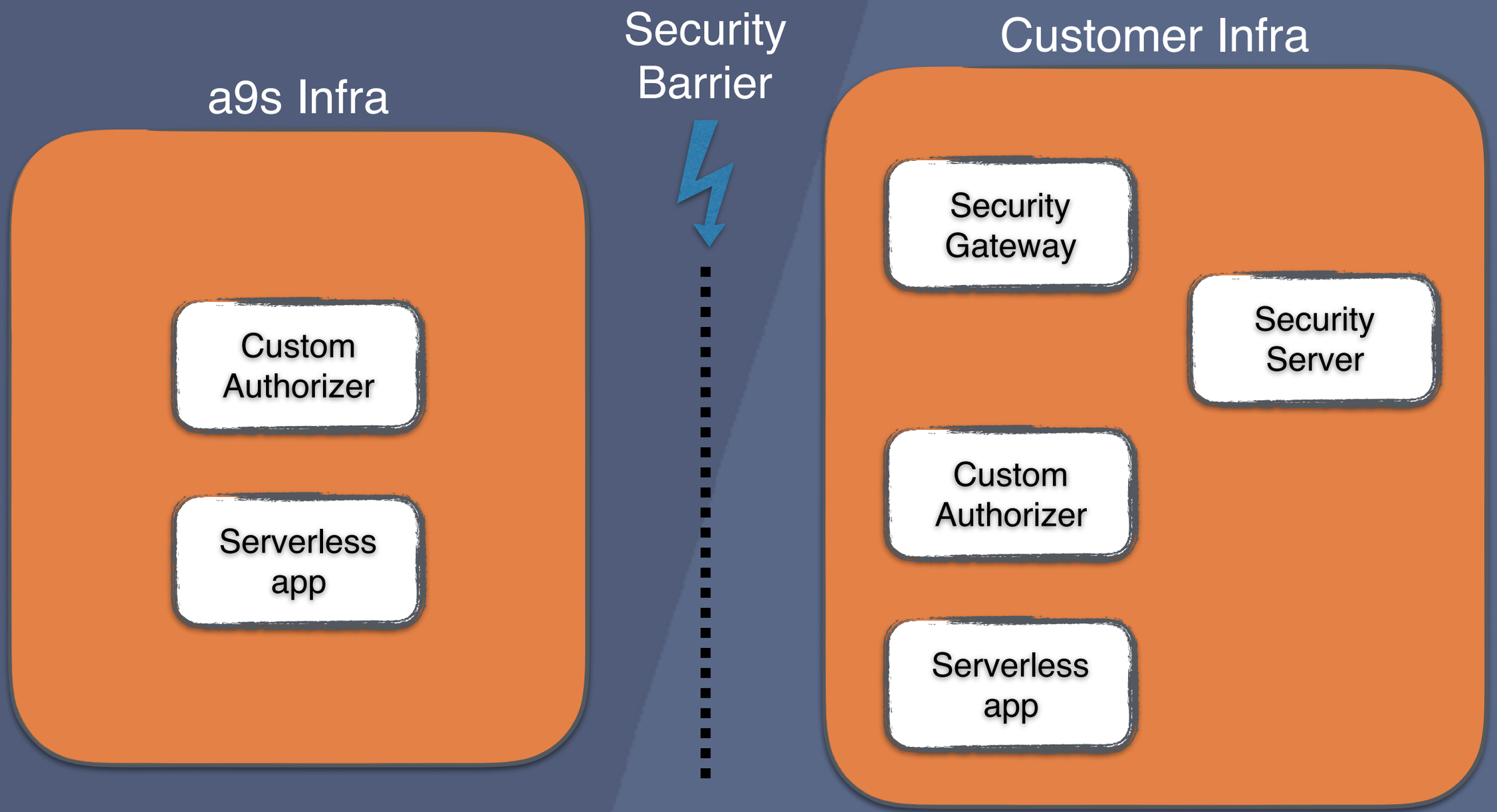

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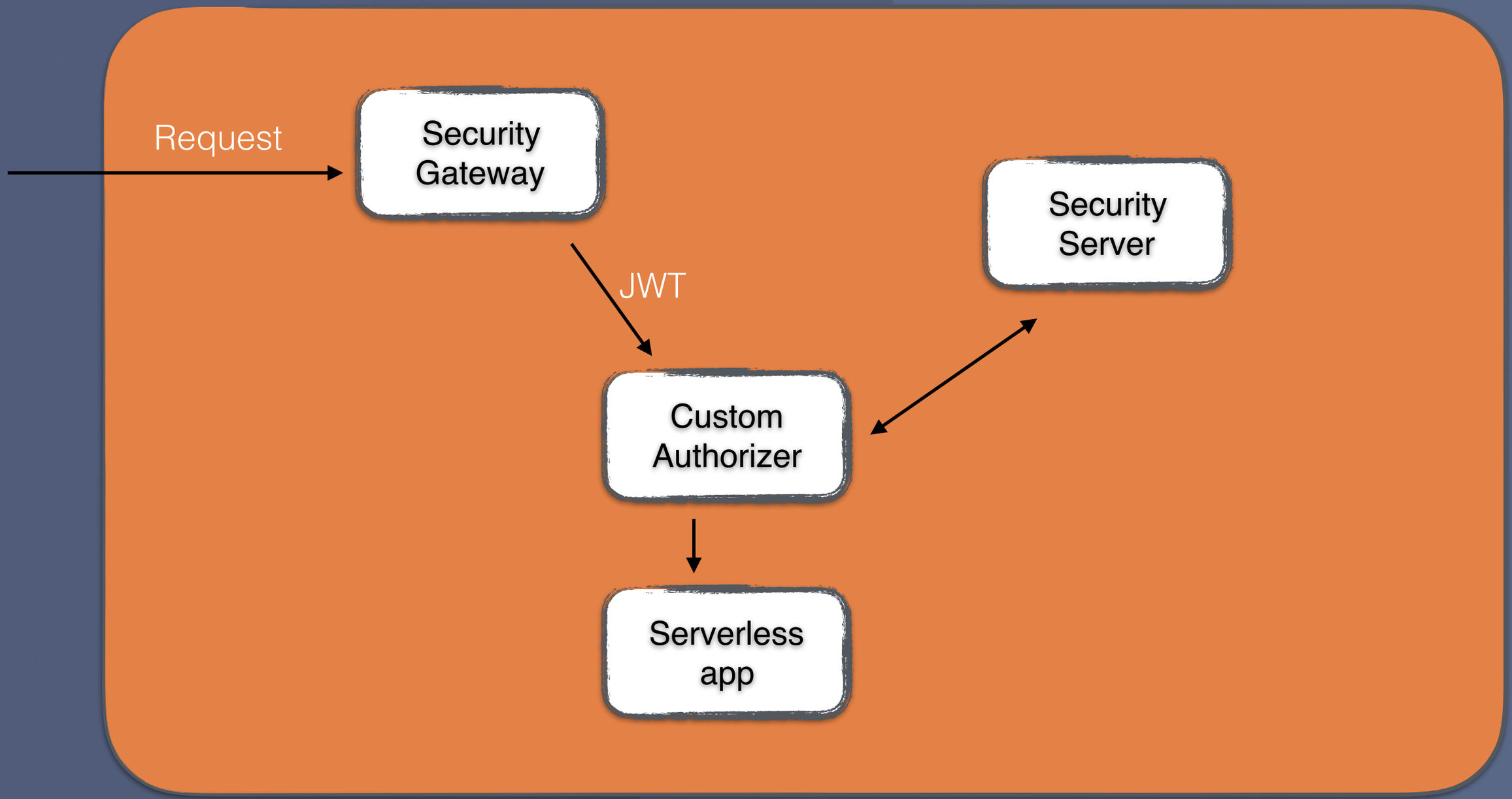

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Infrastructure Divergence

a9s Infra

Customer Infra

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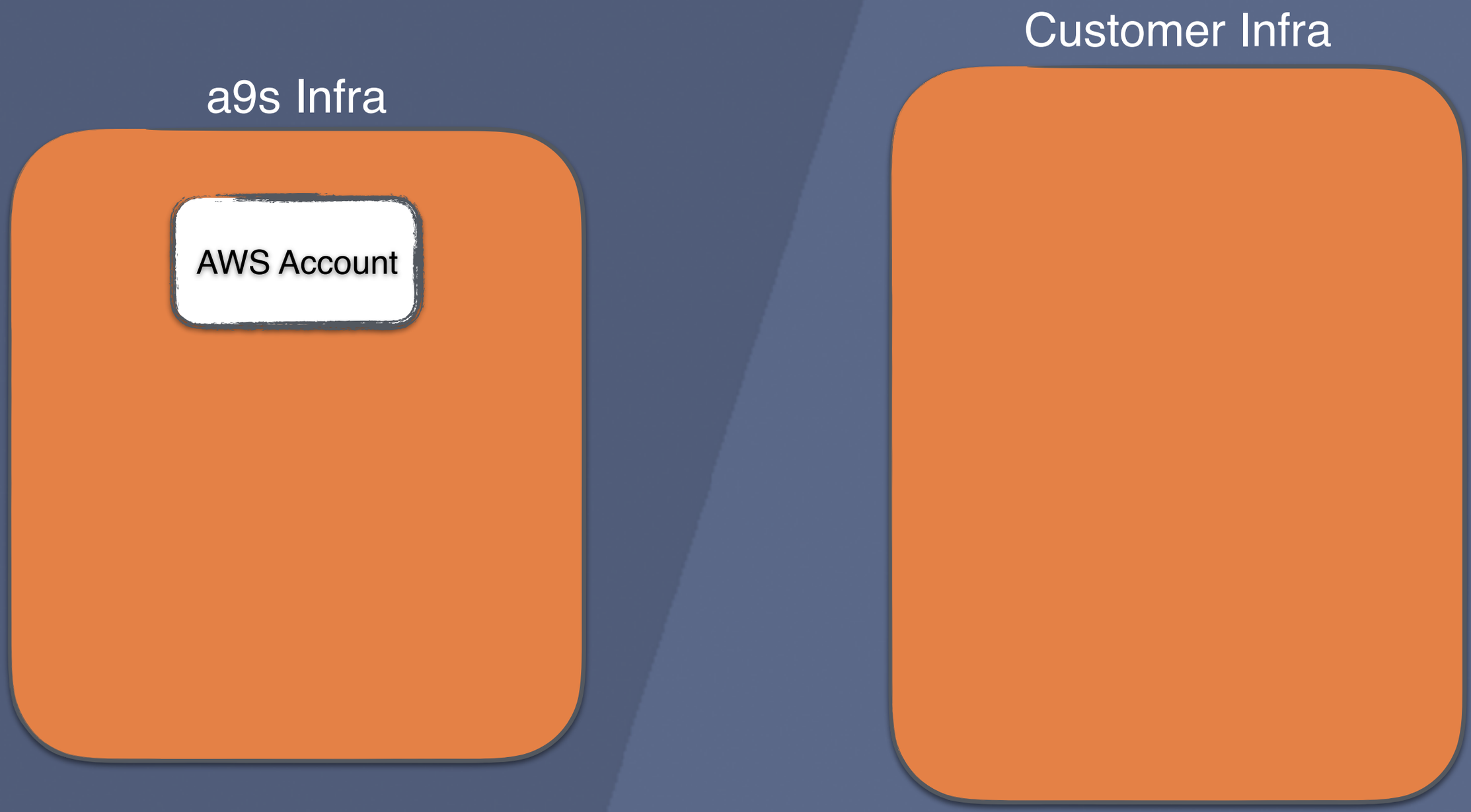
Infrastructure Divergence



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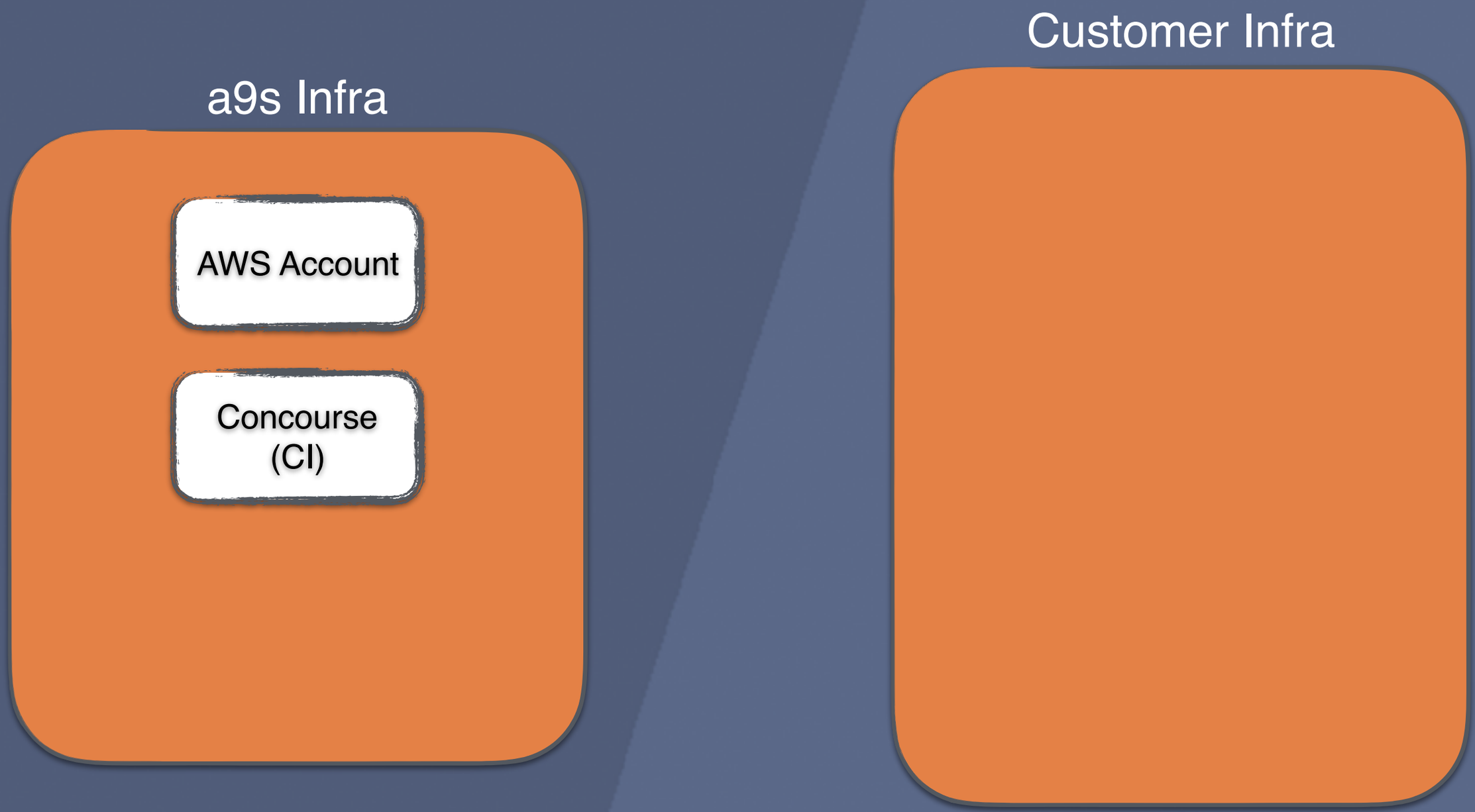
Infrastructure Divergence



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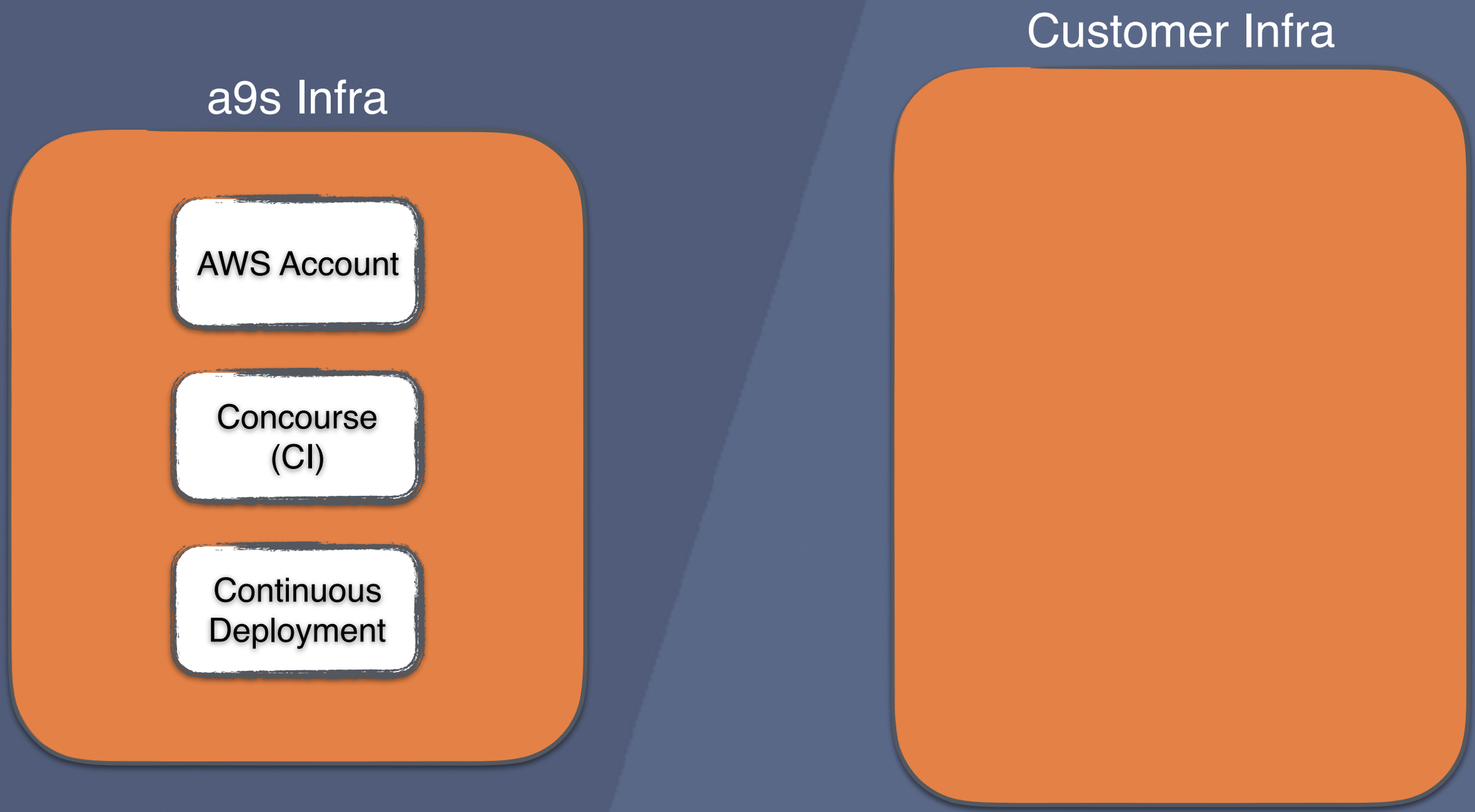

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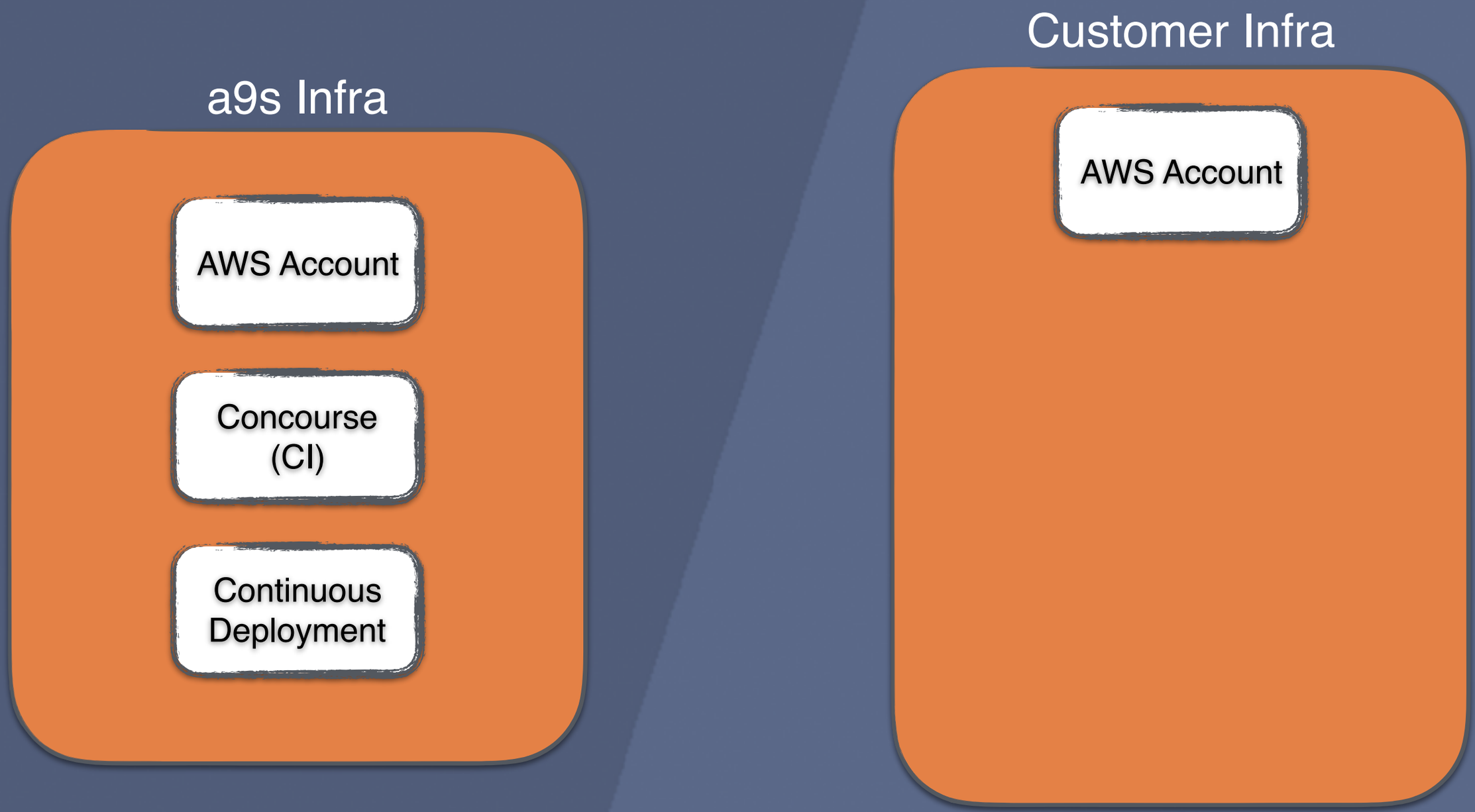

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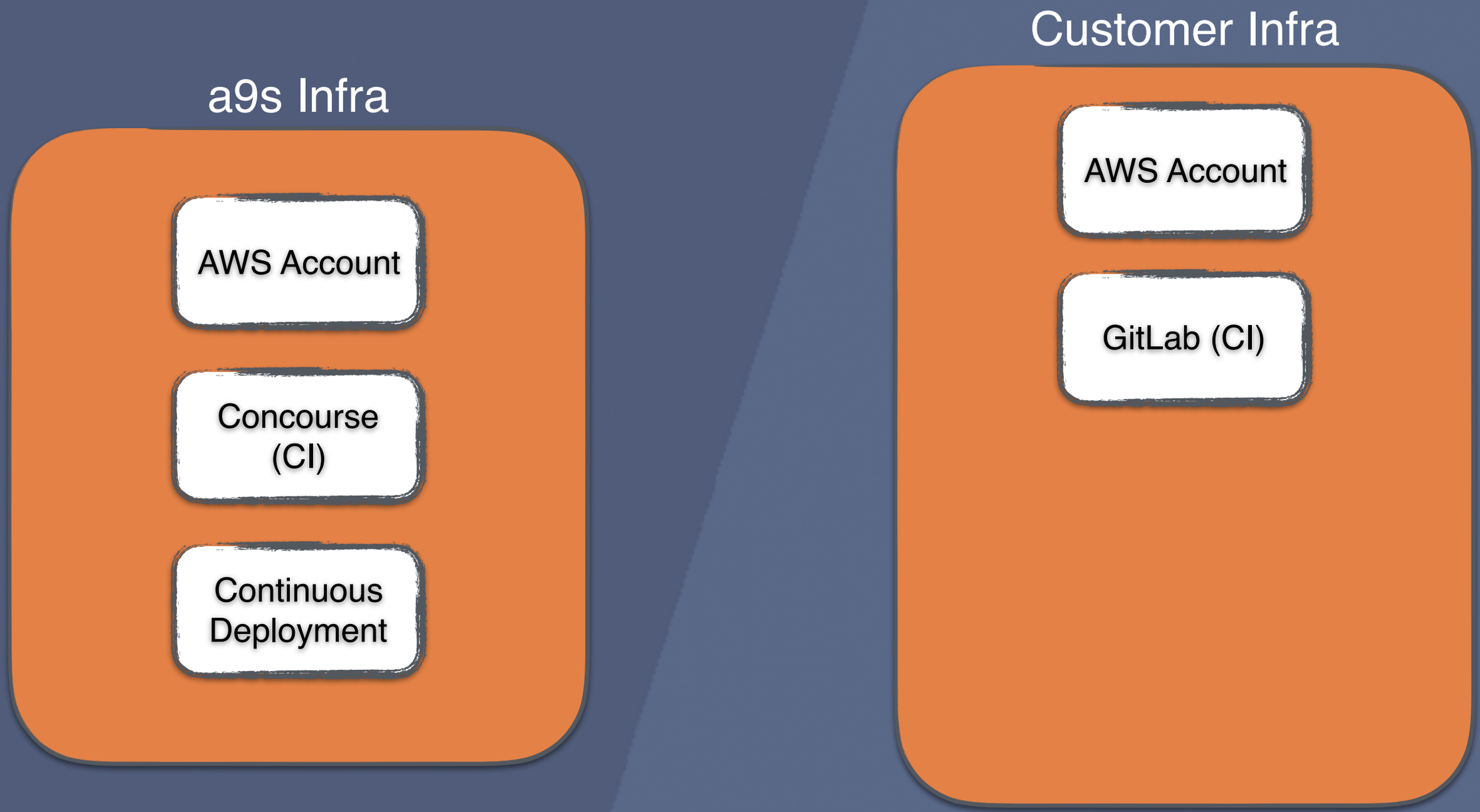

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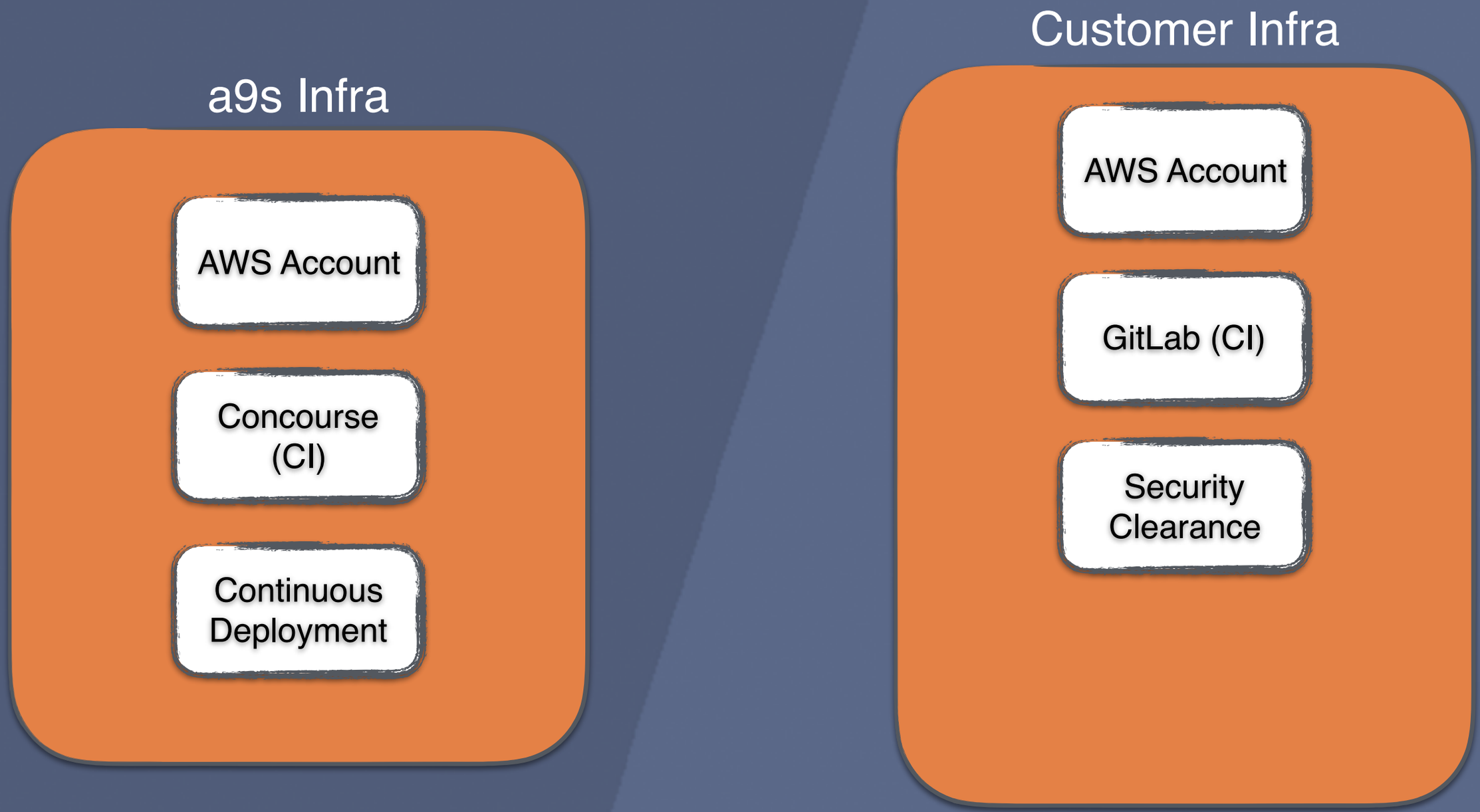

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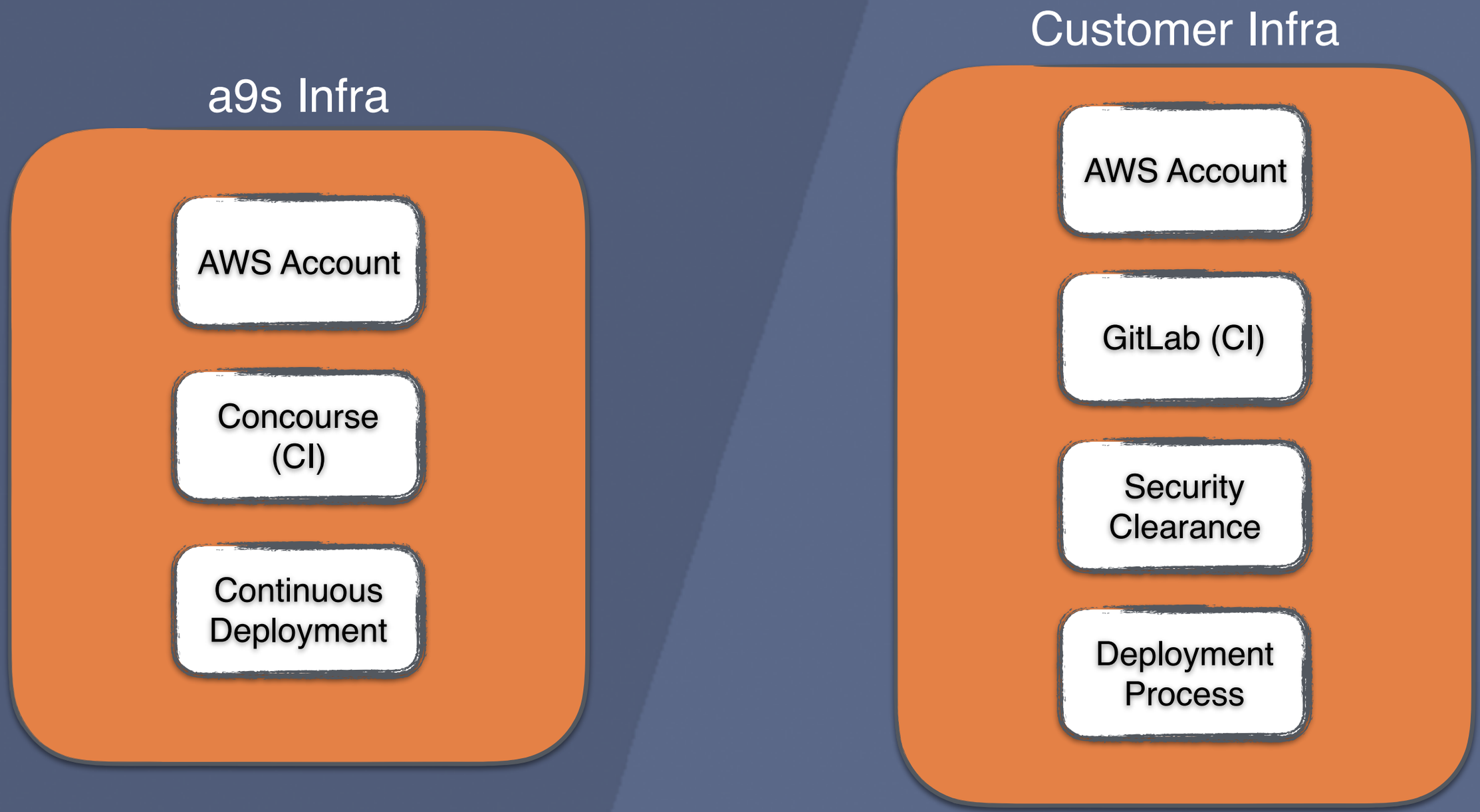

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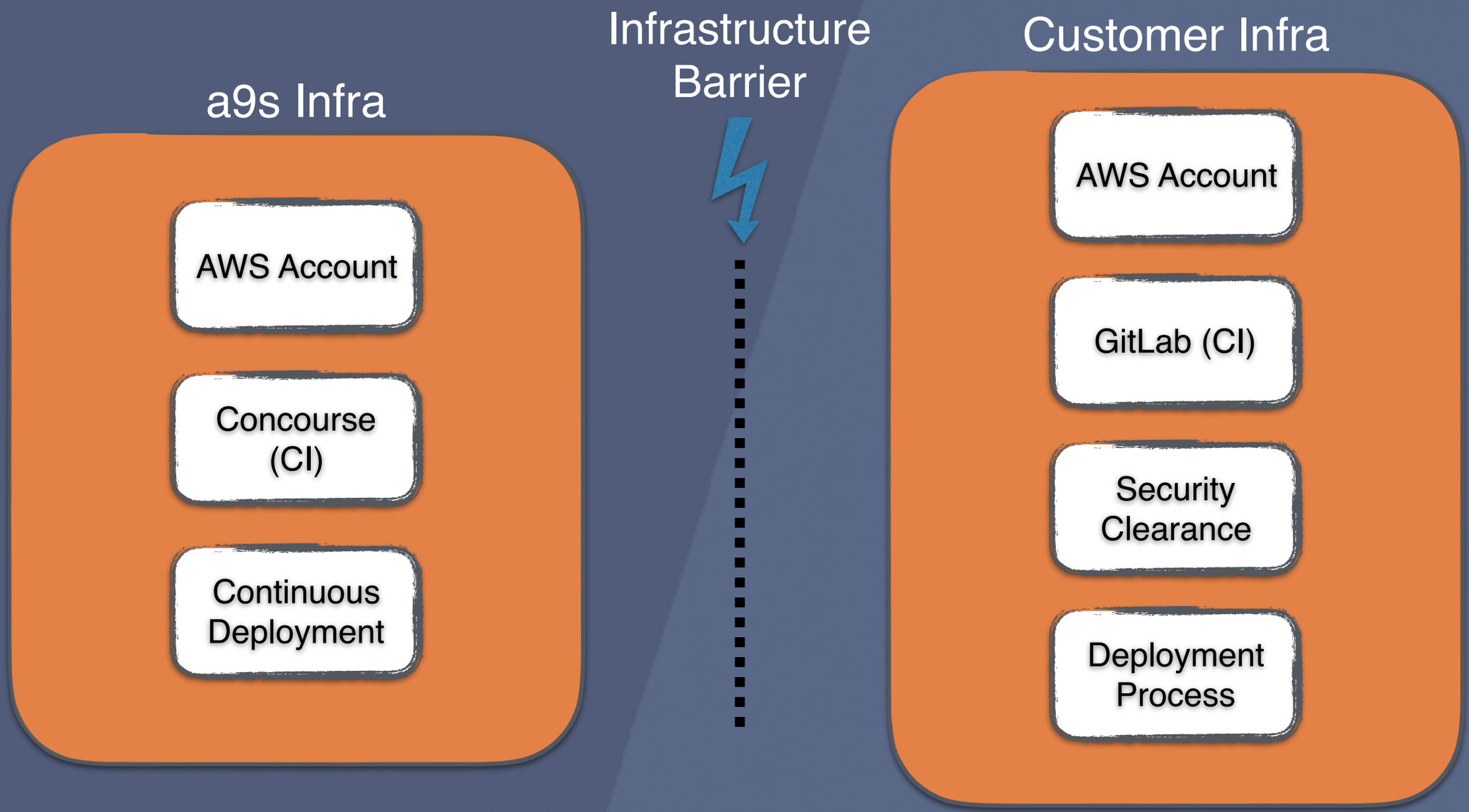
Infrastructure Divergence



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Remember DevOps Practices

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Remember DevOps Practices

- Break Silos

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Remember DevOps Practices

- Break Silos
- You build it you run it

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Remember DevOps Practices

- Break Silos
- You build it you run it
- Feedback loops

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Remember DevOps Practices

- Break Silos
- You build it you run it
- Feedback loops
- Automation

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Remember DevOps Practices

- Break Silos
- You build it you run it
- Feedback loops
- Automation
- Monitoring & Alerting

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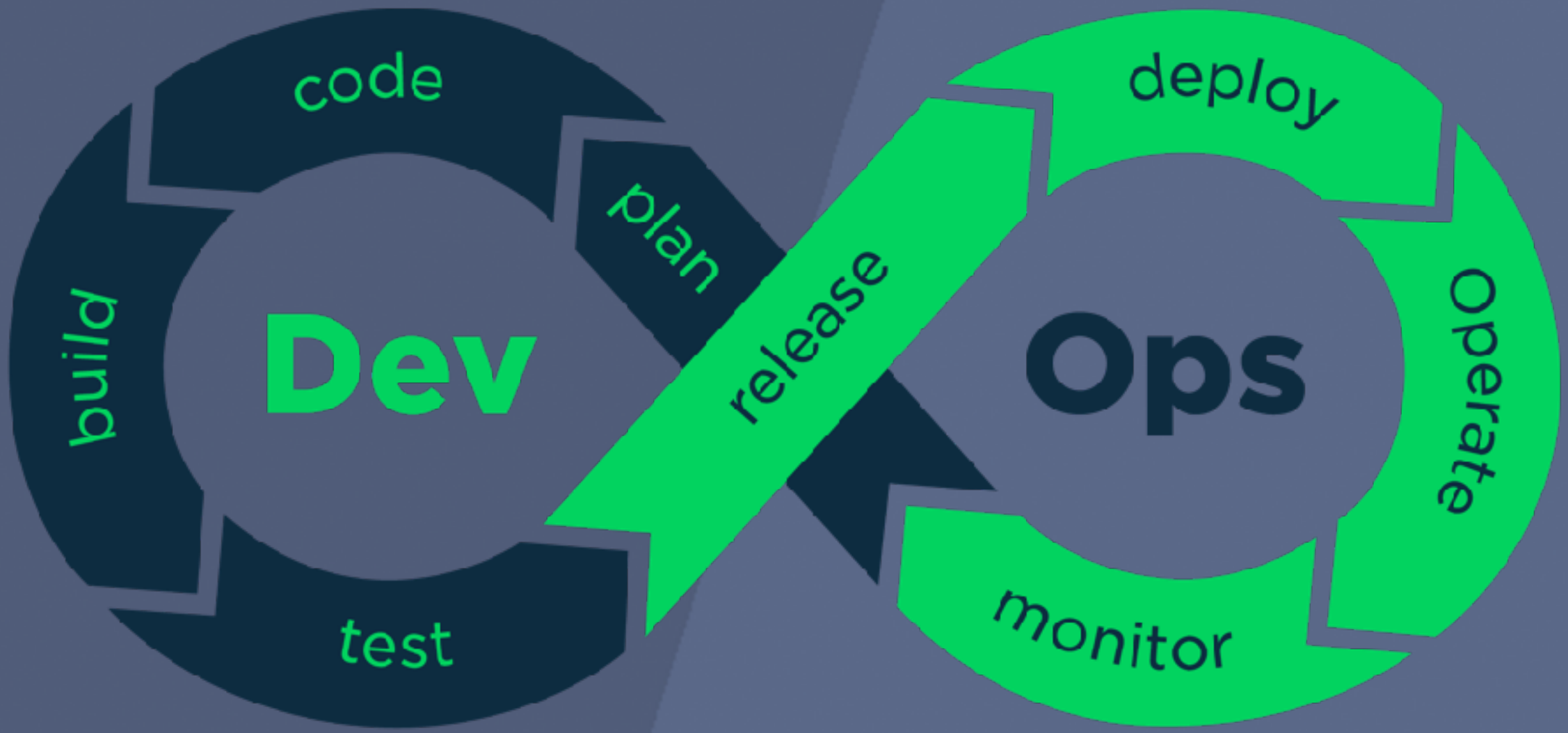
DevOps



https://medium.com/@neonrocket/devops-is-a-culture-not-a-role-be1bed149b0

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DevOps Barrier

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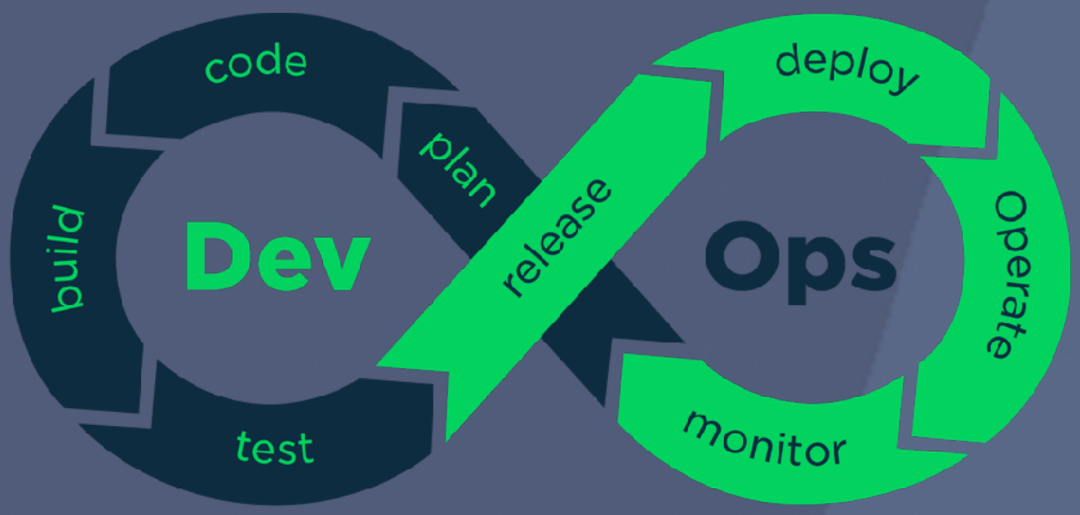
Customer



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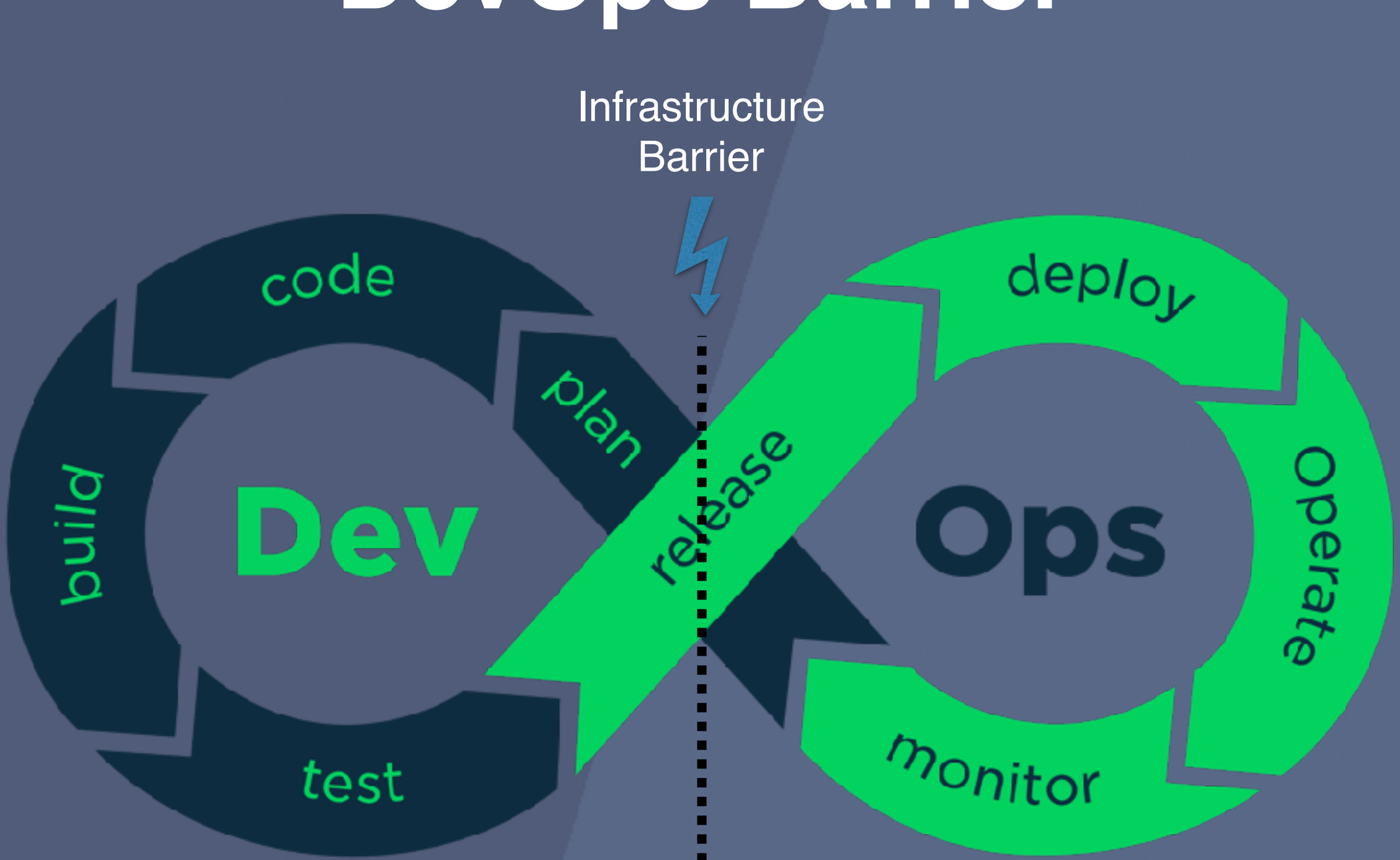
DevOps Barrier



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How should we do it??

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How should we do it??

- We cannot break down the silos completely

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How should we do it??

- We cannot break down the silos completely
- But we can build some bridges

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How should we do it??

- We cannot break down the silos completely
- But we can build some bridges
- Sync as much as possible

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How should we do it??

- We cannot break down the silos completely
- But we can build some bridges
- Sync as much as possible
- Adapt our process according to customers because we won’t change customers mindset

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Solutions

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Process Divergence

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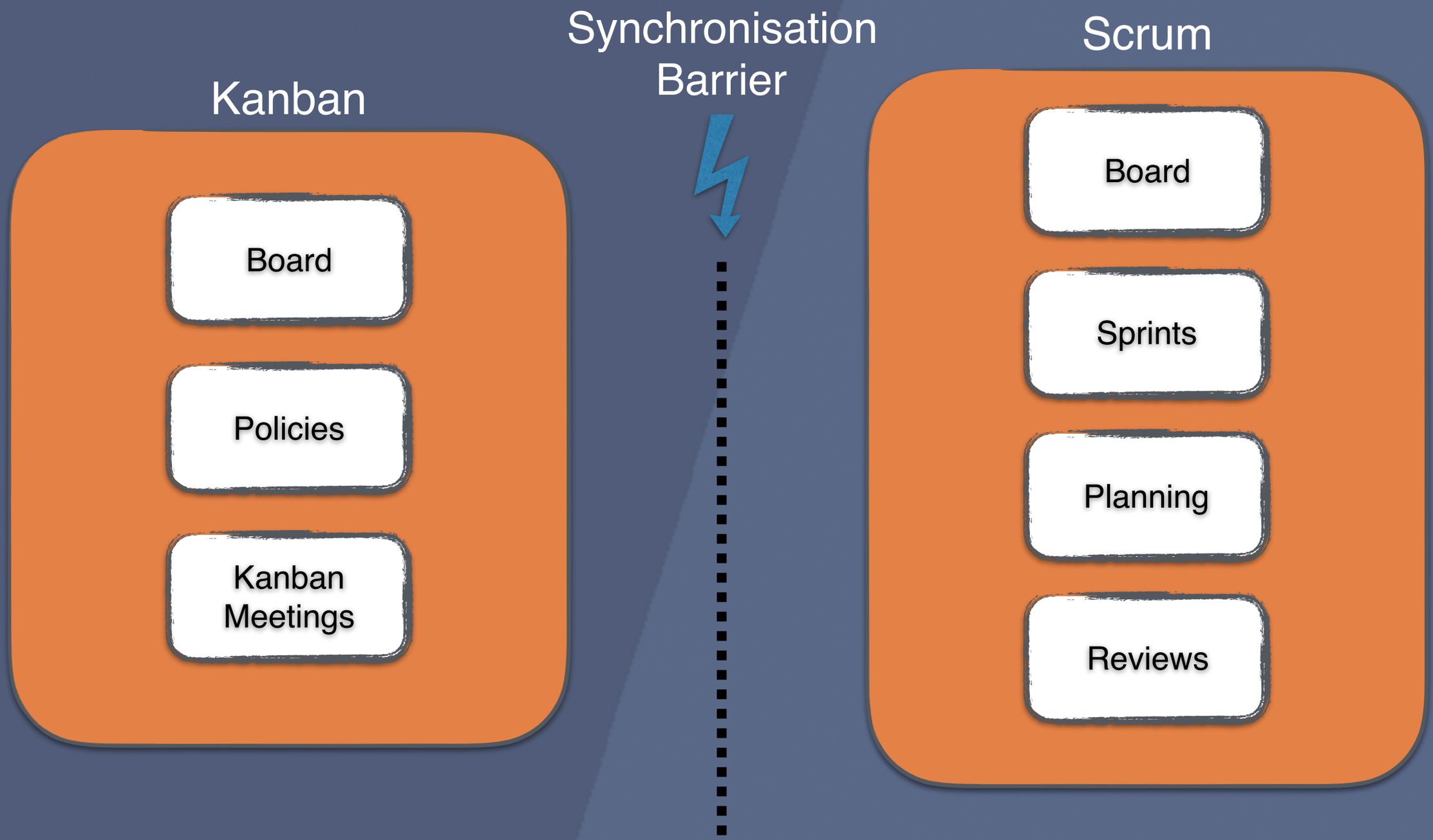
Process Divergence



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Process Sync

Kanban

- Board
- Policies
- Kanban Meetings

Scrum

- Board
- Sprints
- Planning
- Reviews

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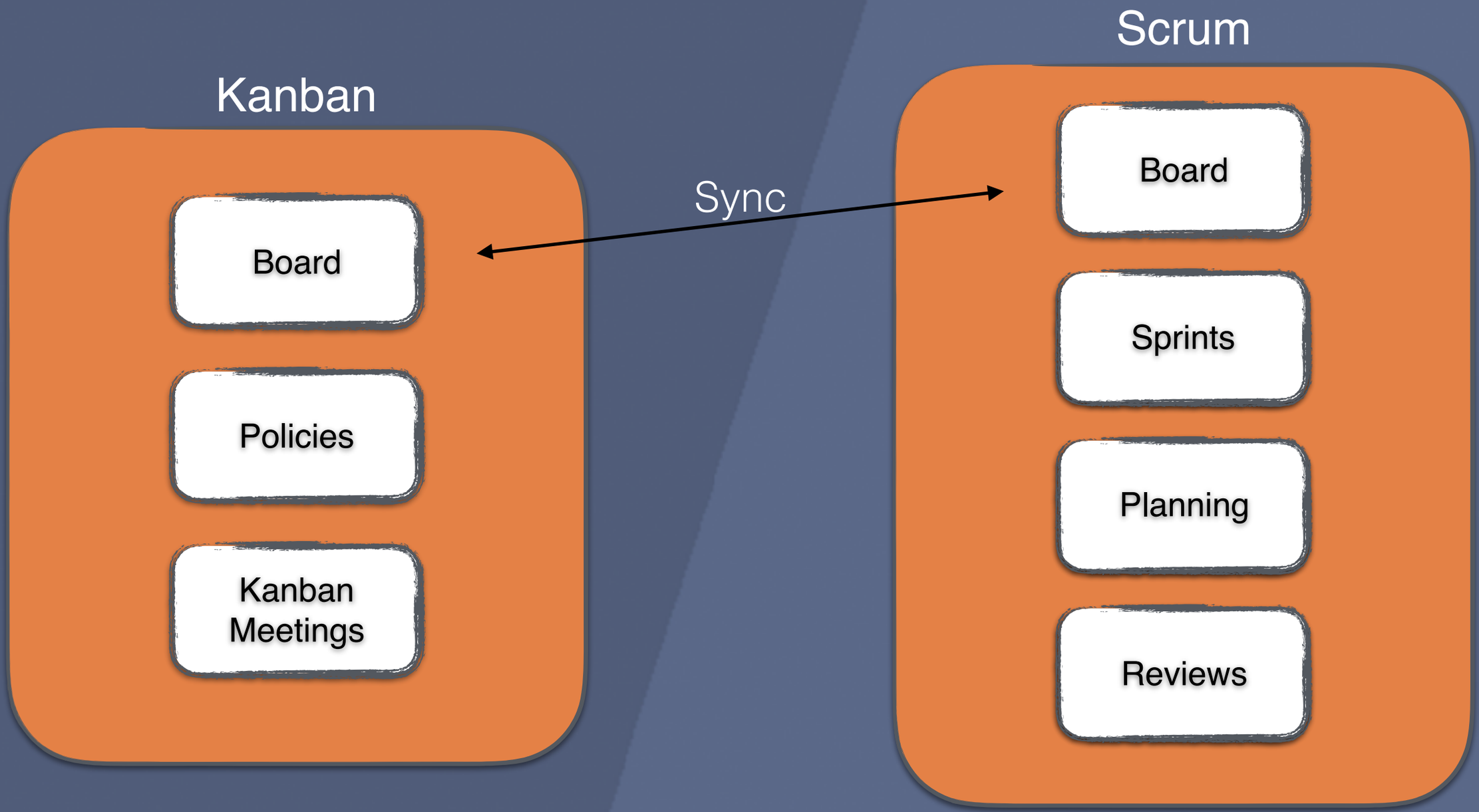
Process Sync



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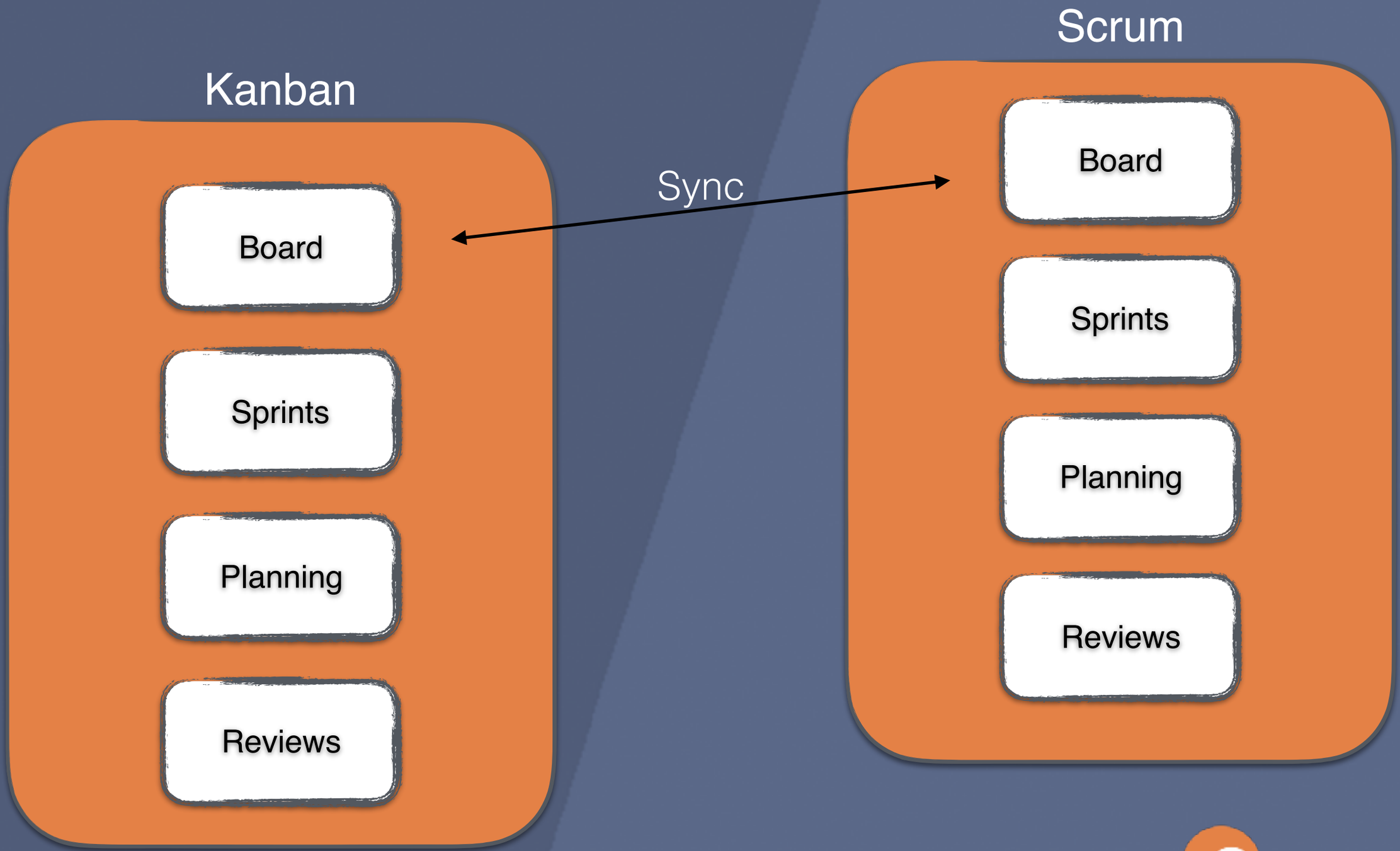
Process Sync



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Context/Security Divergence

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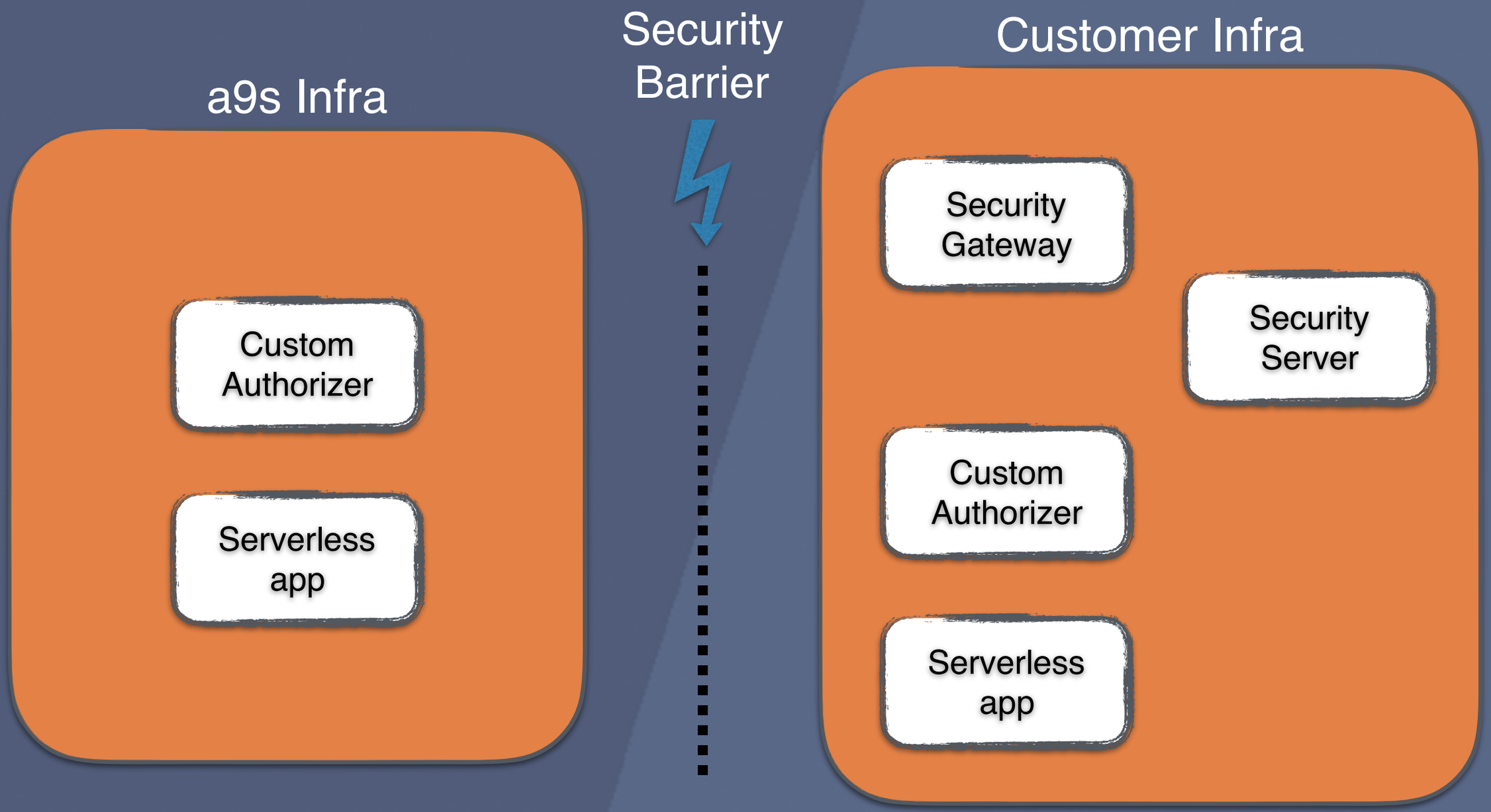
Context/Security Divergence



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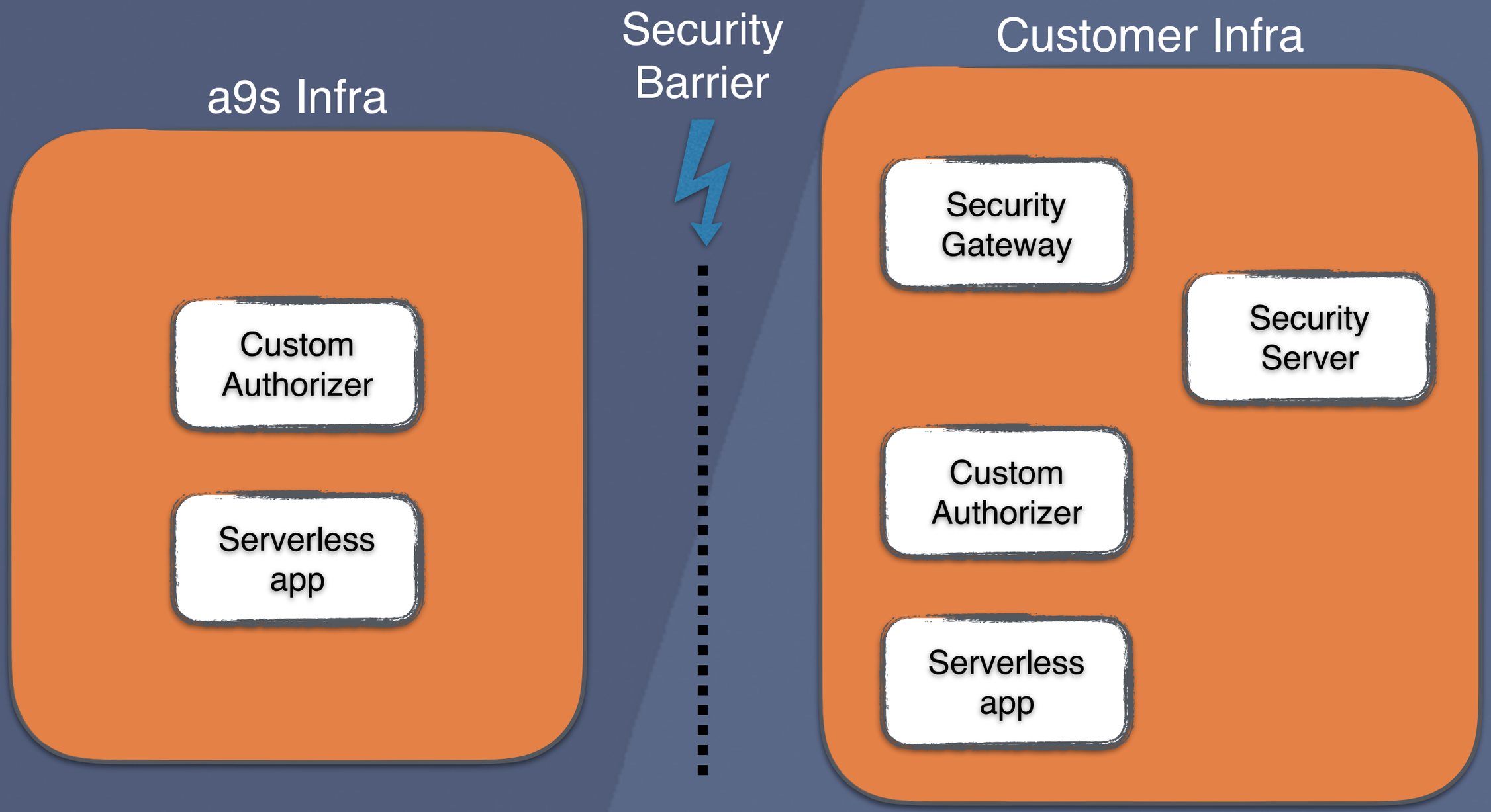
Context/Security Divergence



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Context/Security Sync (1. Approach)

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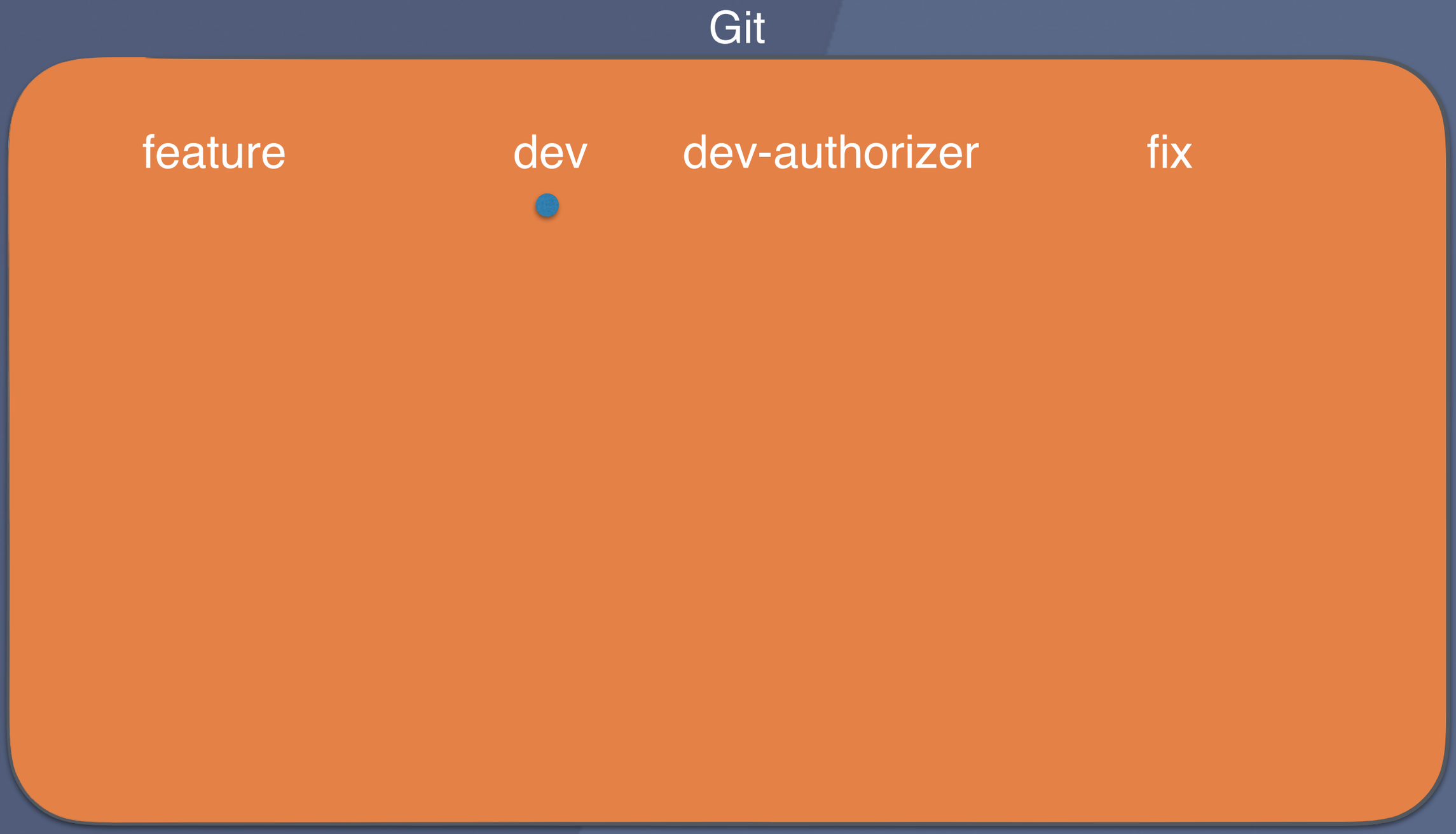

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Context/Security Sync (1. Approach)

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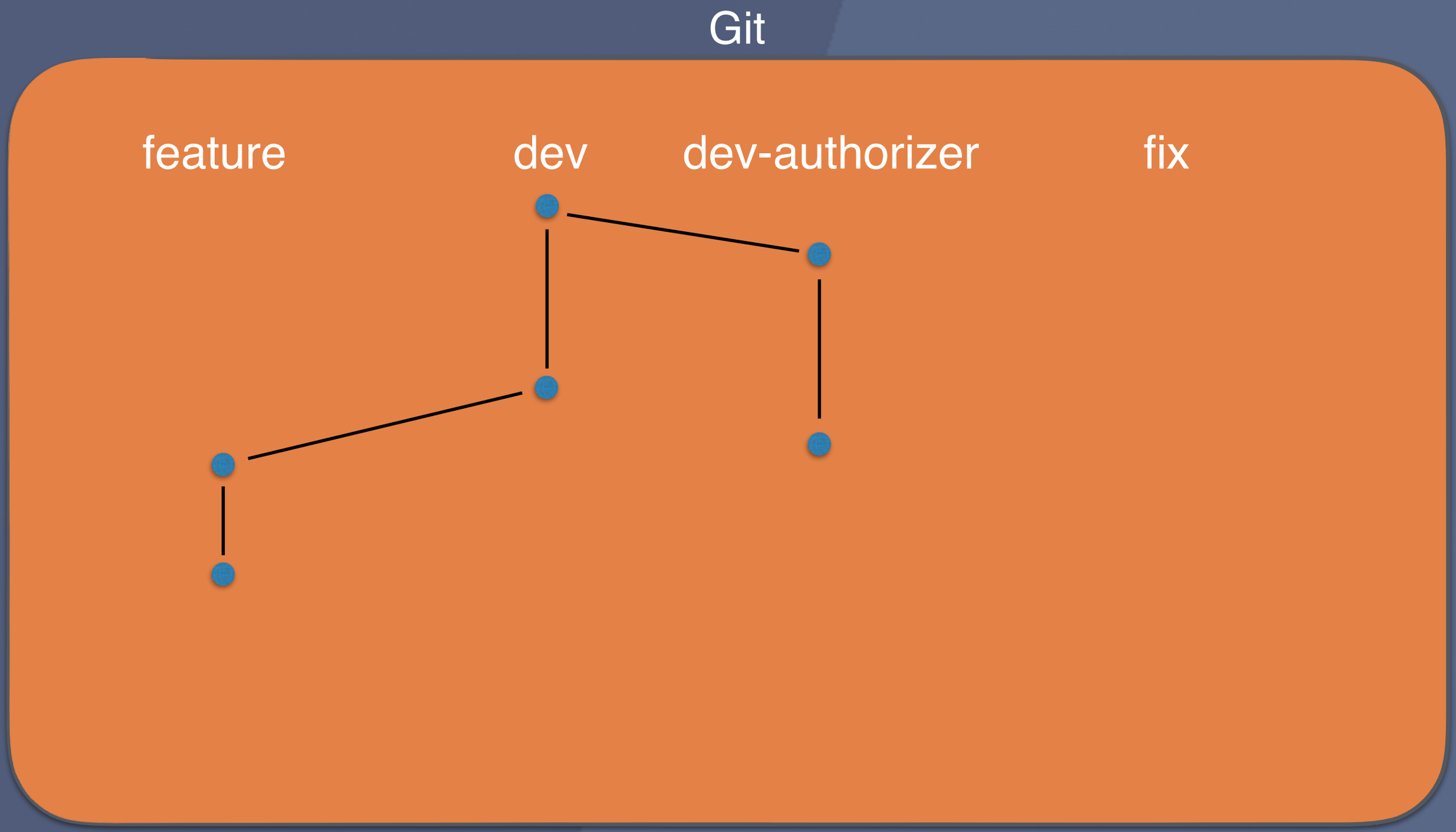

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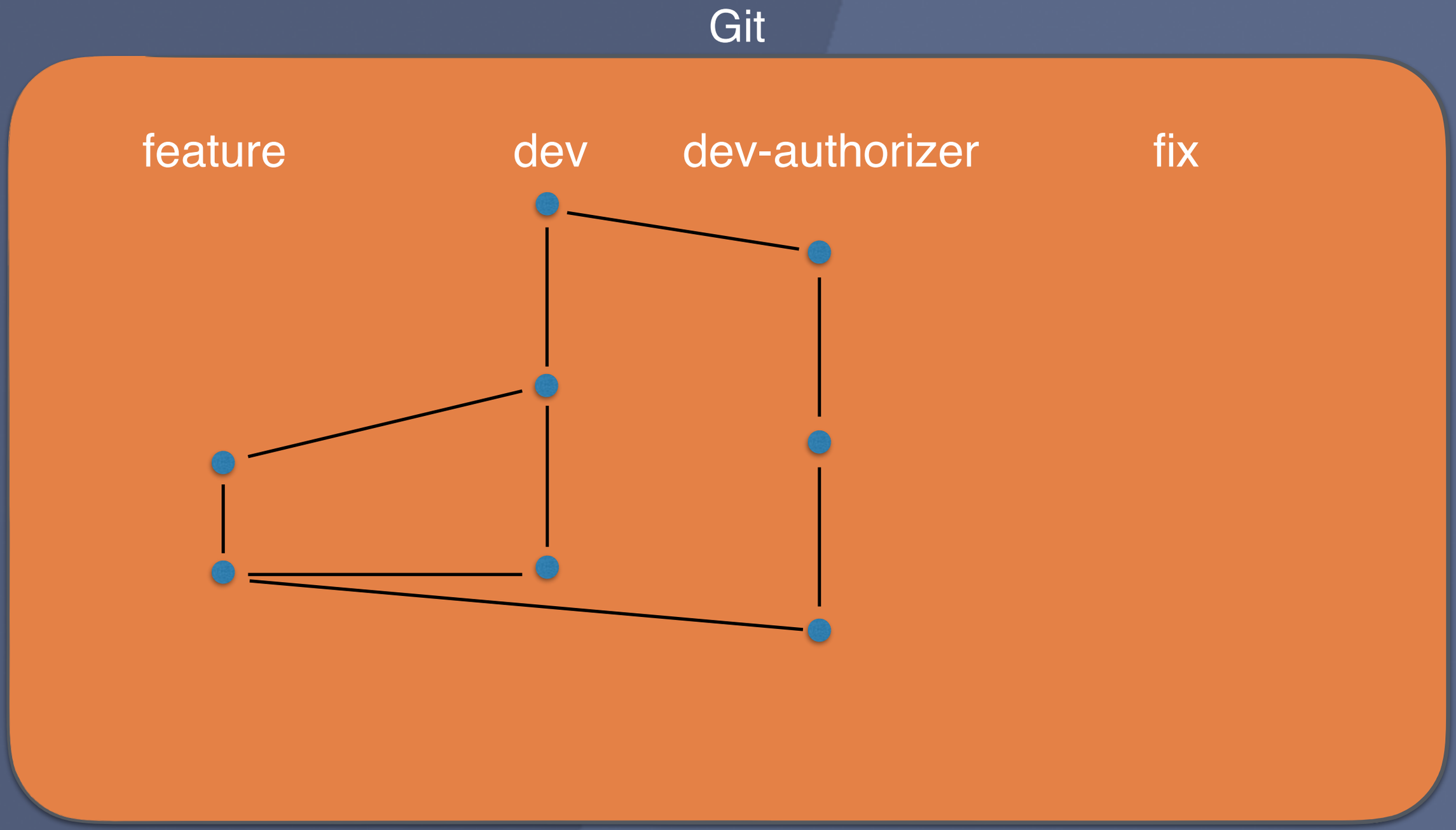
Context/Security Sync (1. Approach)



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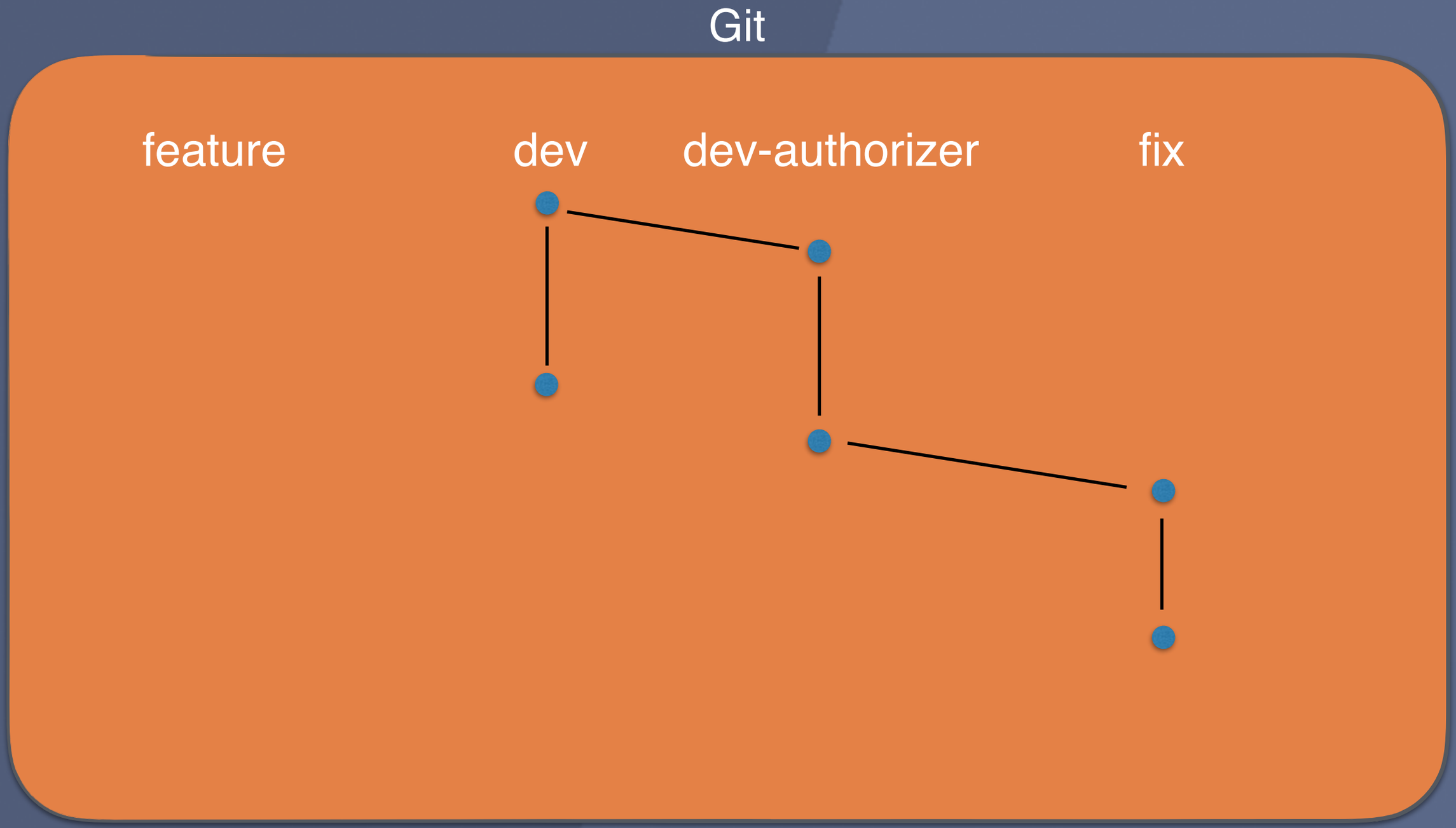

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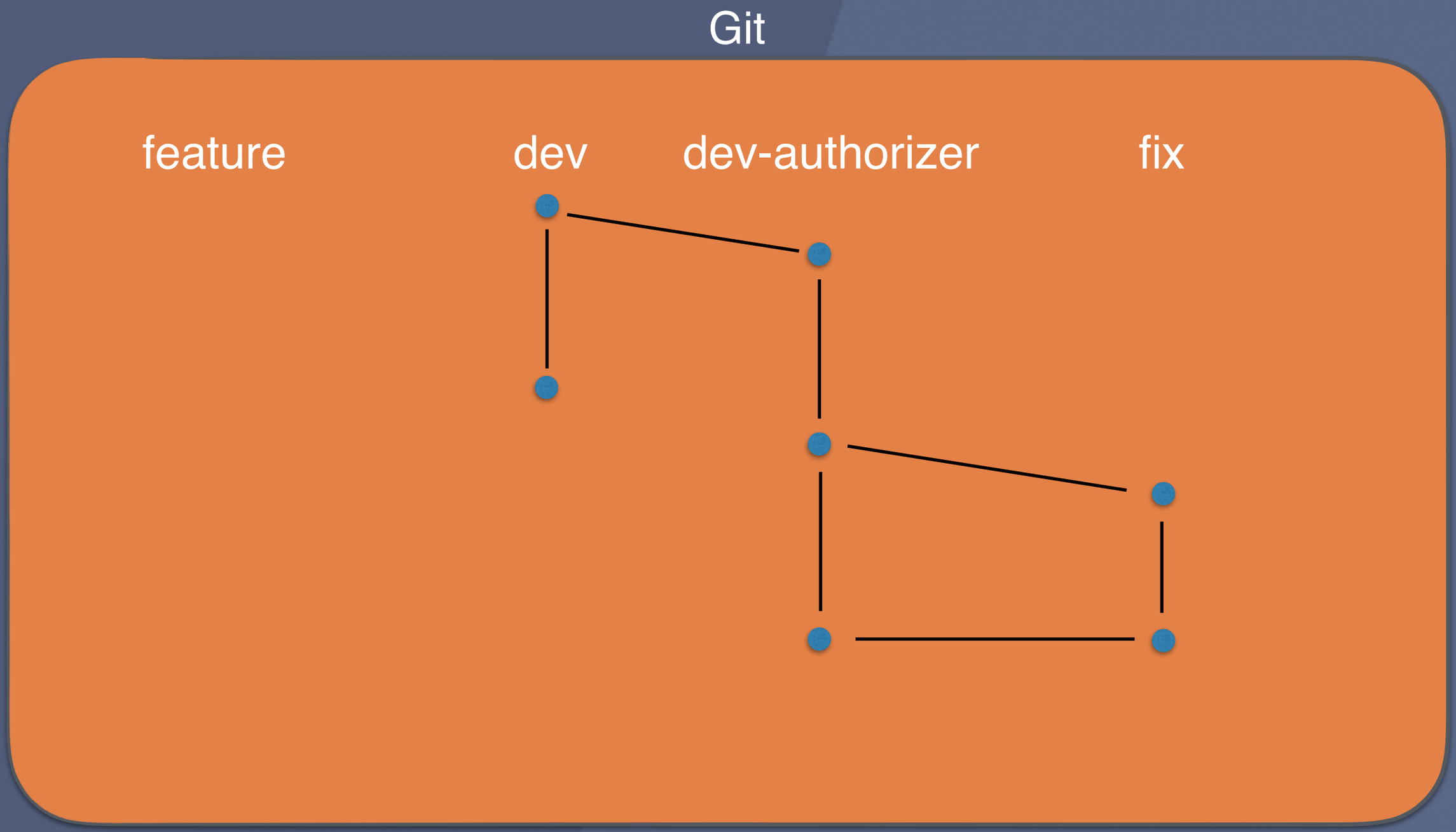

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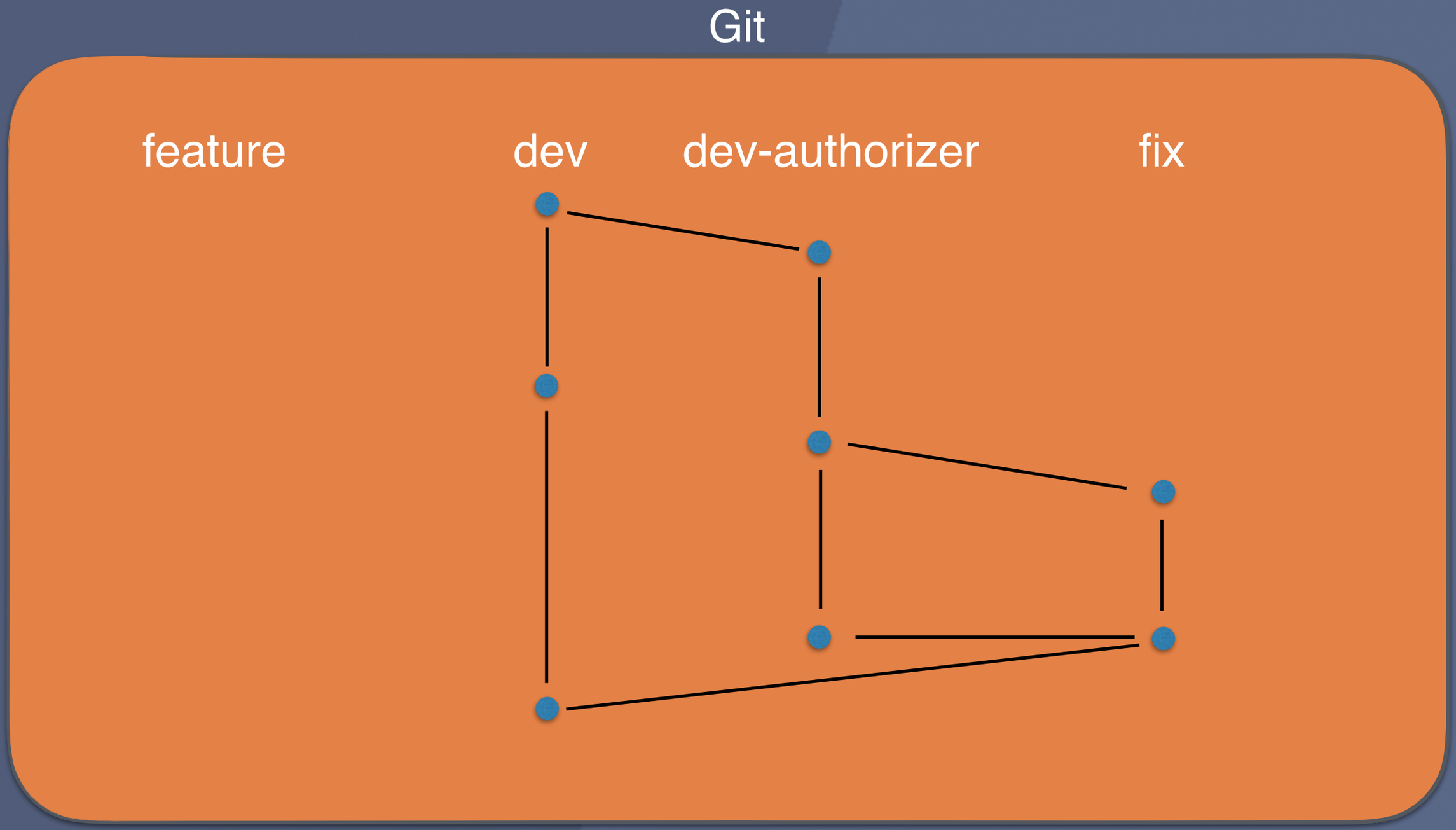

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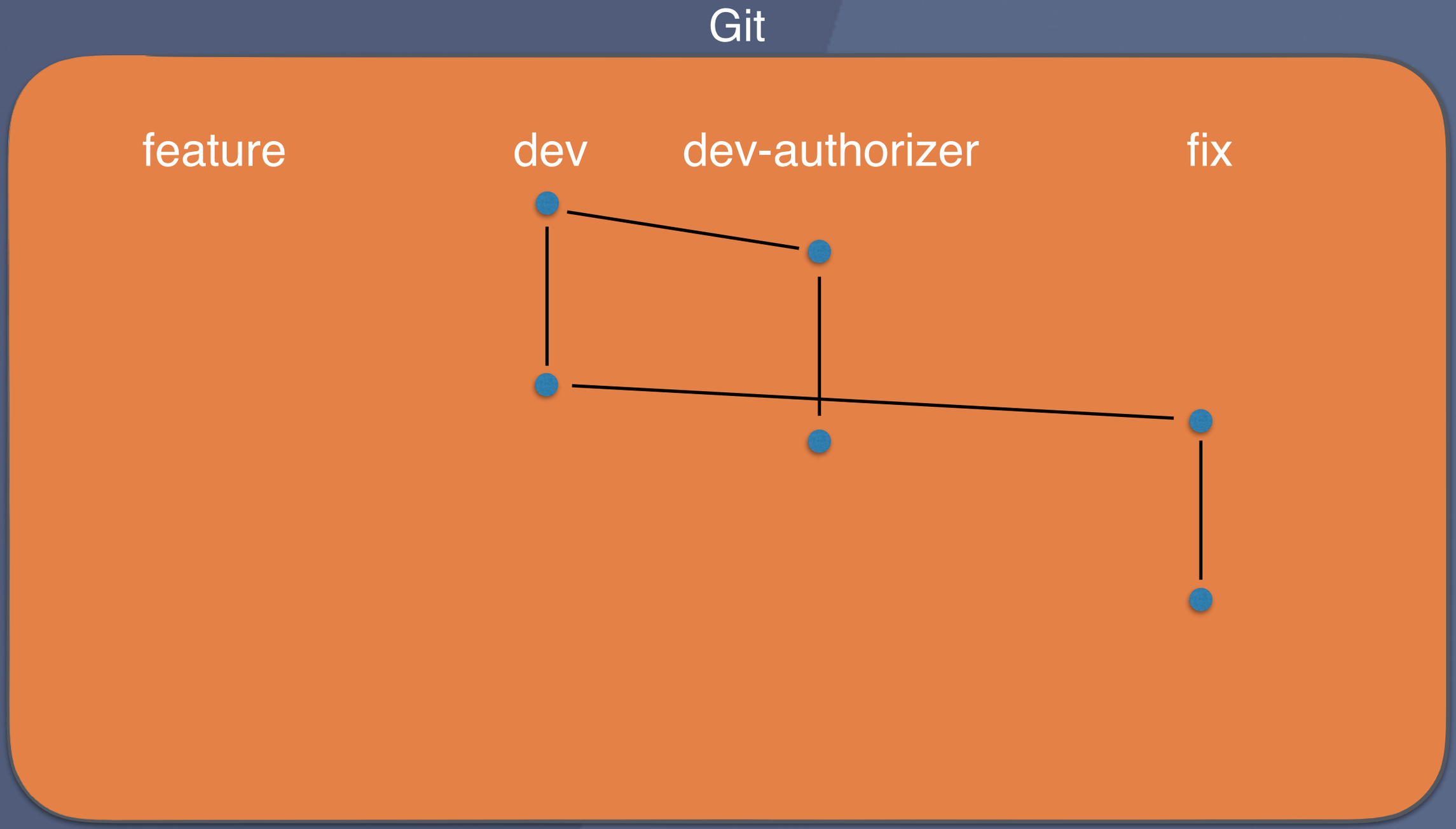

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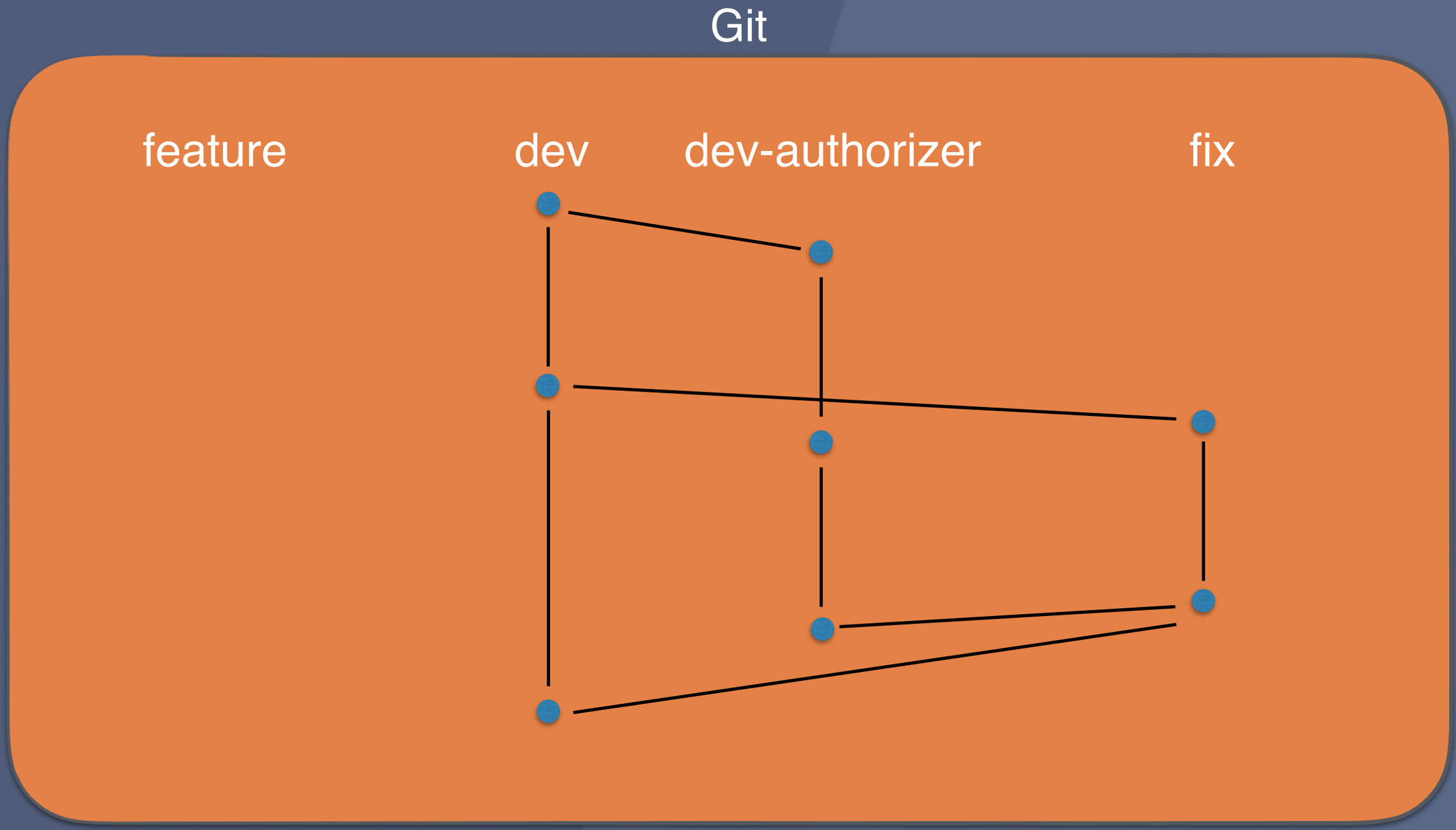

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Context/Security Sync (1. Approach)

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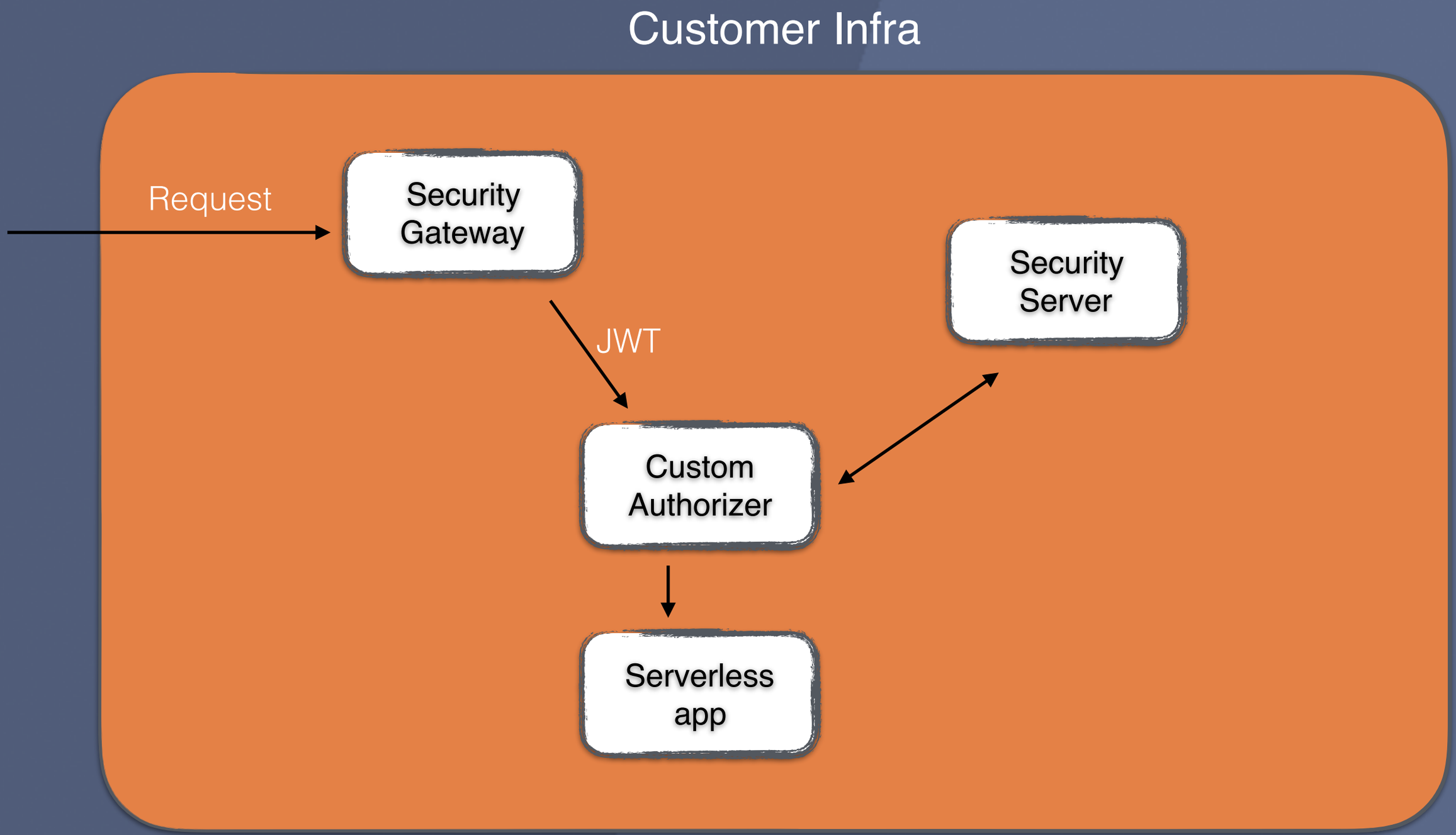

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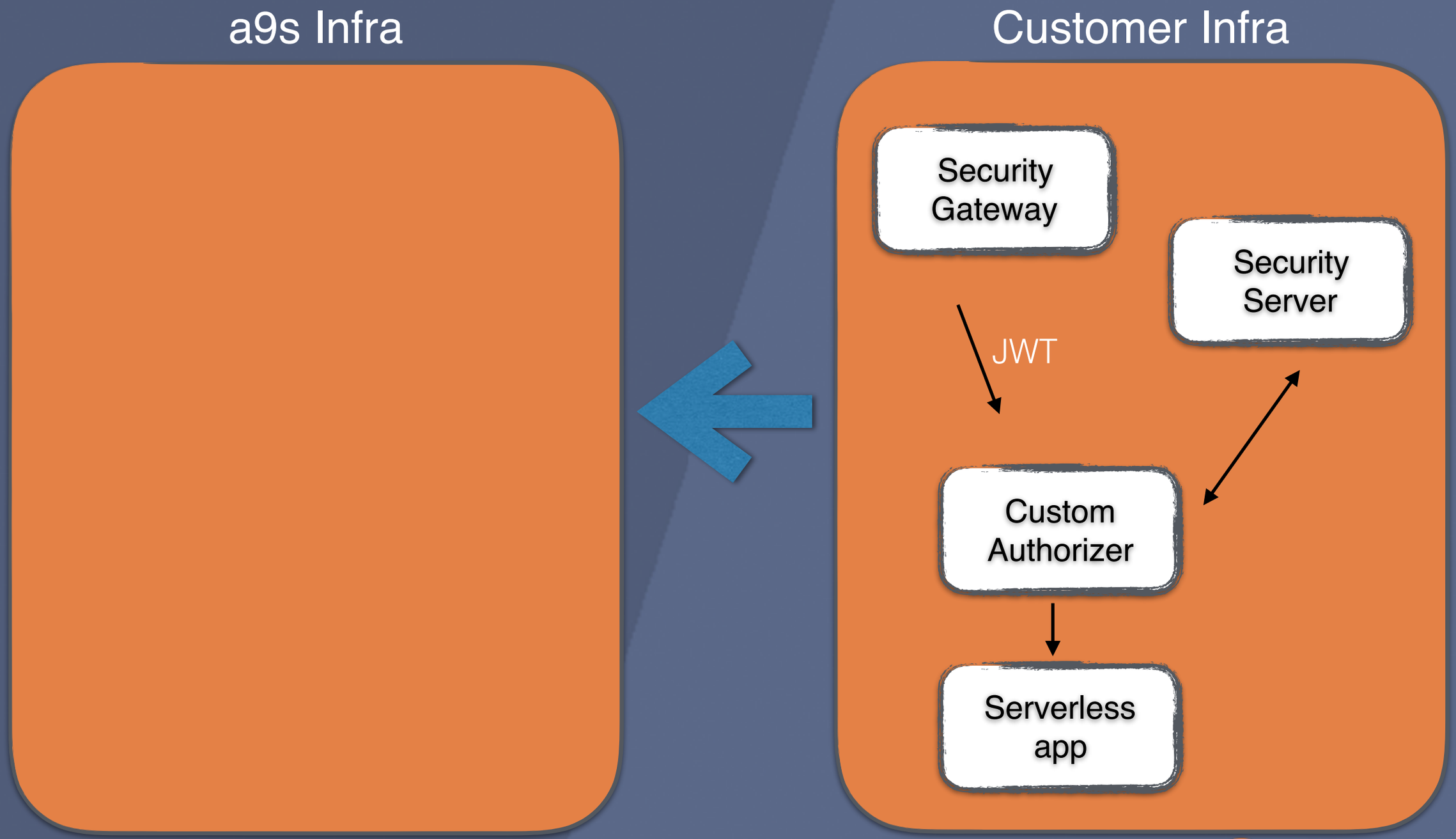

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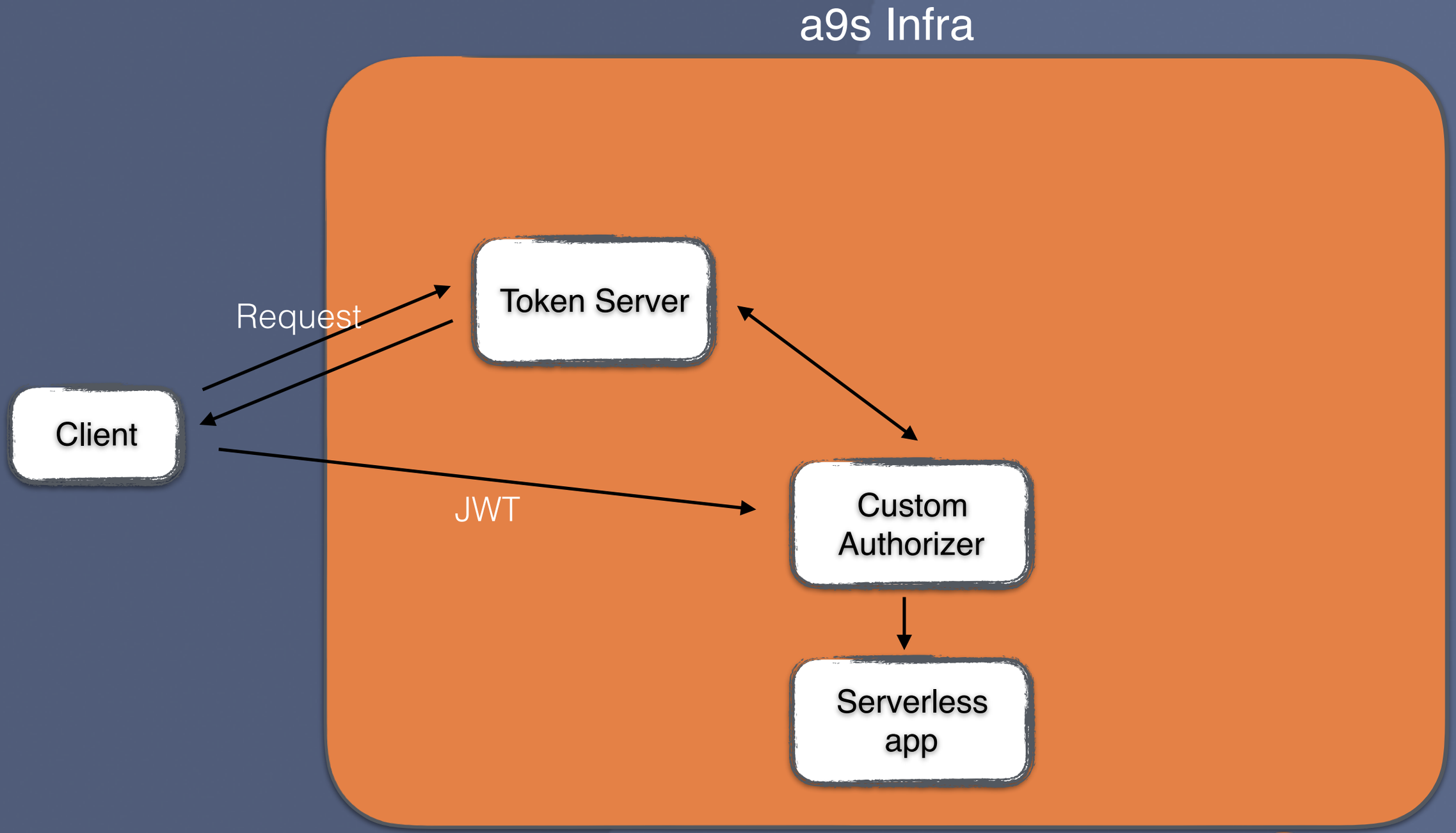

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Infrastructure Divergence

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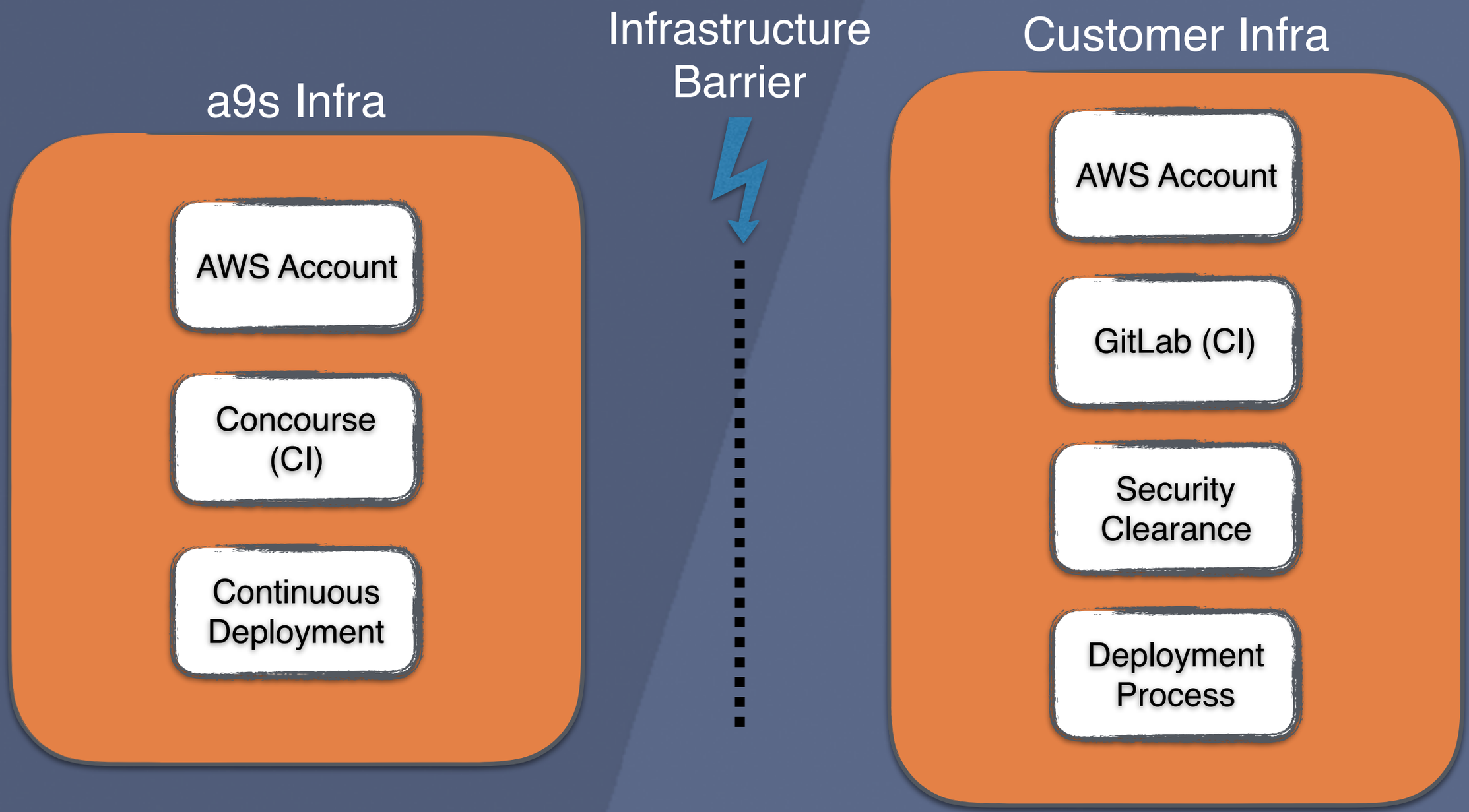
Infrastructure Divergence



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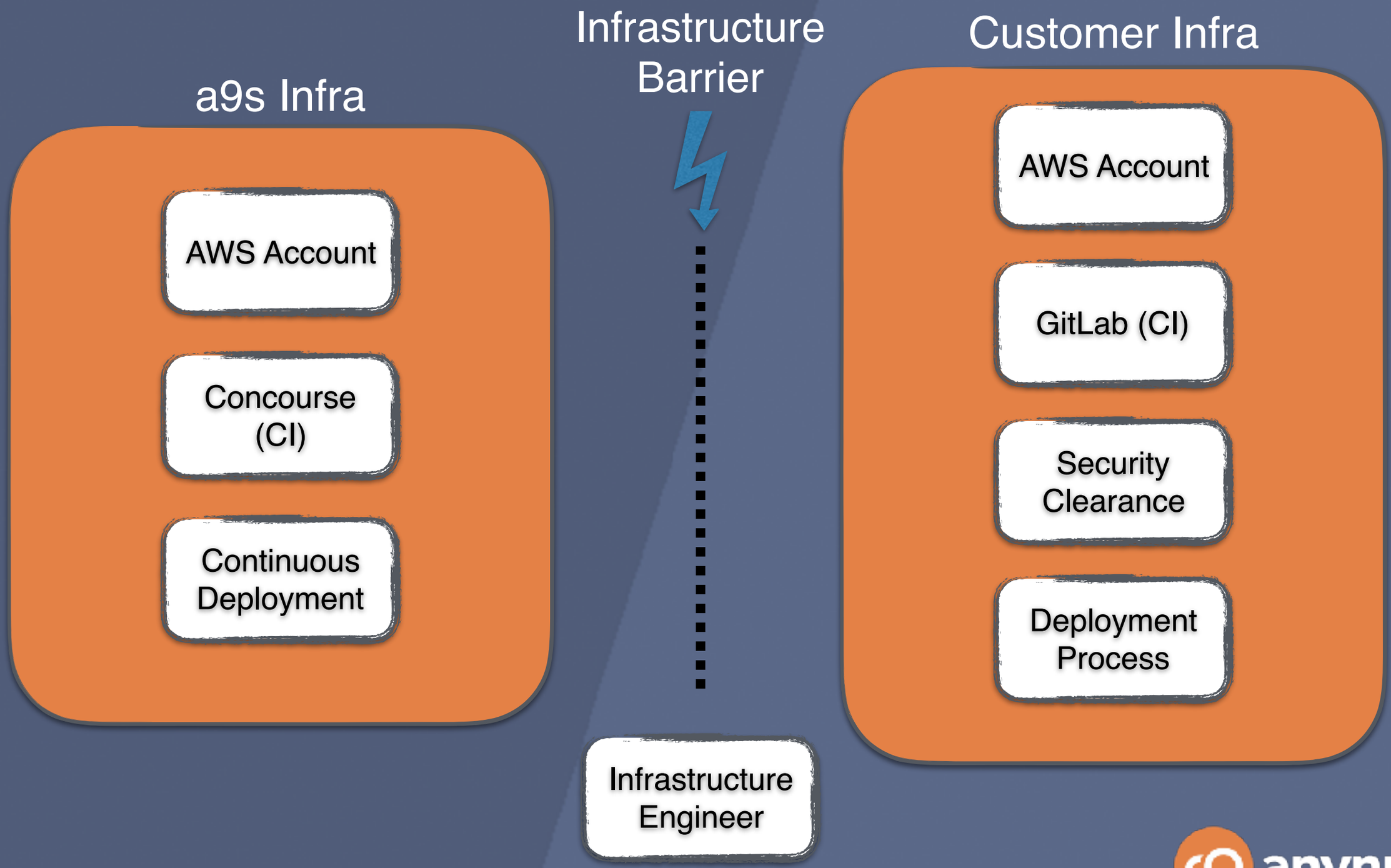

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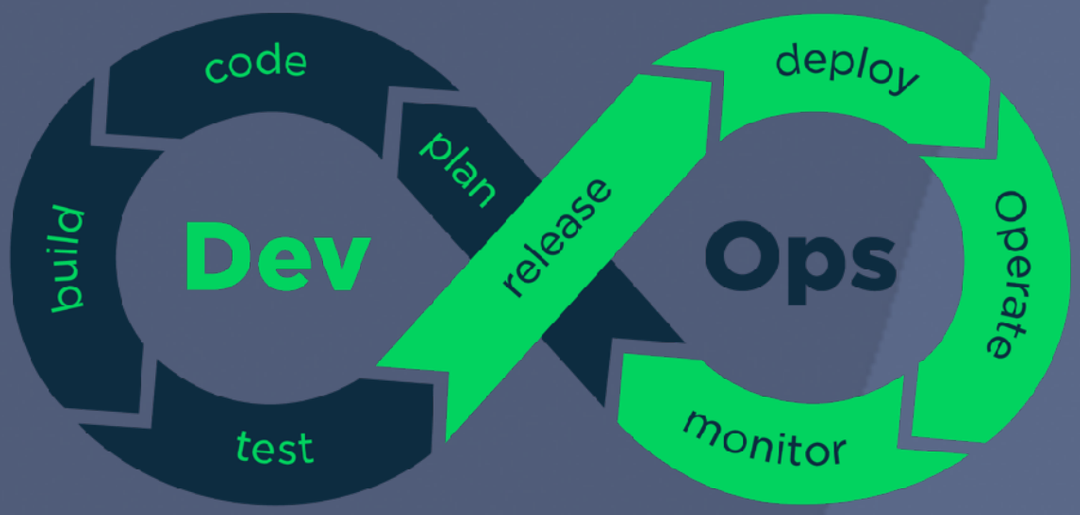
DevOps Sync

a9s

Customer



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DevOps Sync

a9s Infra

Customer Infra

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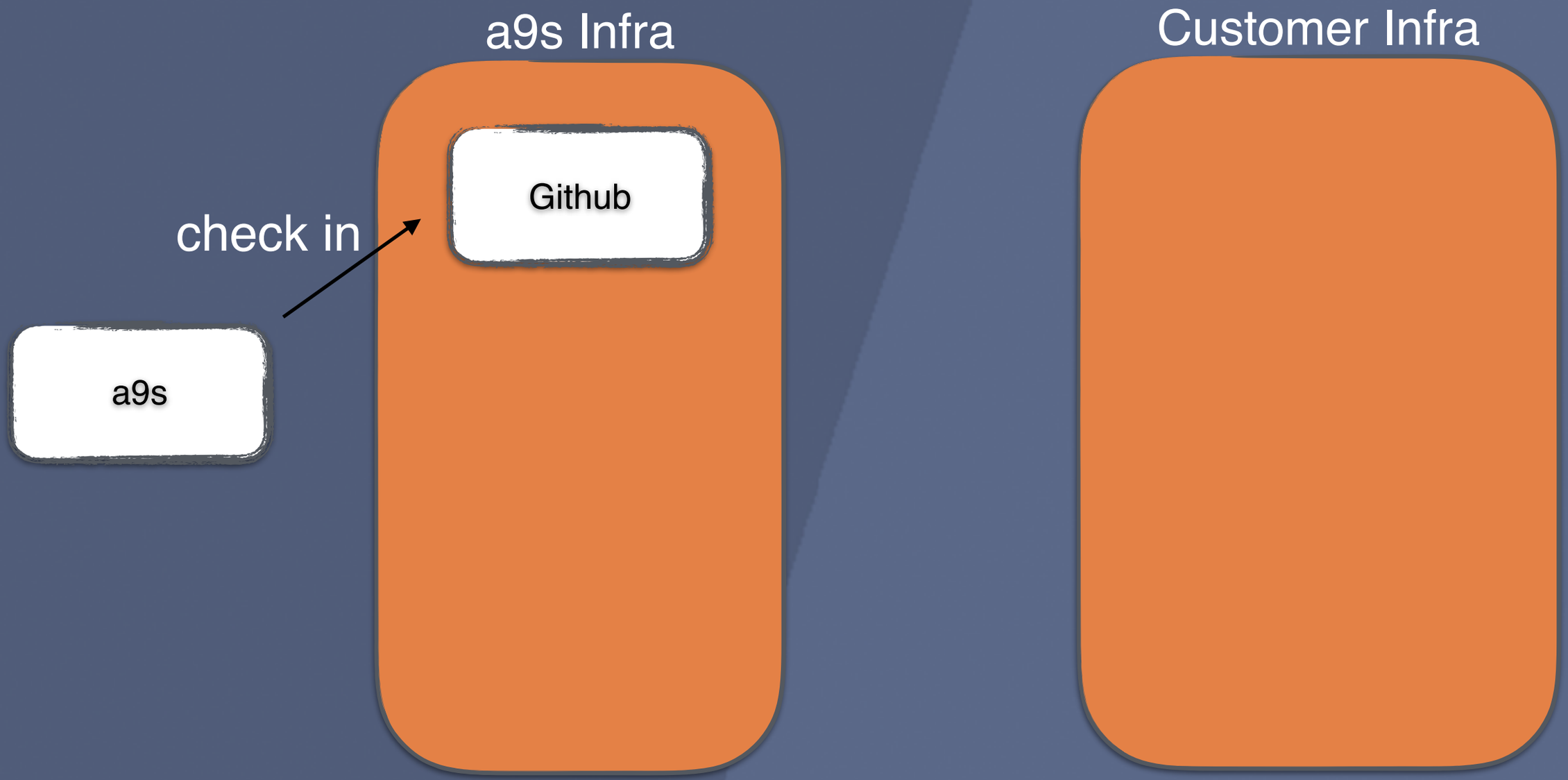
DevOps Sync



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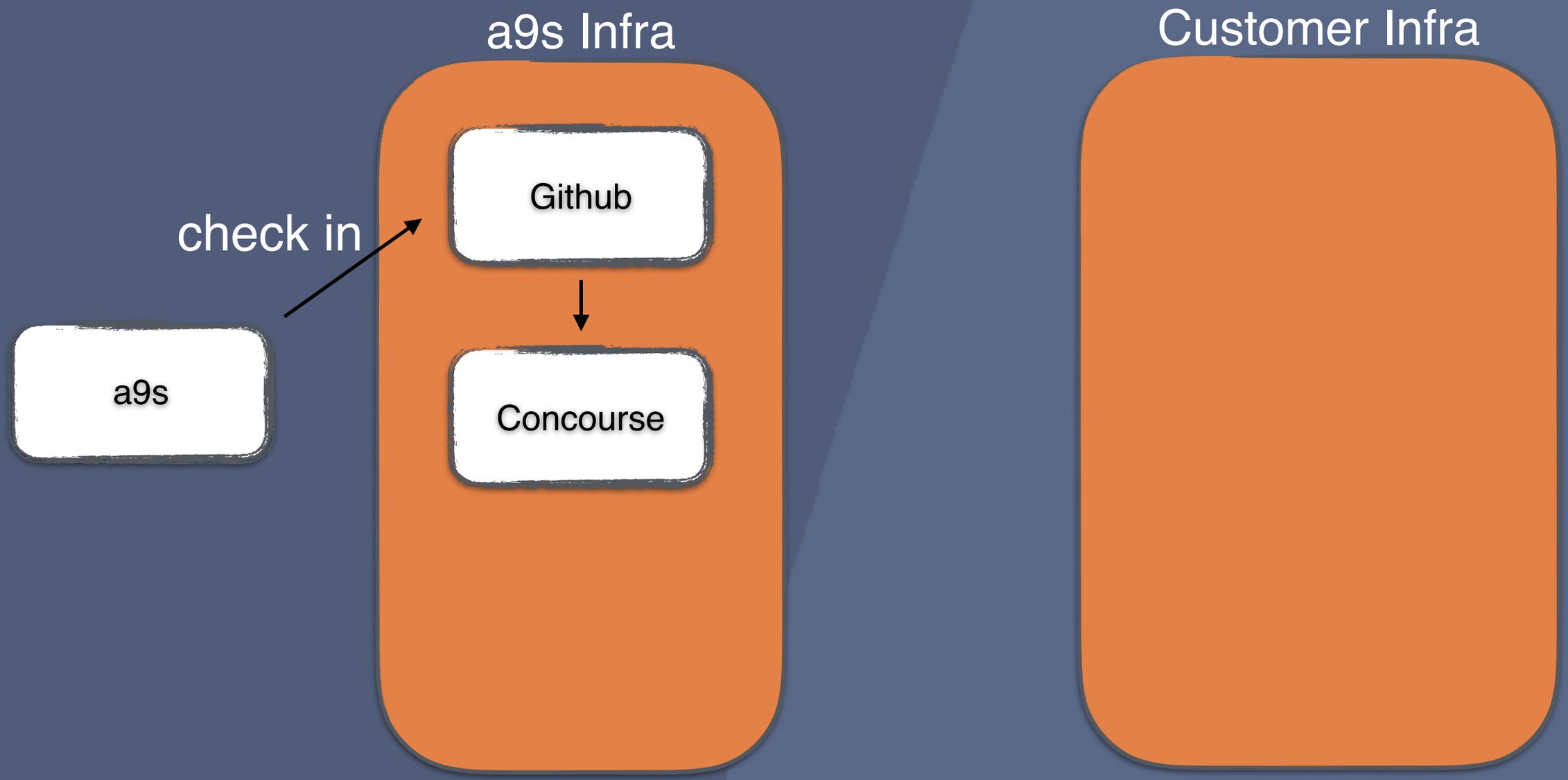

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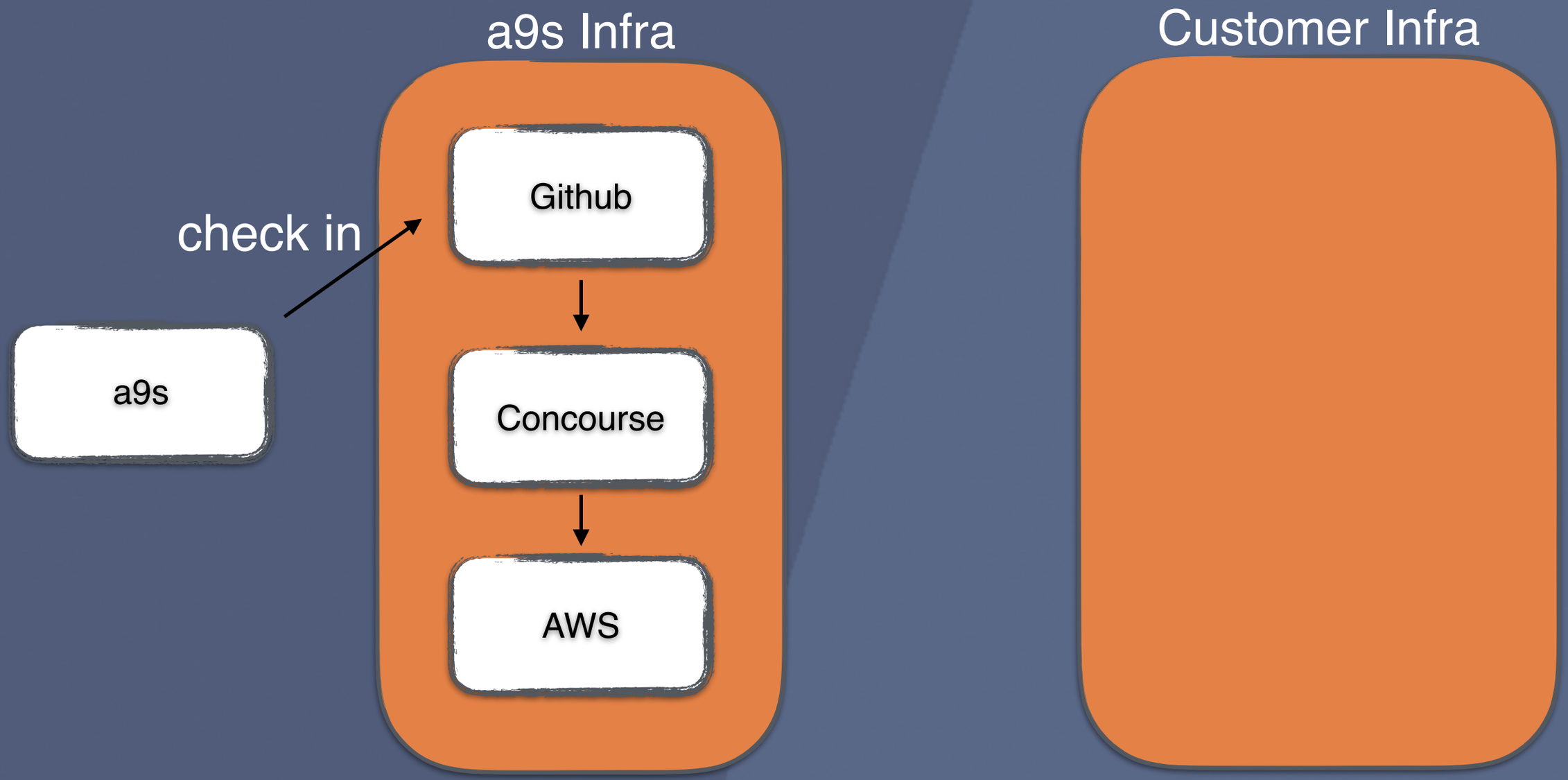

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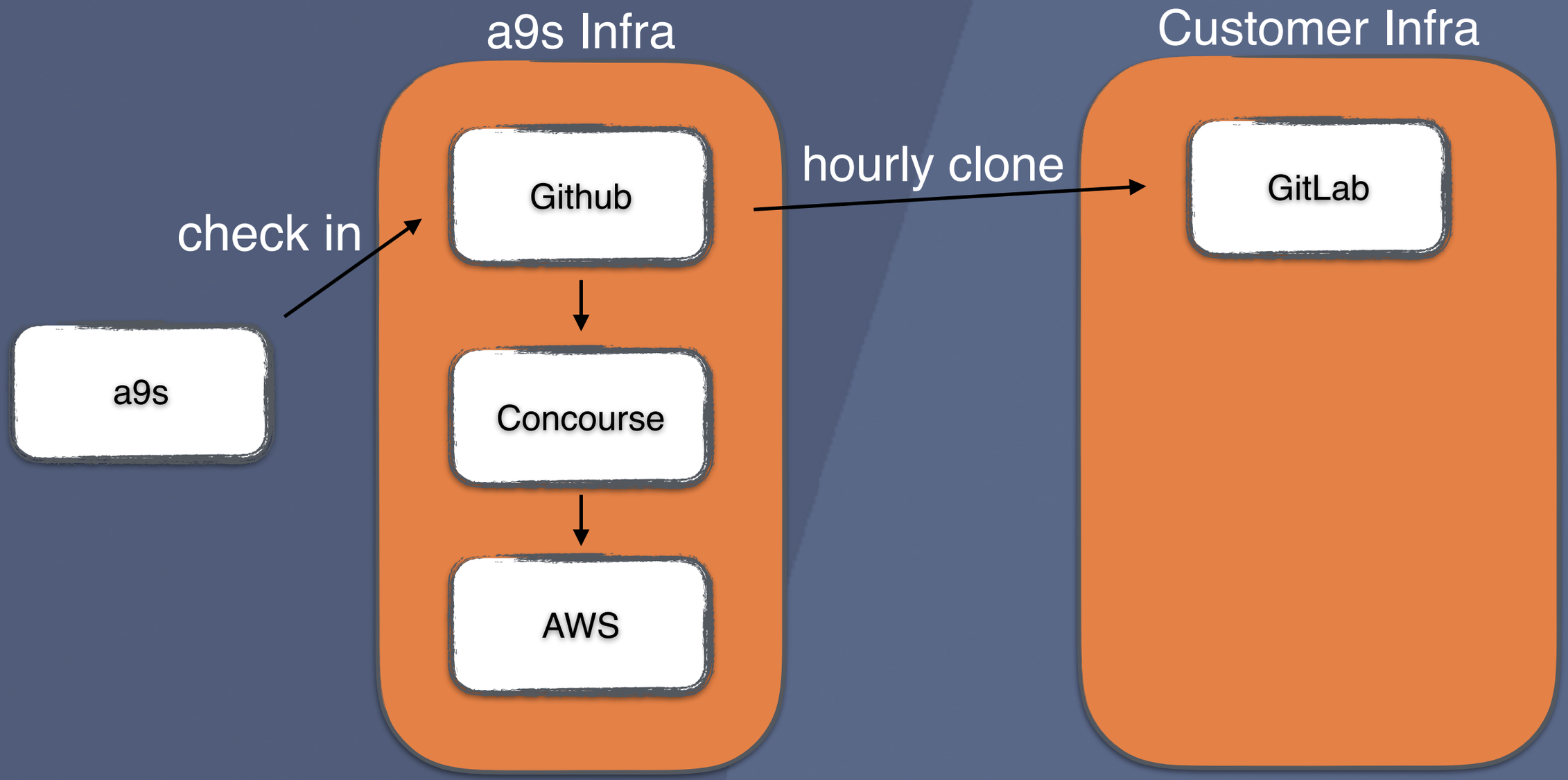

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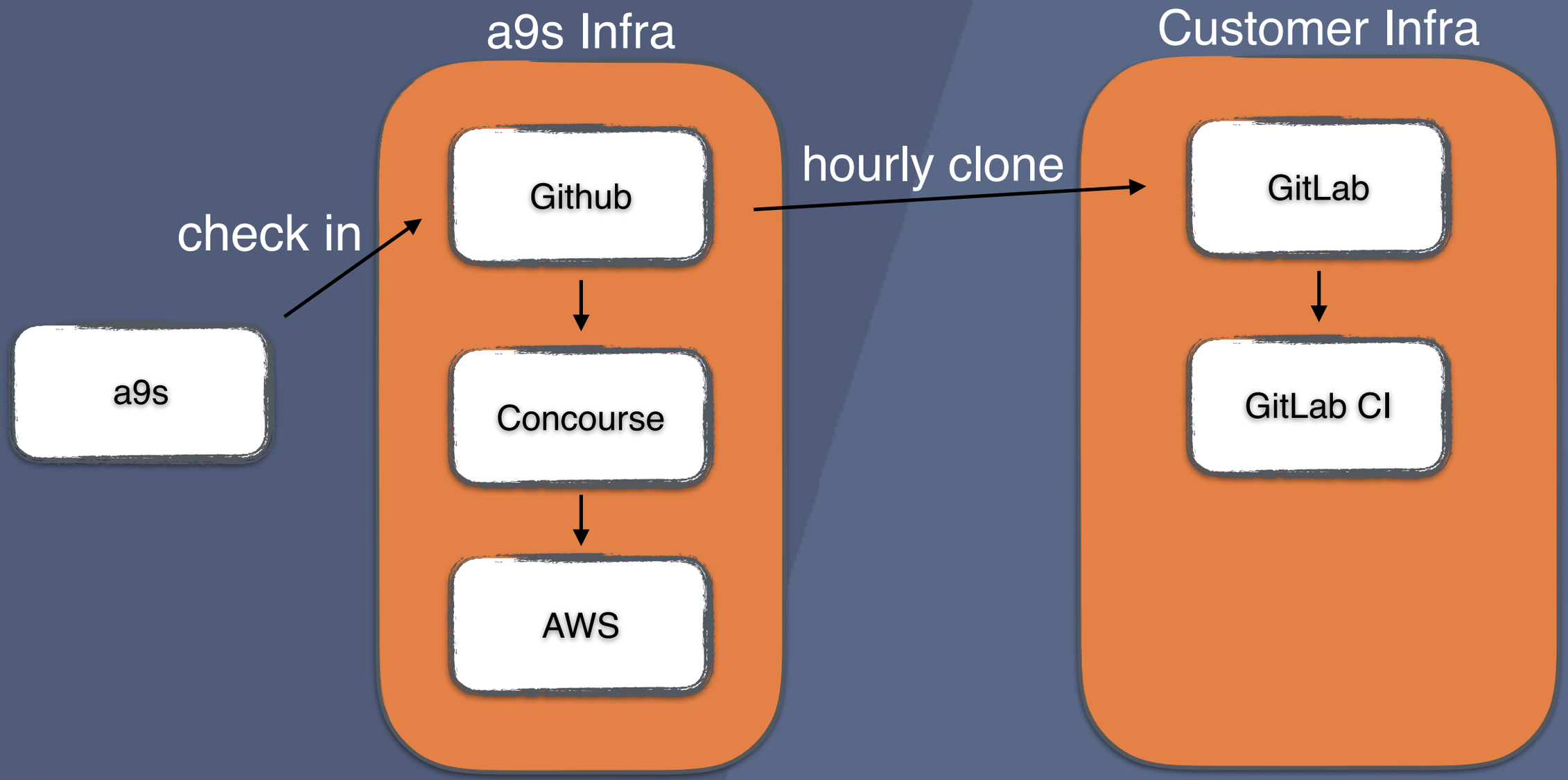

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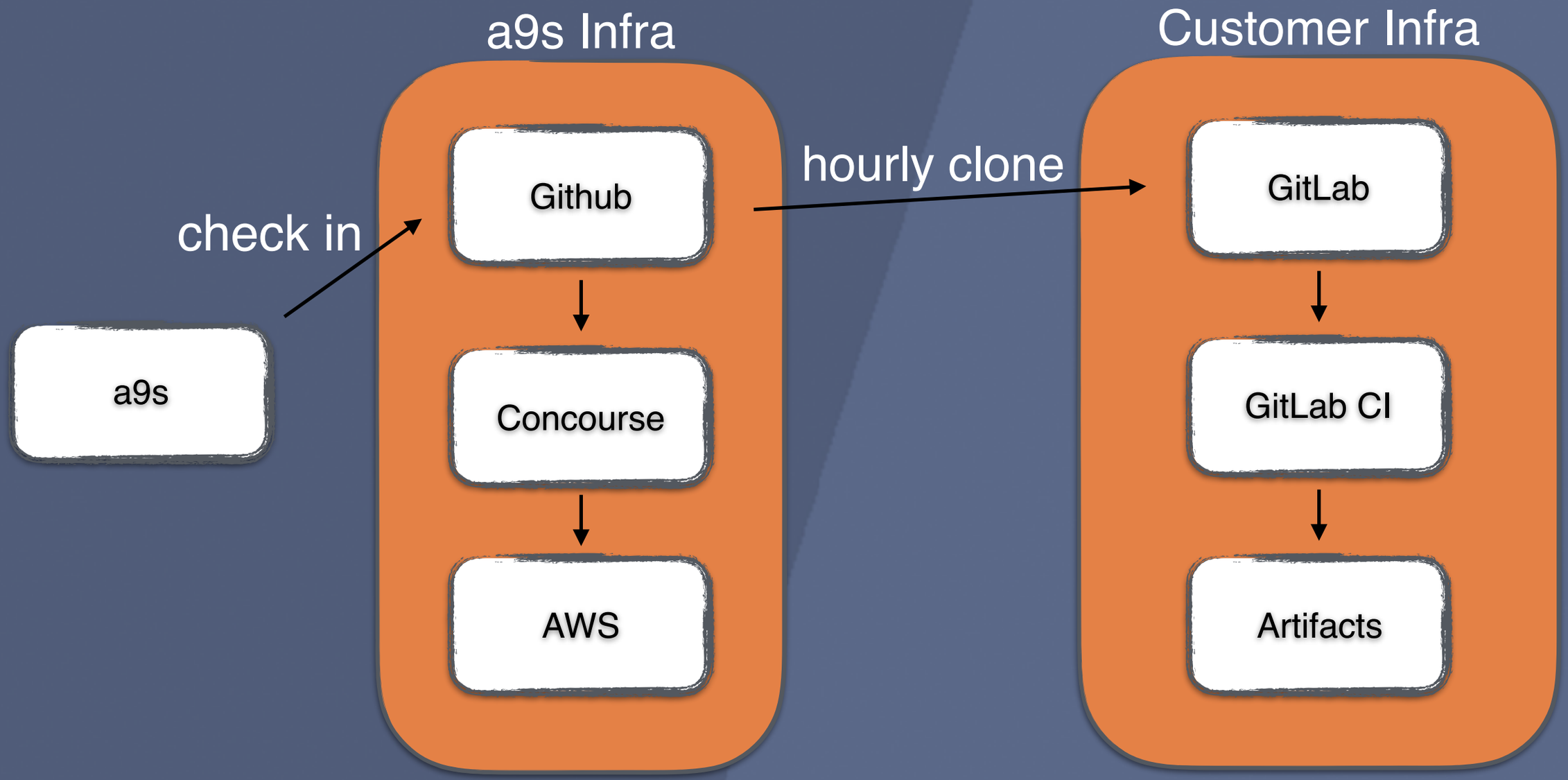

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DevOps Sync

Customer Infra

Dev

Artifacts

Integration

GitLab

anynines

DevOps Sync

Customer Infra

Dev

Integration

Artifacts

GitLab

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DevOps Sync

Customer Infra

Integration

Artifacts

Deployment Train

Production

Infrastructure Engineer

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DevOps Sync

Customer Infra

Integration

Production

Artifacts

Deployment Train

Infrastructure Engineer

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Operational Knowledge Diverged

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Operational Knowledge Diverged

- There was a dedicated repo on customer side for operation scripts

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Operational Knowledge Diverged

- There was a dedicated repo on customer side for operation scripts
- Blue Green Deployment was very complex

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- At the end of the project knowledge sharing didn’t go very well (deadlines)

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- There was a dedicated repo on customer side for operation scripts
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  - -> Standups with Infrastructure Engineer

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Operational Knowledge Diverged

- There was a dedicated repo on customer side for operation scripts
- Blue Green Deployment was very complex
- At the end of the project knowledge sharing didn’t go very well (deadlines)
  - -> Standups with Infrastructure Engineer
  - -> Ops Showcase to sync ops knowledge

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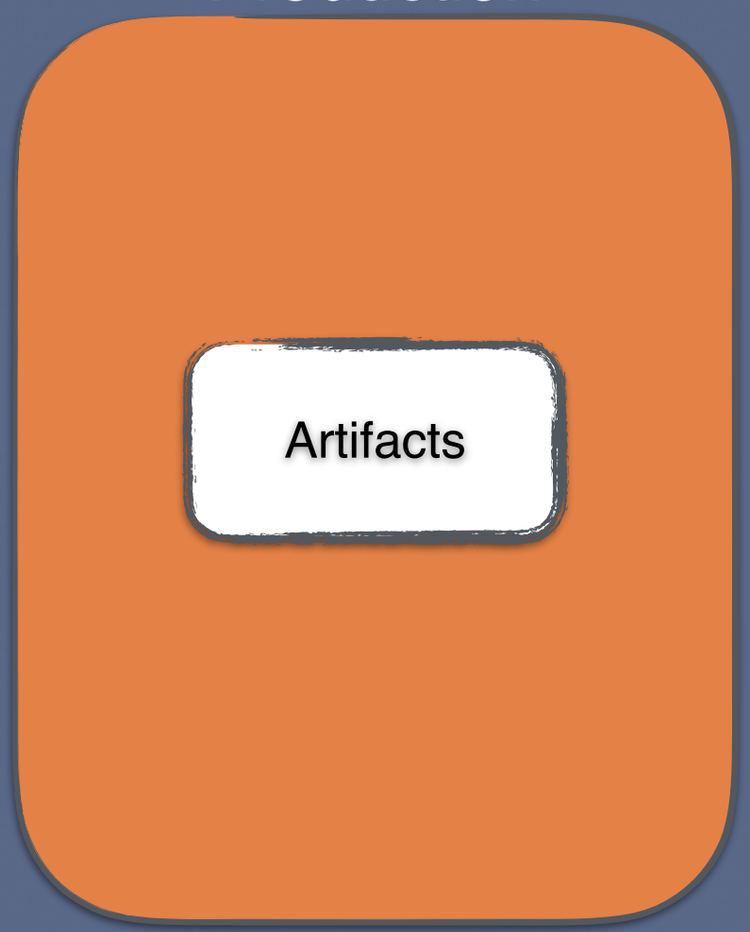
DevOps Sync - Monitoring

Customer Infra



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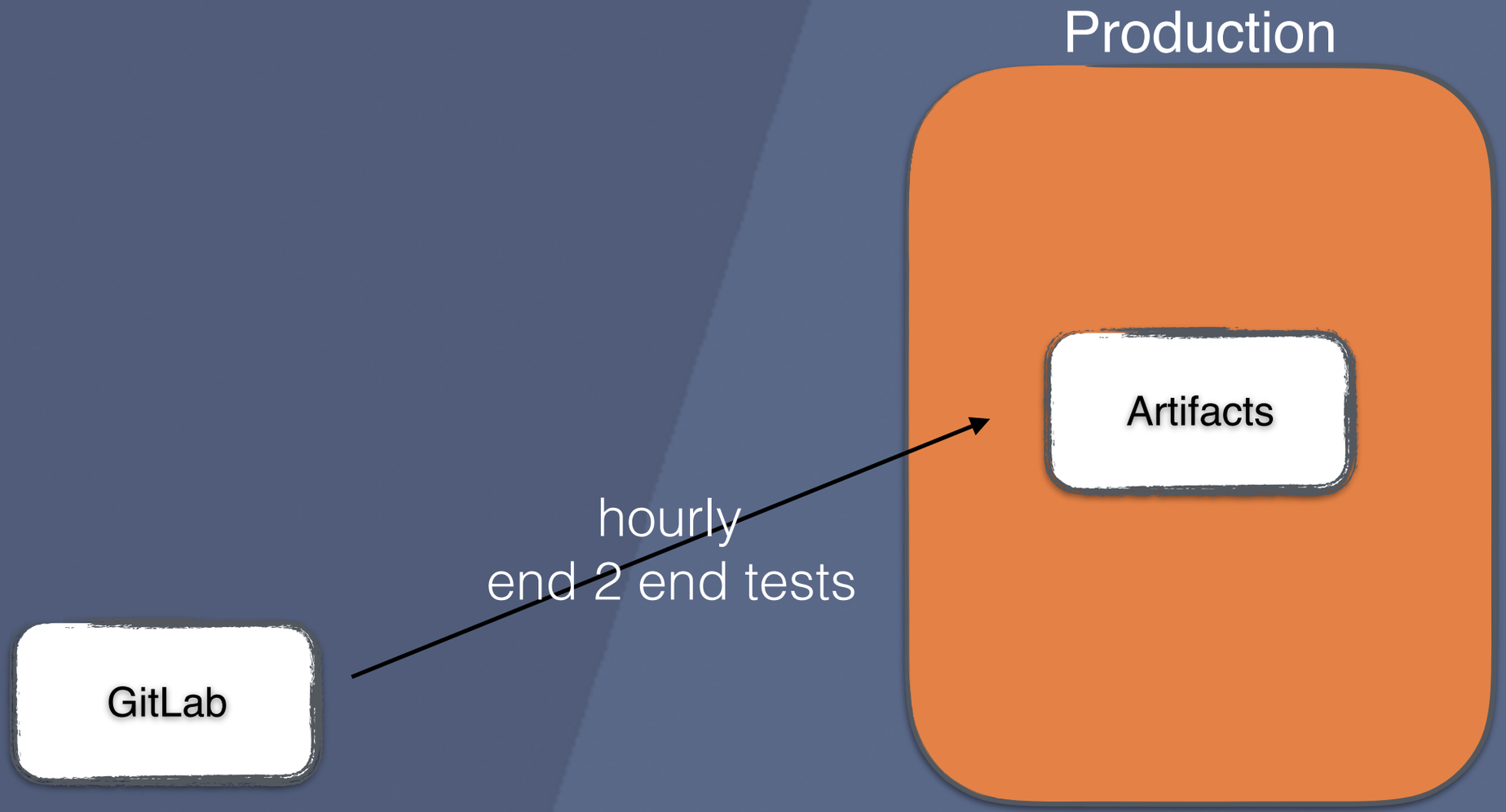
DevOps Sync - Monitoring

Customer Infra



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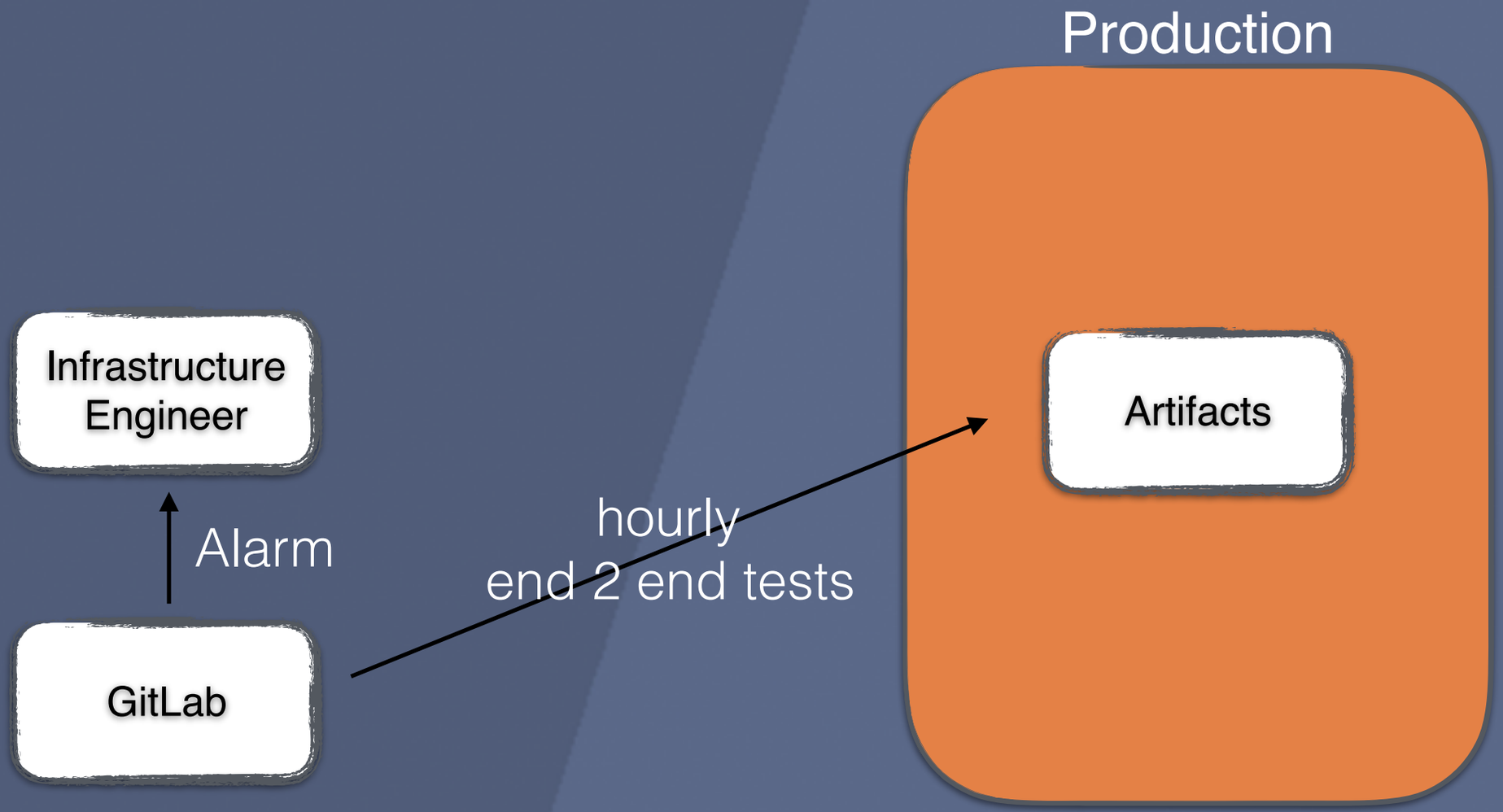
DevOps Sync - Monitoring

Customer Infra



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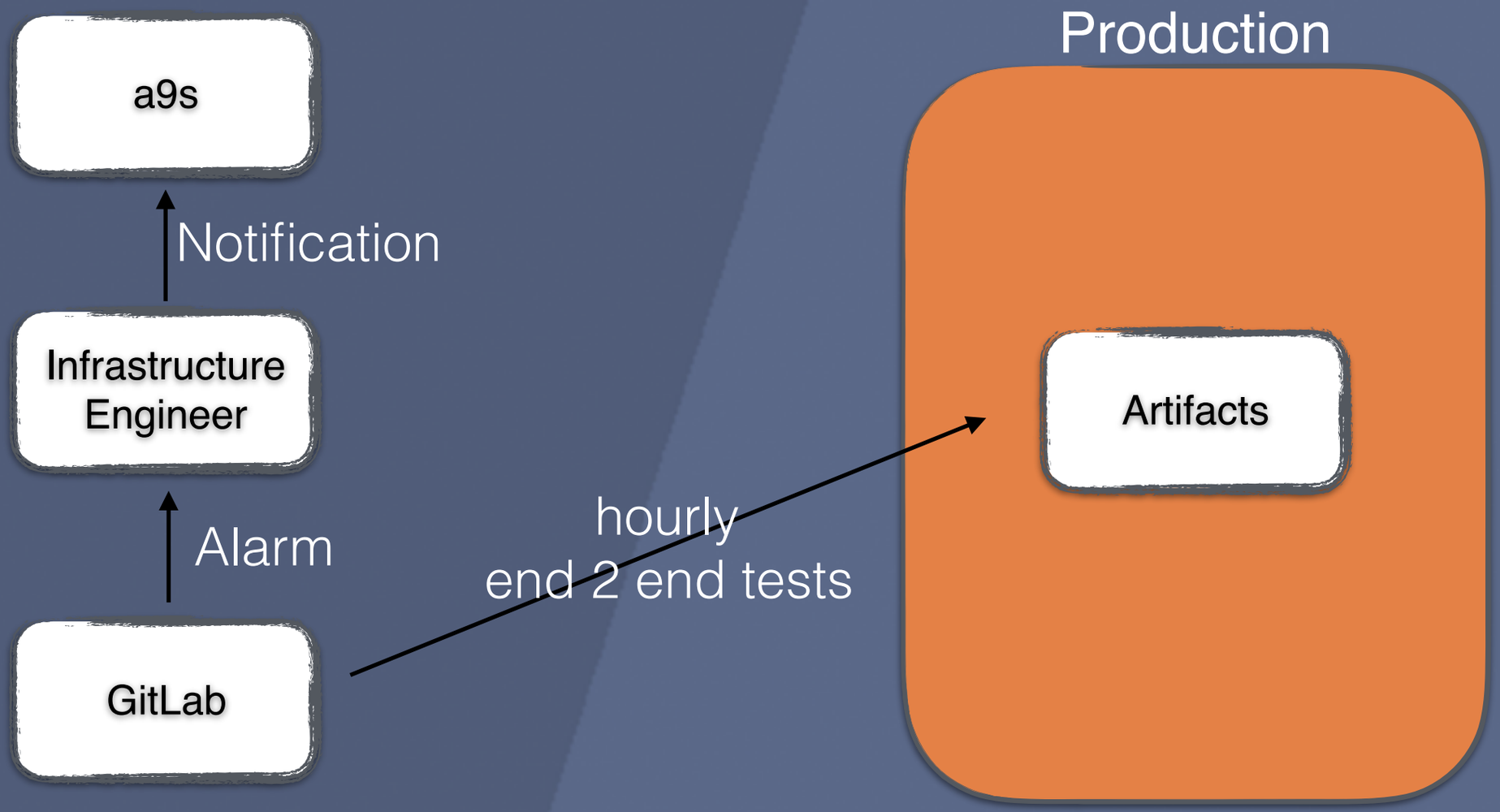
DevOps Sync - Monitoring

Customer Infra



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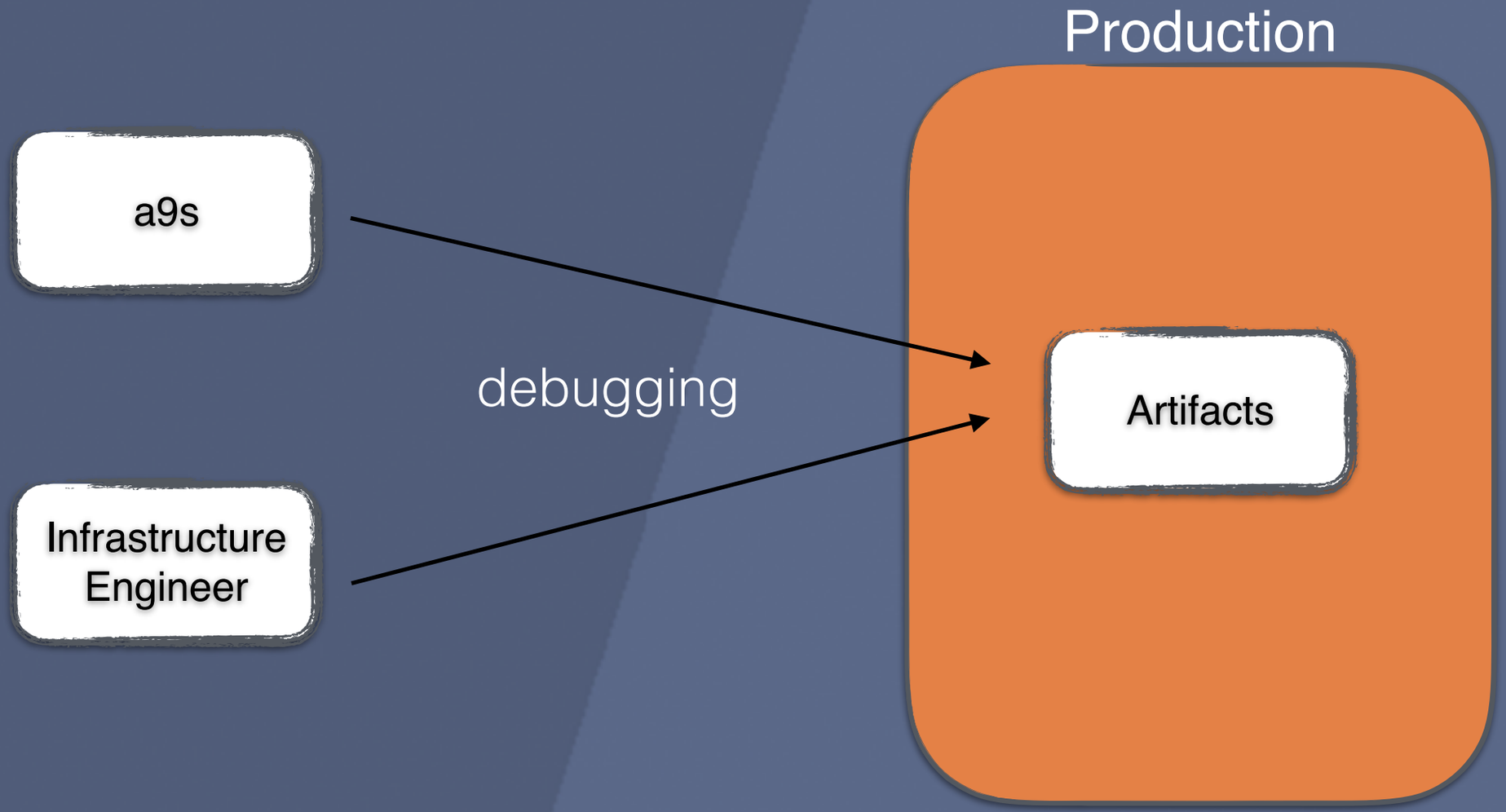
DevOps Sync - Monitoring

Customer Infra



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“

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“Responding to change over following a plan”

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Recap

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Recap

- Complete transformation won’t happen

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Recap

- Complete transformation won’t happen
- Still a good mindset base

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Recap

- Complete transformation won’t happen
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- We knew, we won’t break down silo completely

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Recap

- Complete transformation won’t happen
- Still a good mindset base
- We knew, we won’t break down silo completely
- But we build some good bridges

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Lessons Learned / Advices

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- Don’t underestimate Conway’s Law

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Lessons Learned / Advices

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- C level support for DevOps transformation is a must

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Lessons Learned / Advices

- Don’t underestimate Conway’s Law
- C level support for DevOps transformation is a must
- Agile software development supports DevOps culture
- DevOps is a mindset not a job title
- Don’t rush the DevOps transformation

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Lessons Learned / Advices

- Don’t underestimate Conway’s Law
- C level support for DevOps transformation is a must
- Agile software development supports DevOps culture
- DevOps is a mindset not a job title
- Don’t rush the DevOps transformation
- Don’t force DevOps on your team, instead try to establish a mindset and a transformation from inside out, not from outside in

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- Big Bang transformation won’t gonna happen

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- If you have to pass the software to ops, make sure that you provide as much as possible
- Try to have dev/prod parity
- Try to get System Access as soon as possible

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We are humans

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- Ego

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- Ego
- Comfort zone

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- Fear of Change

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“Don’t hire people for what they can do for you today, hire them for what they can do for you tomorrow”

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“

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“No innovation without diversity. No improvement without change.”

Thank You

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Questions

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