

Multi-container Pod Use Cases



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Overview



Pod Theory

Multi-container Patterns:

- Init Pattern
- Sidecar Pattern
- Adapter Pattern
- Ambassador Pattern

Recap

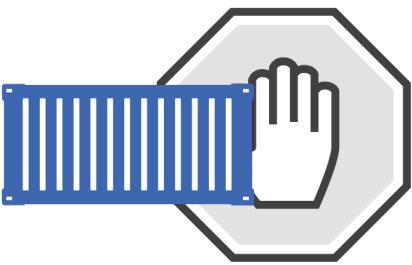
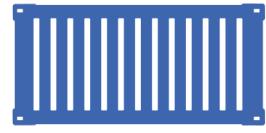
GitHub repo:

<https://github.com/nigelpoulton/ps-vols-and-pods>



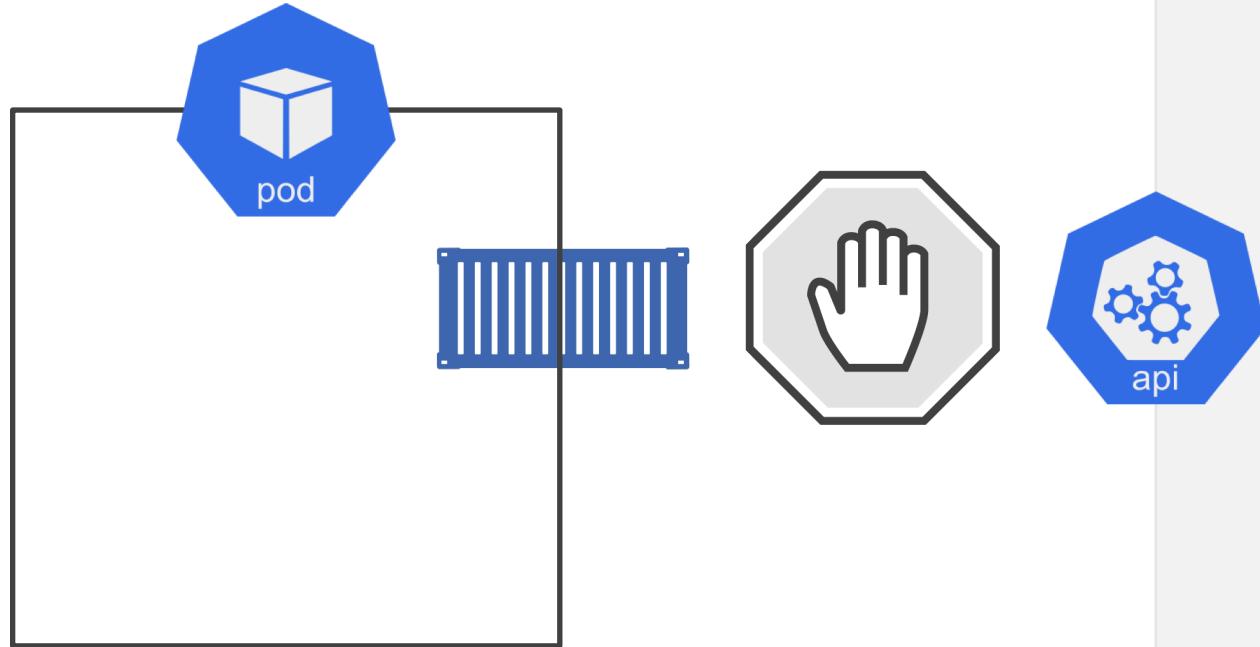
Kubernetes Pod Theory





Kubernetes



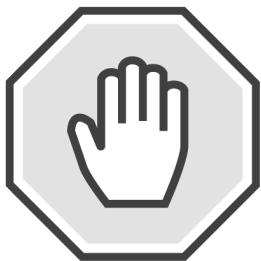
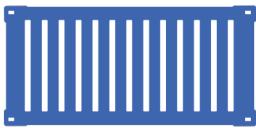


Kubernetes



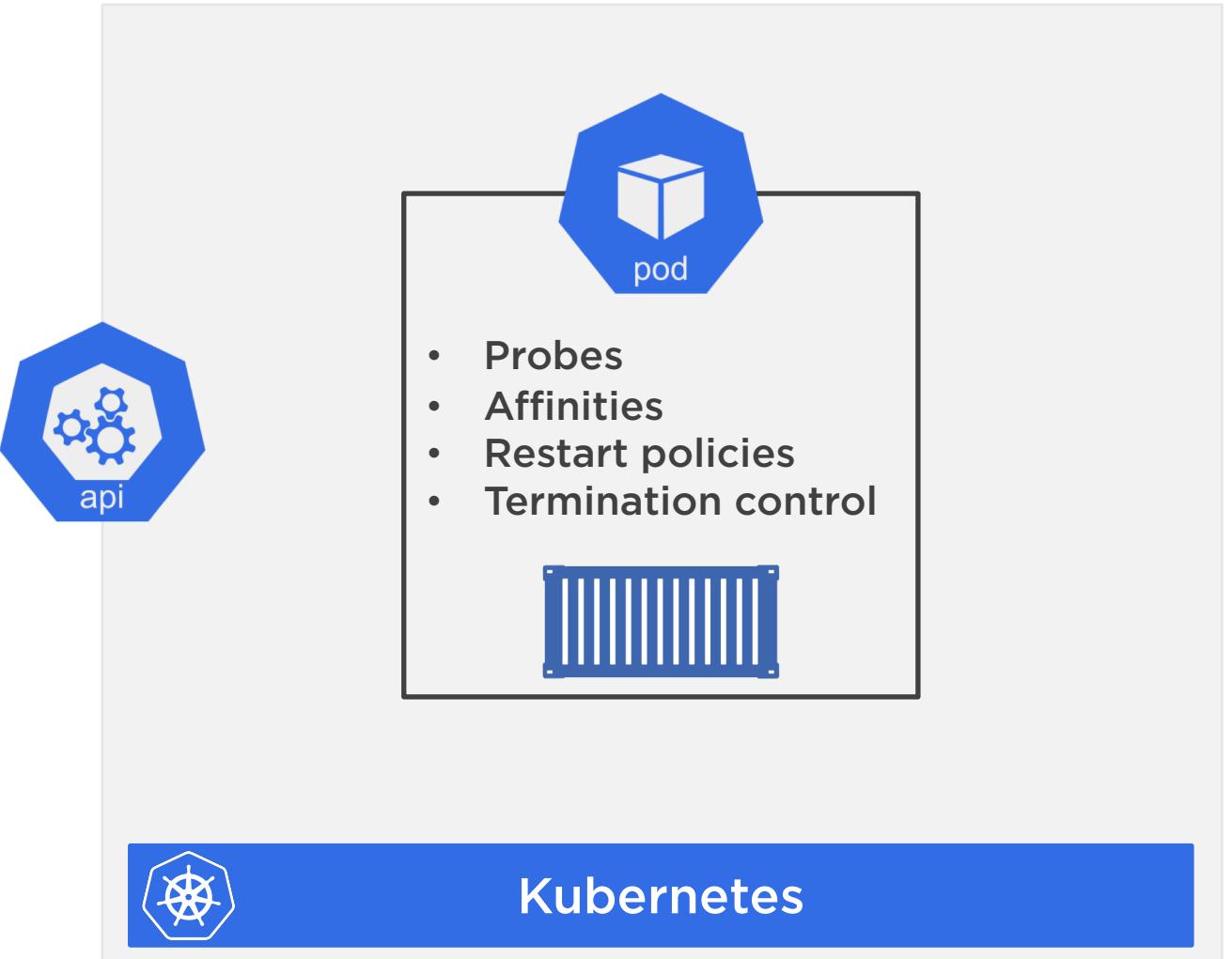


- Probes
- Affinities
- Restart policies
- Termination control



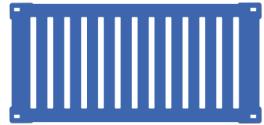
Kubernetes

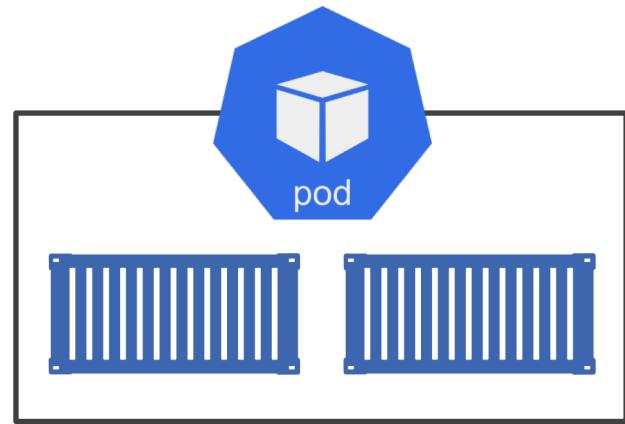


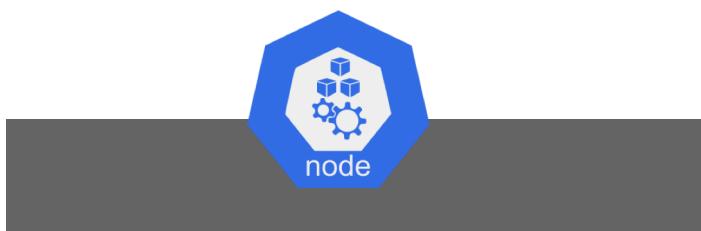
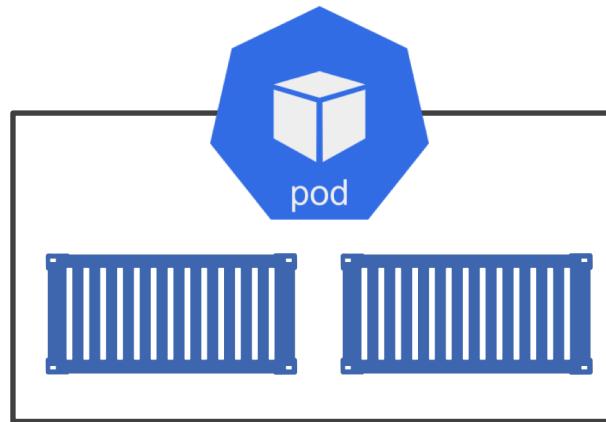


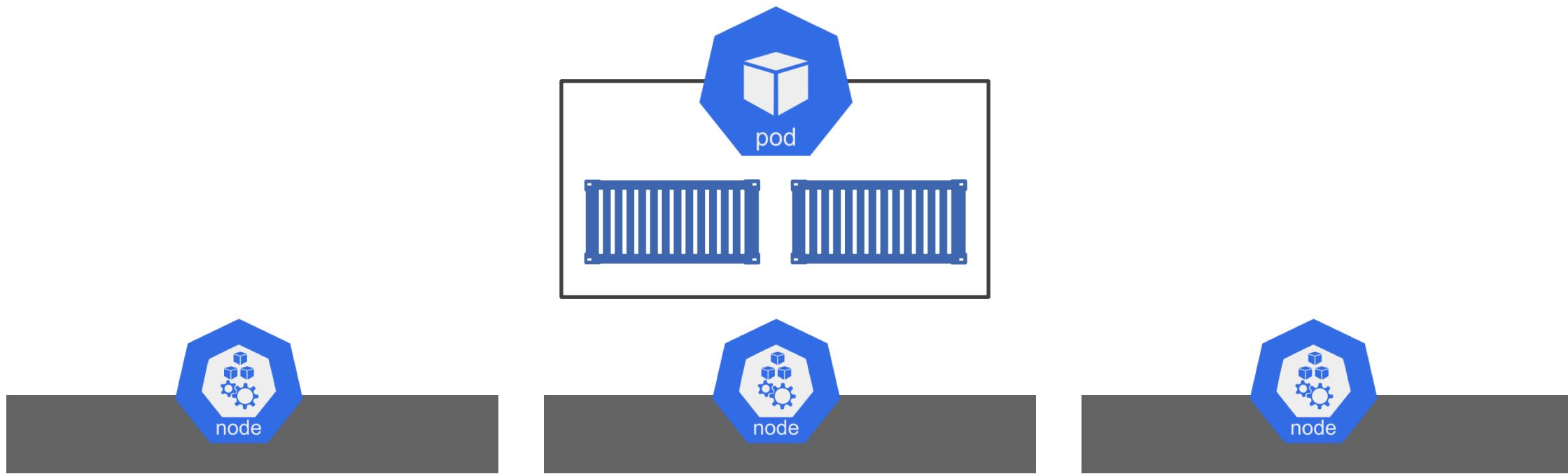


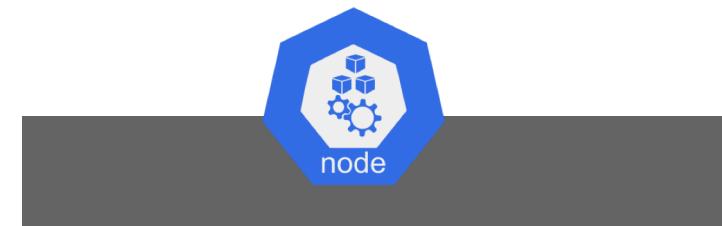
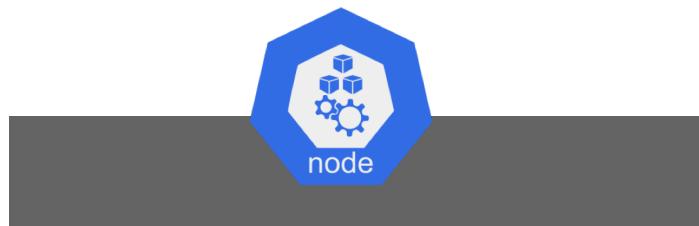
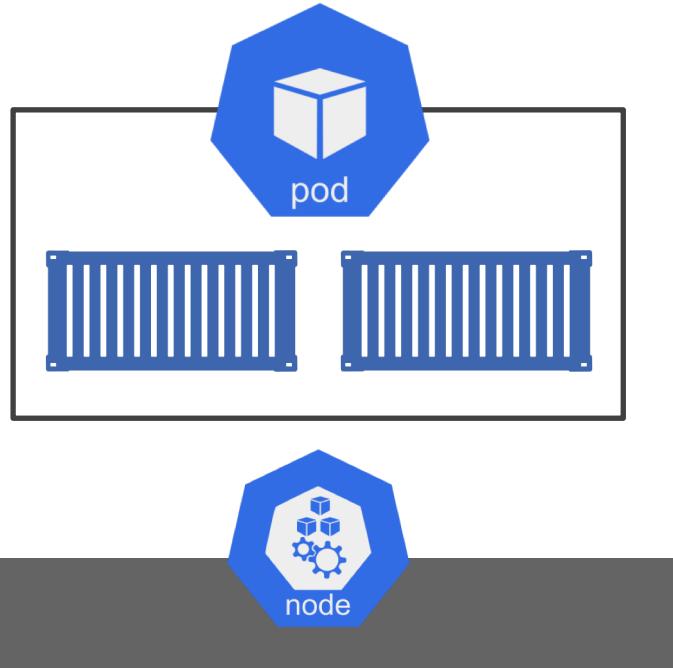
- Probes
- Affinities
- Restart policies
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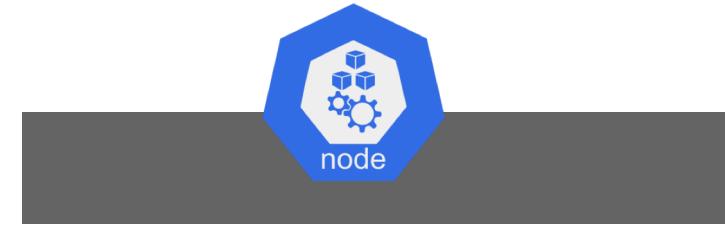
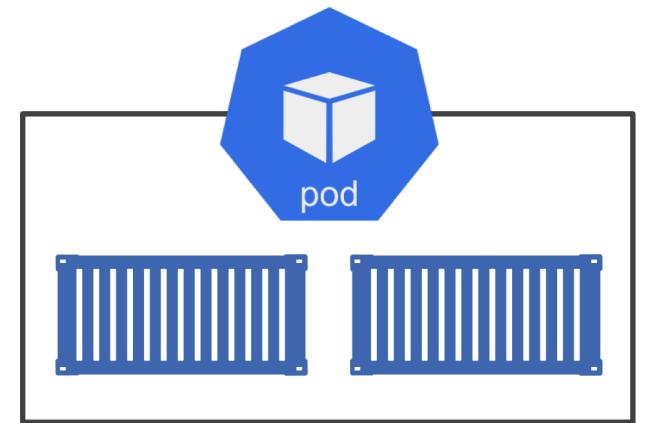
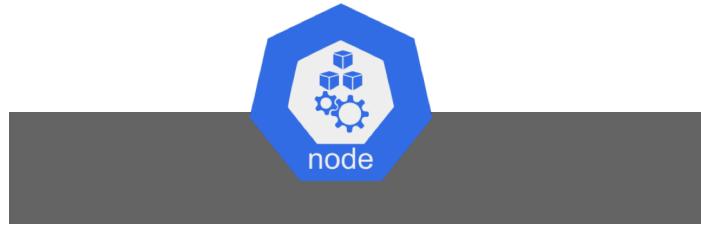
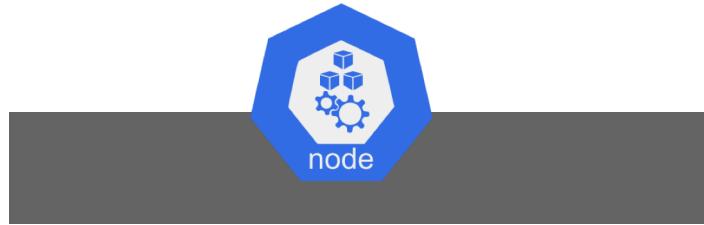


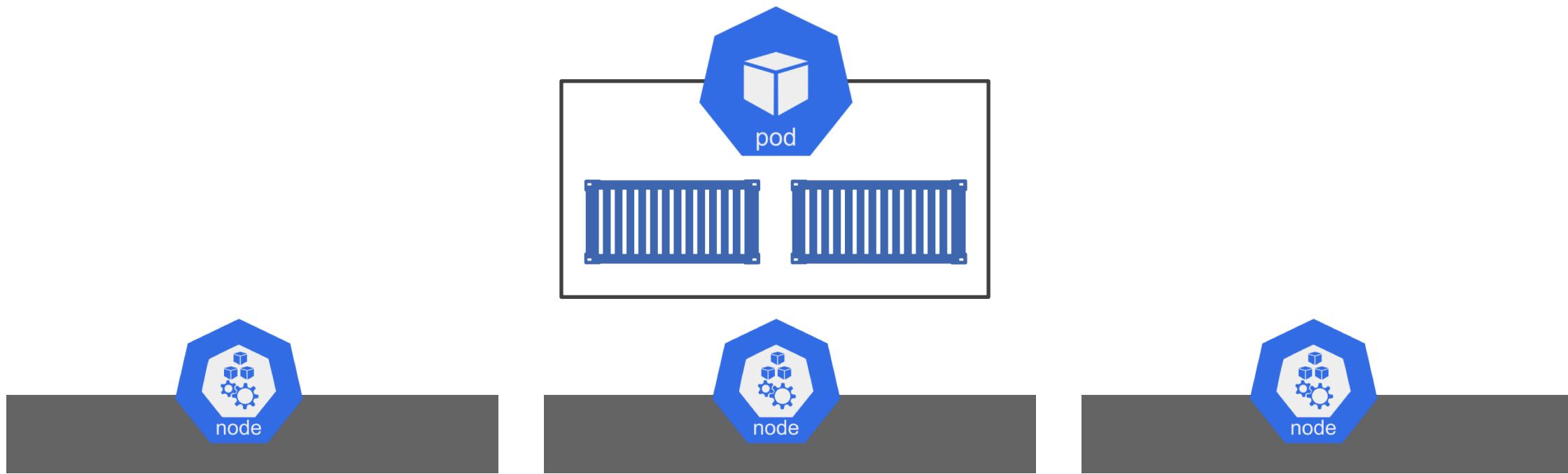


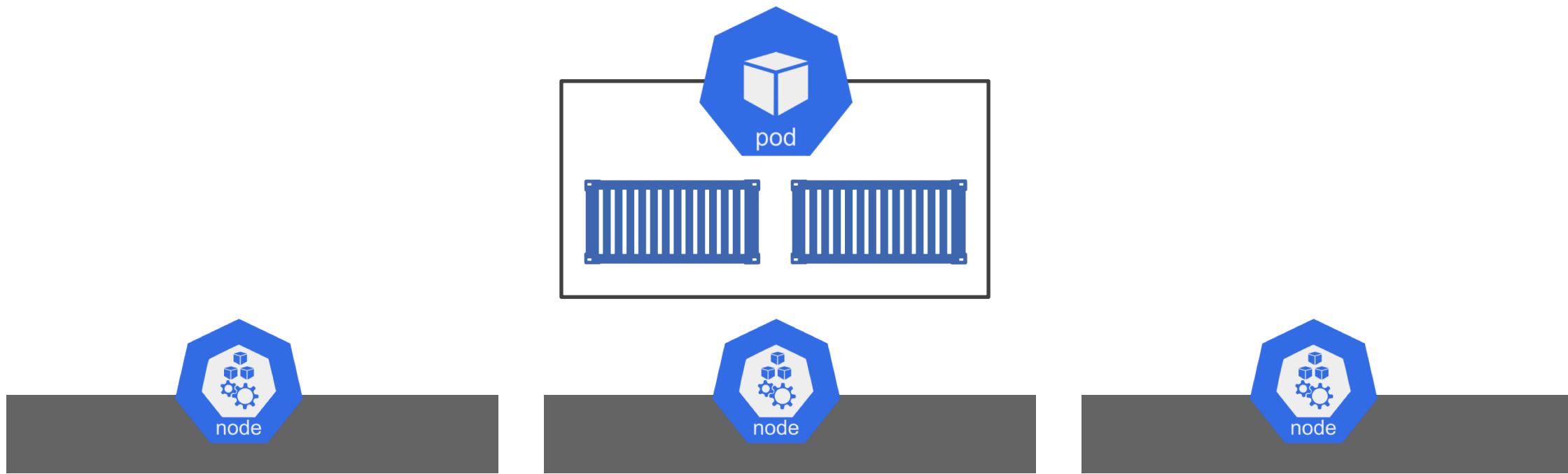


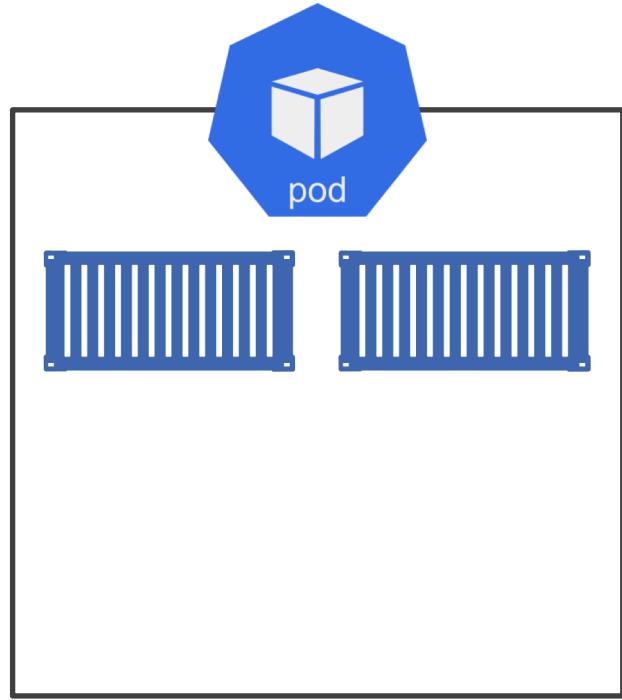


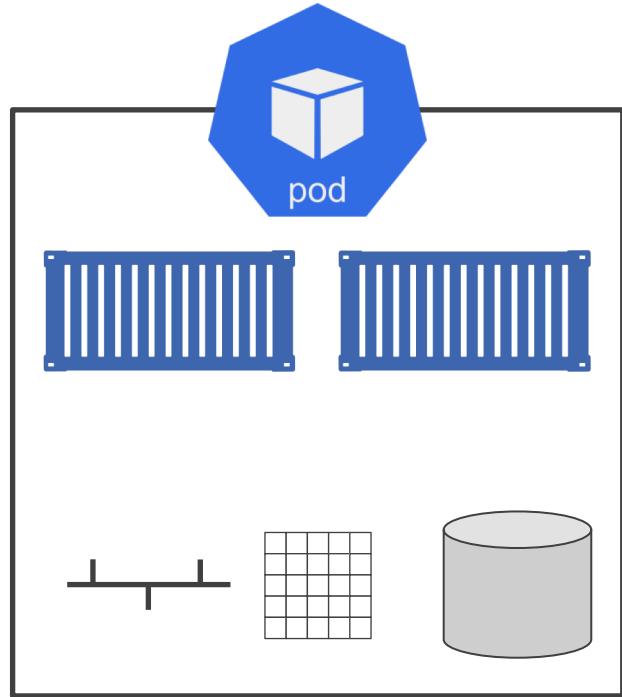


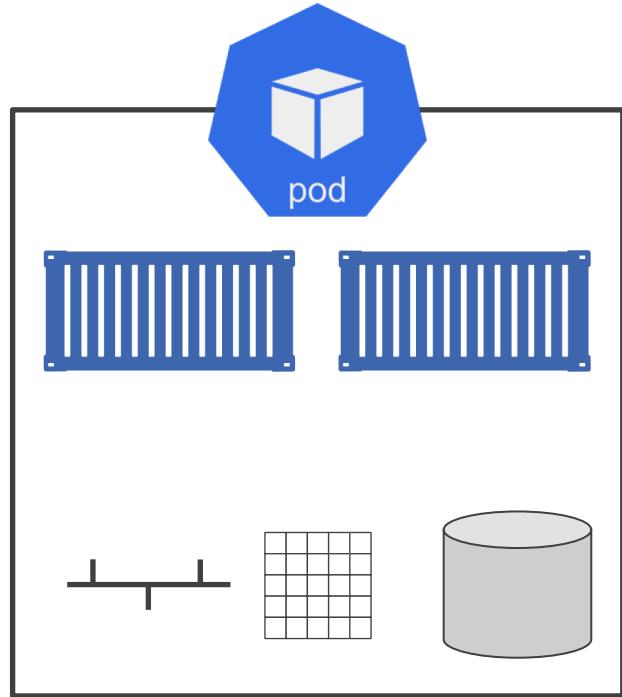


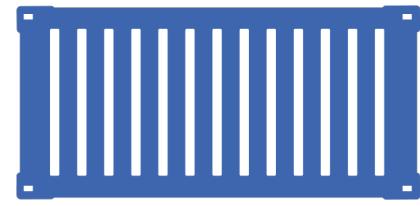
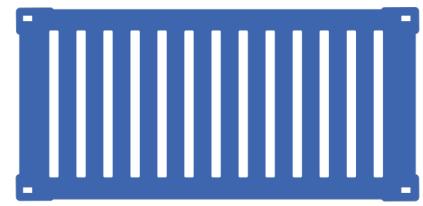


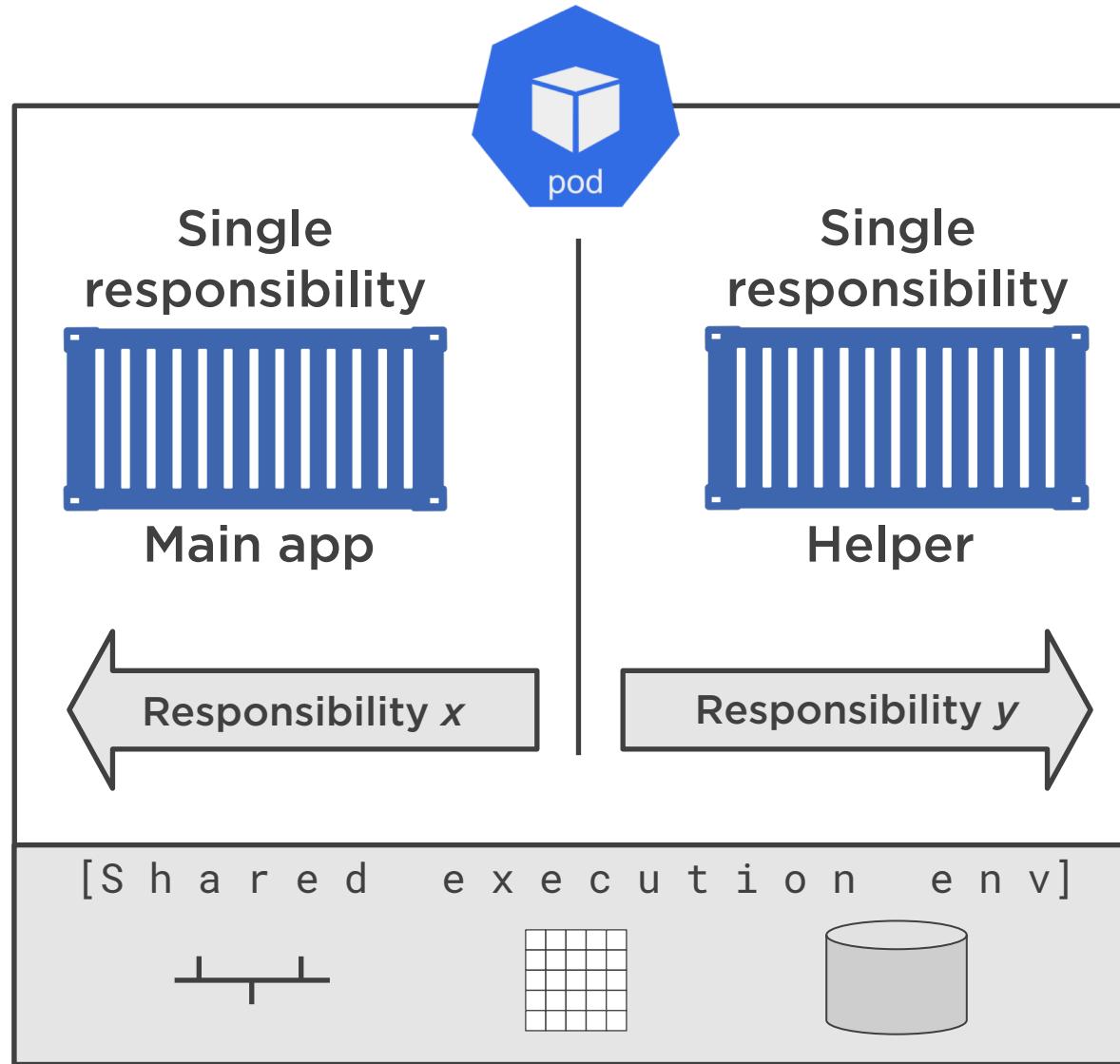


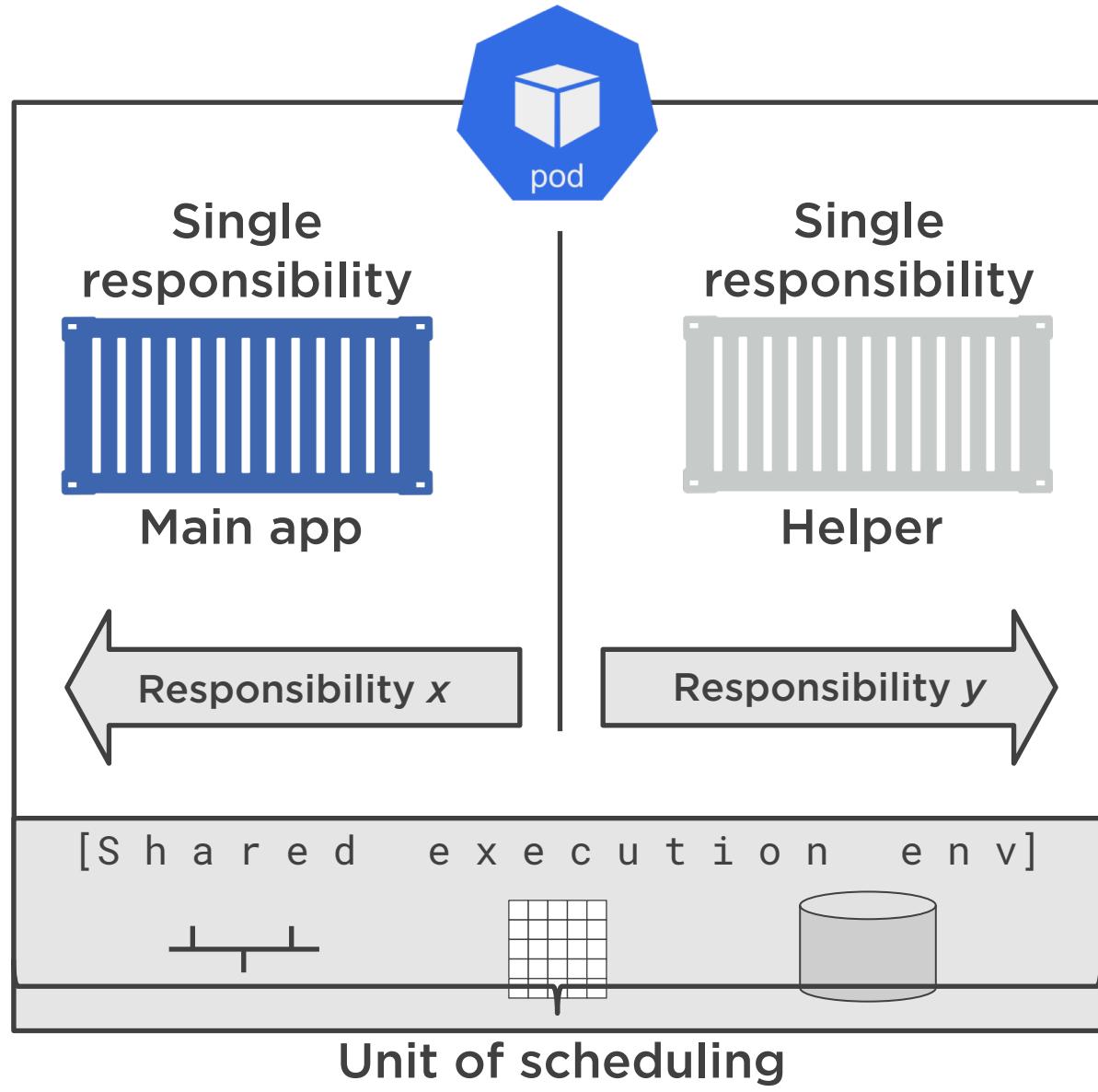


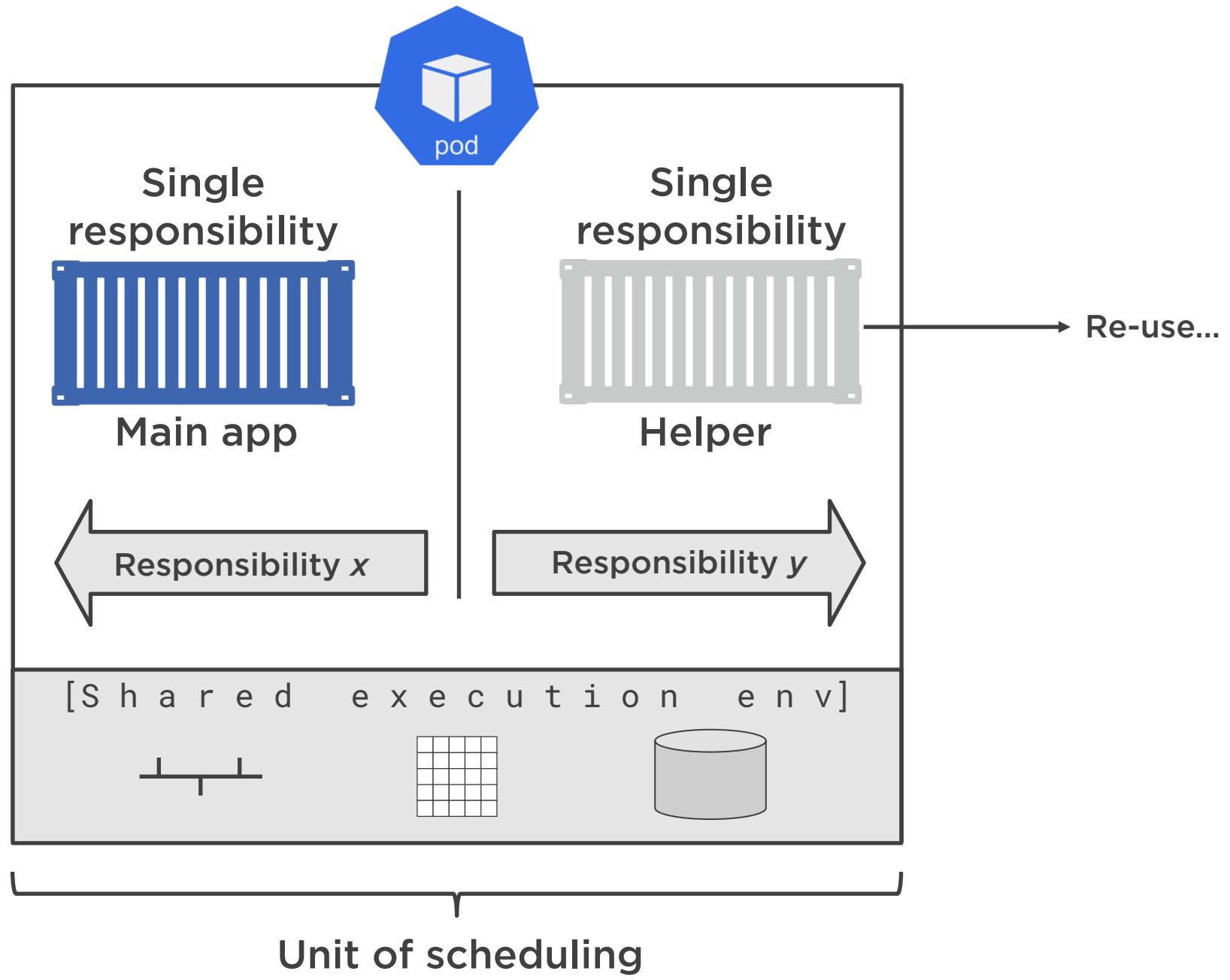








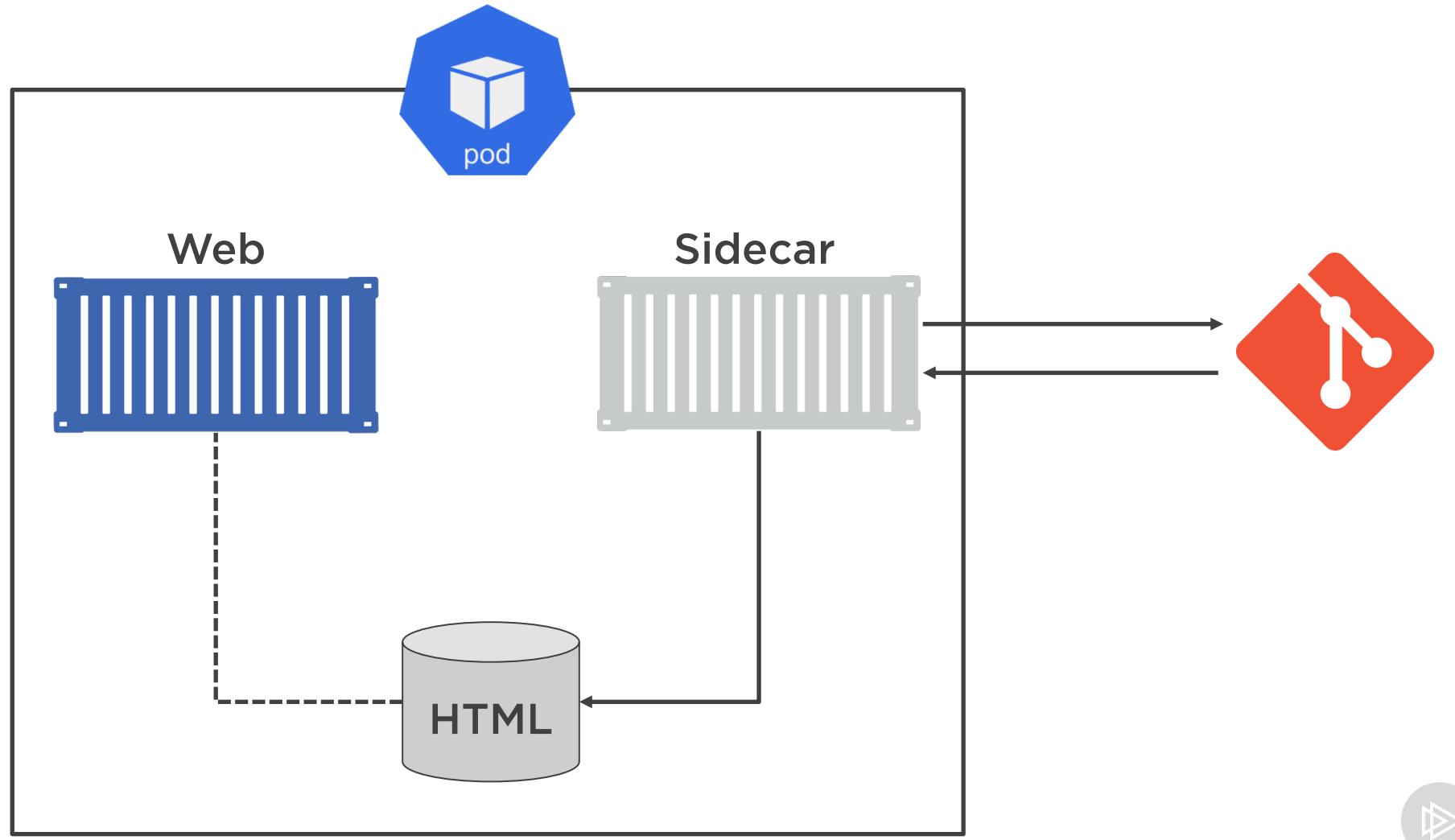




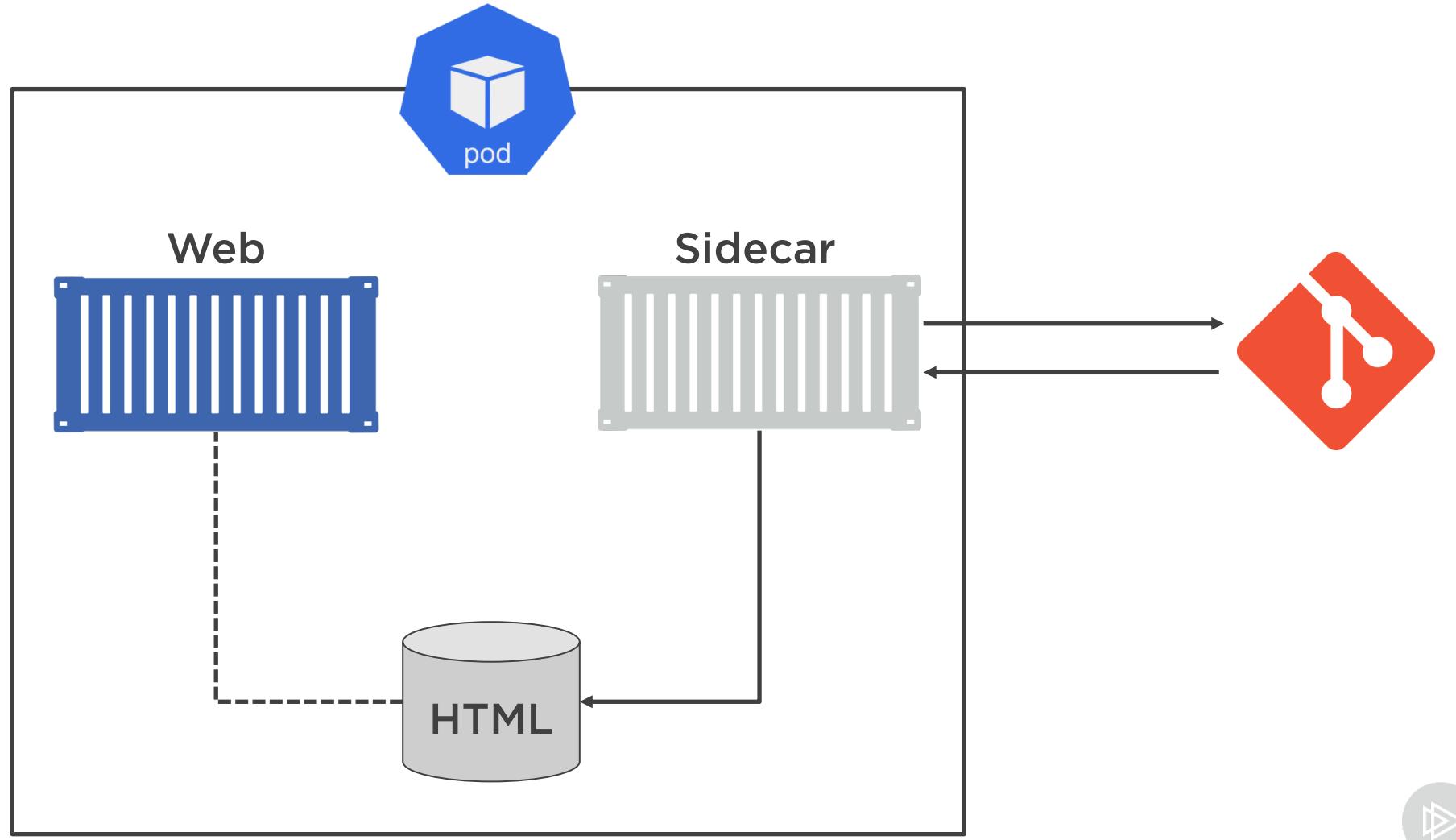
Multi-container Pods



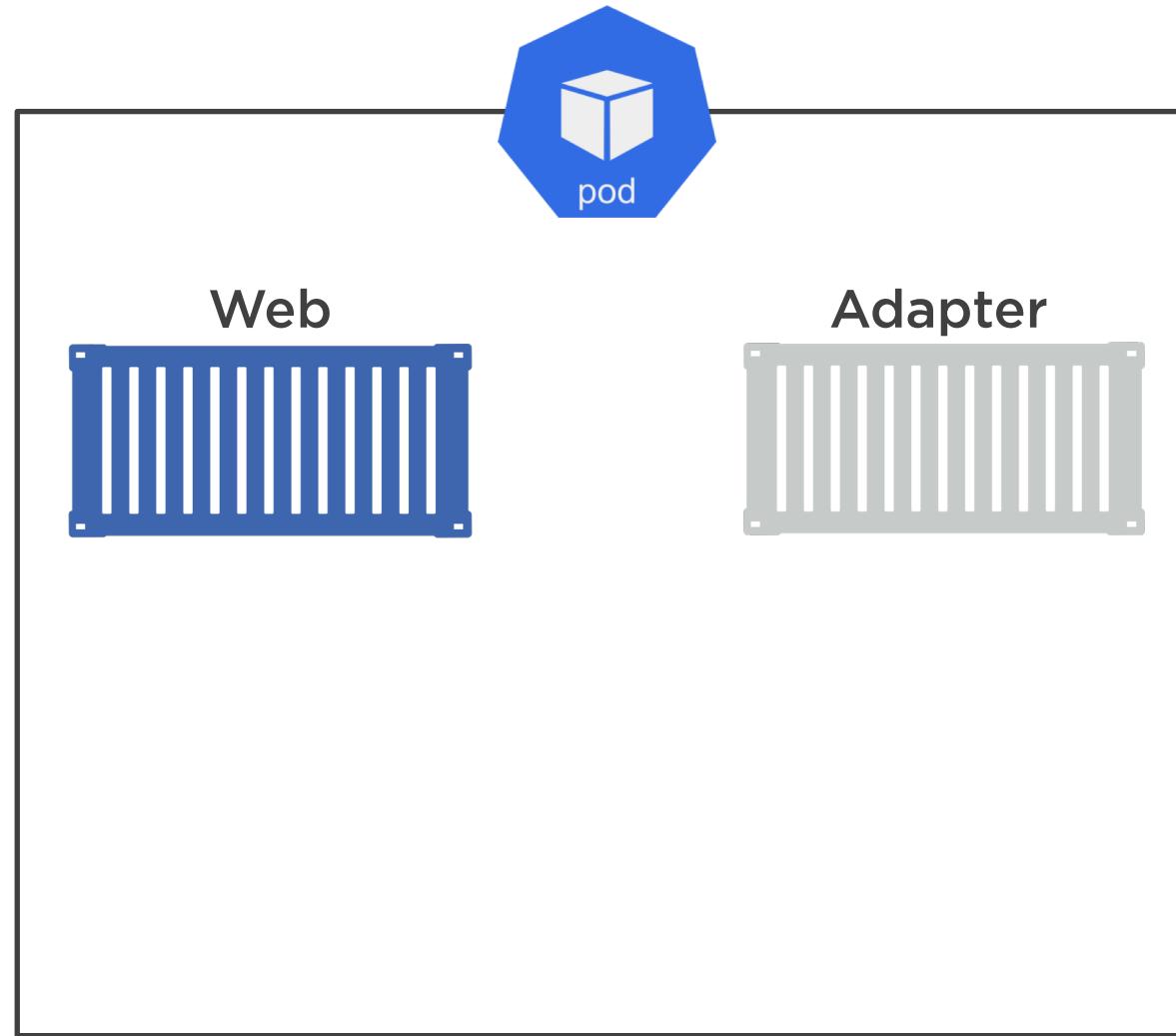
Sidecar Pattern



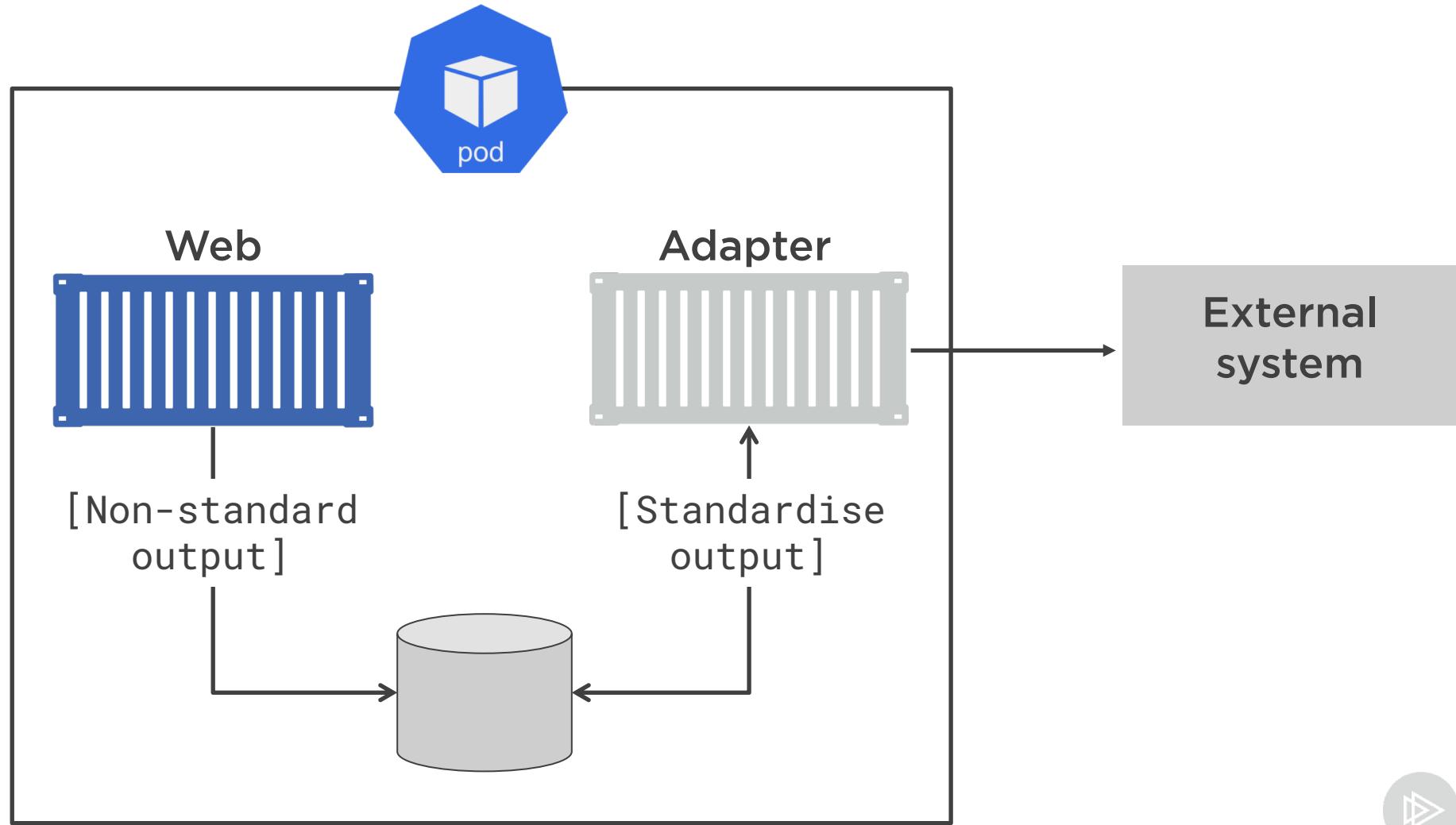
Sidecar Pattern



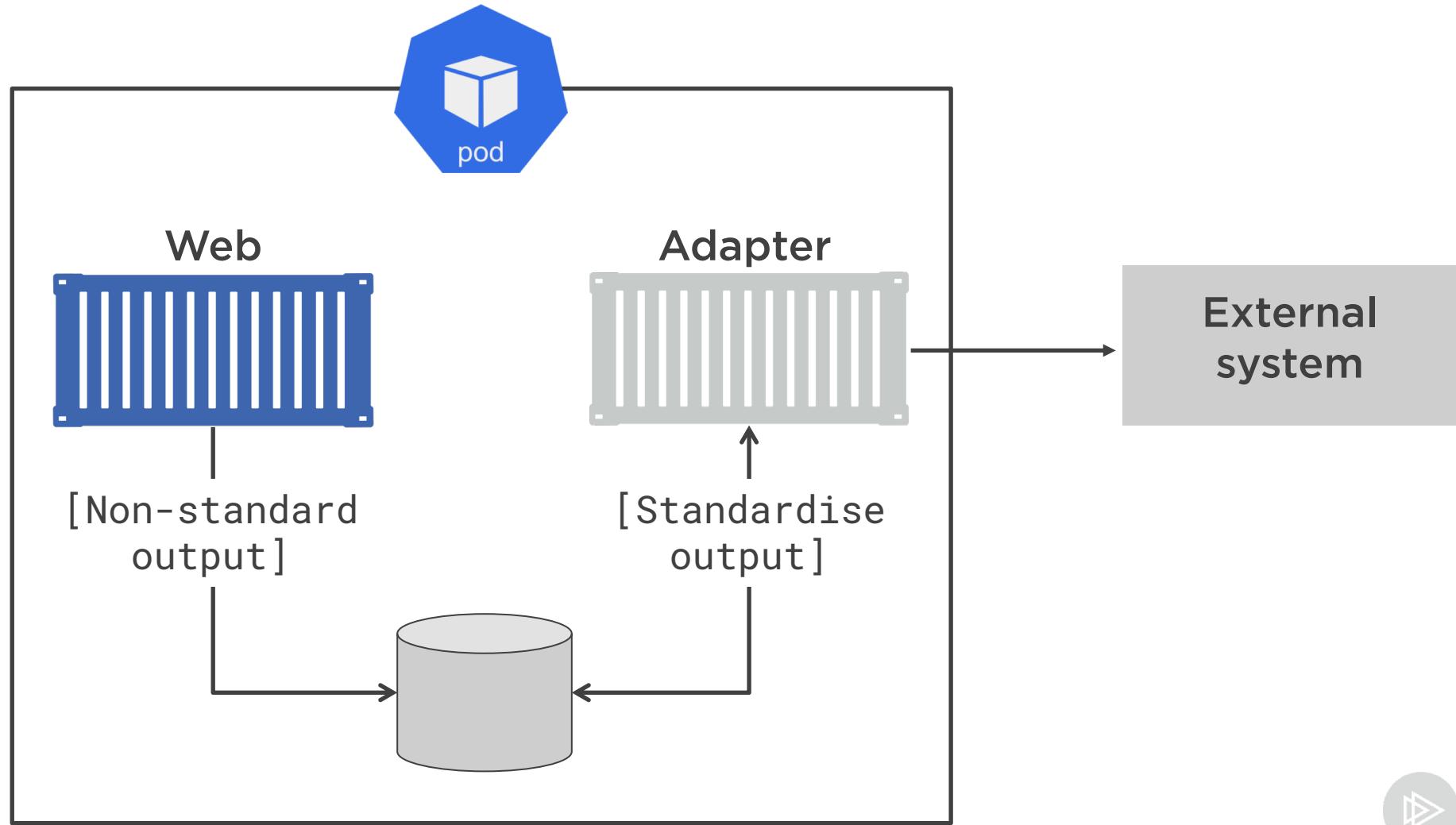
Adapter Pattern



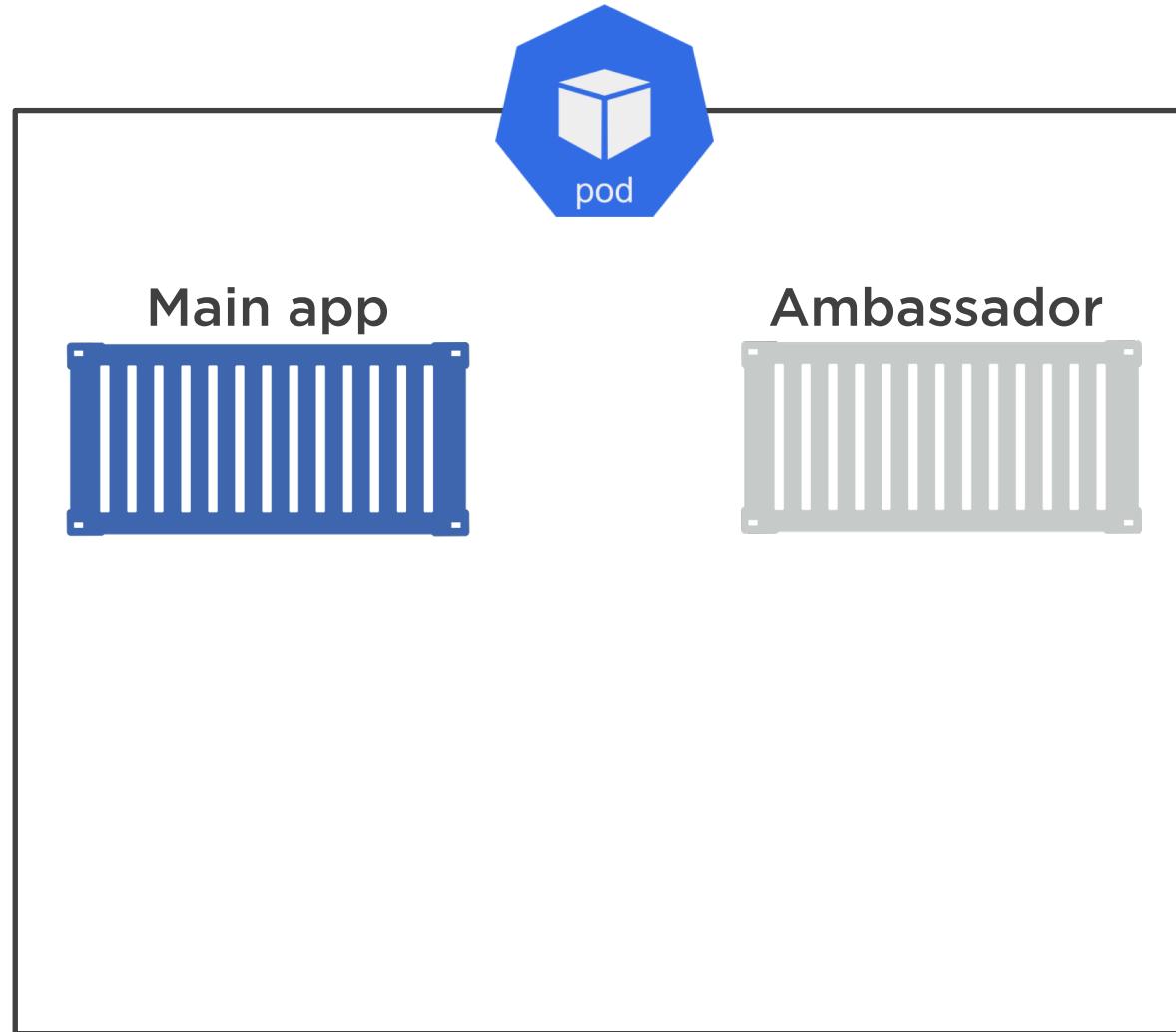
Adapter Pattern



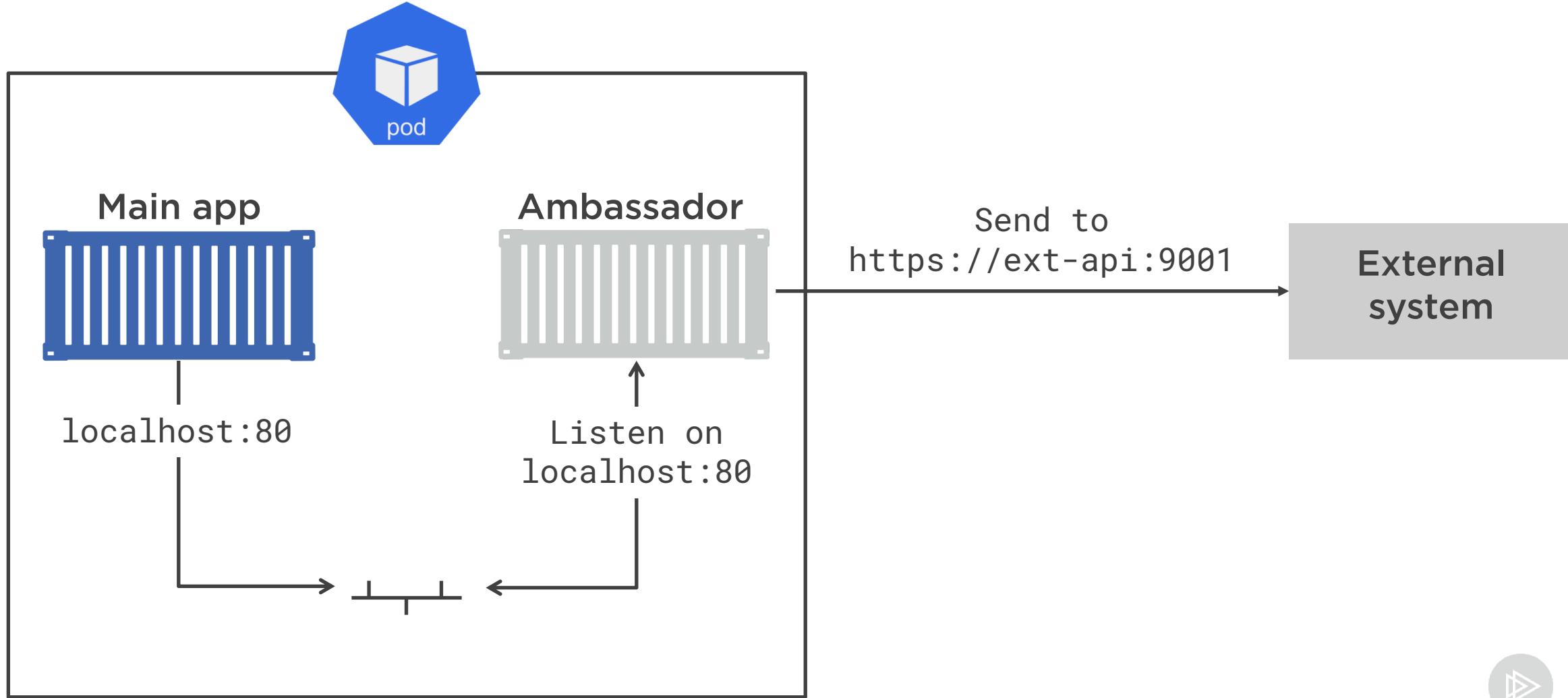
Adapter Pattern



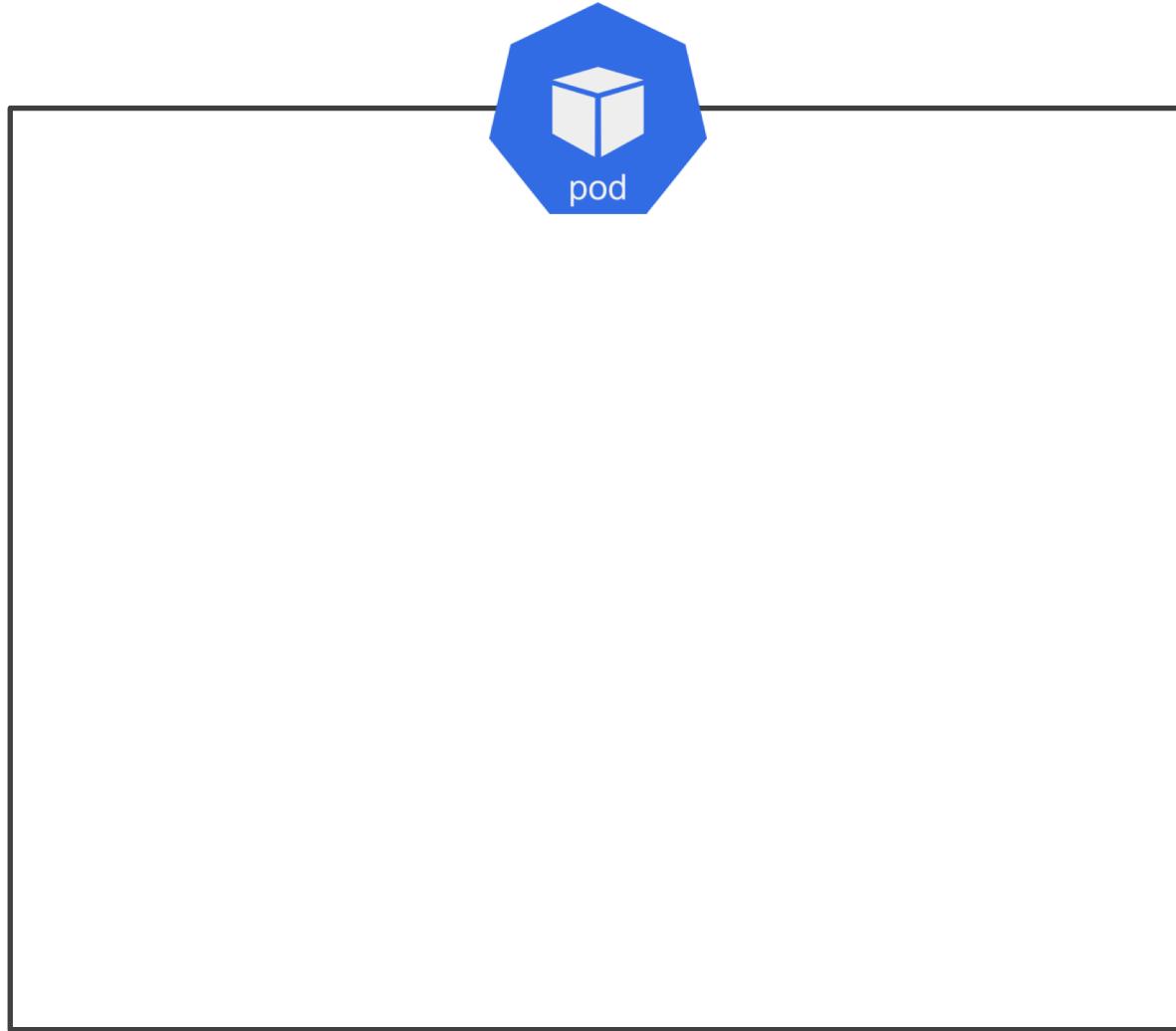
Ambassador Pattern



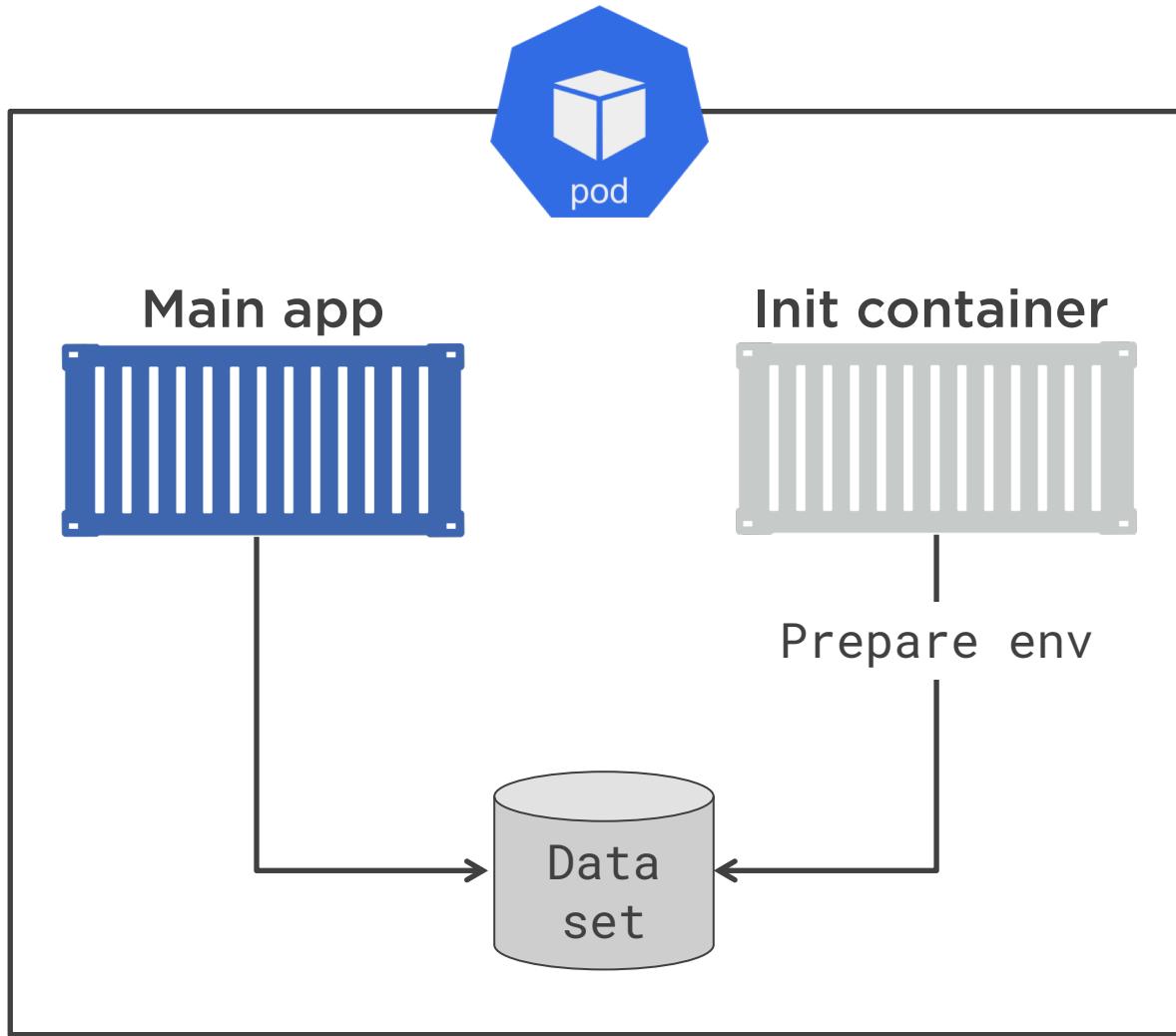
Ambassador Pattern



Init Pattern



Init Pattern



The Init Container Pattern

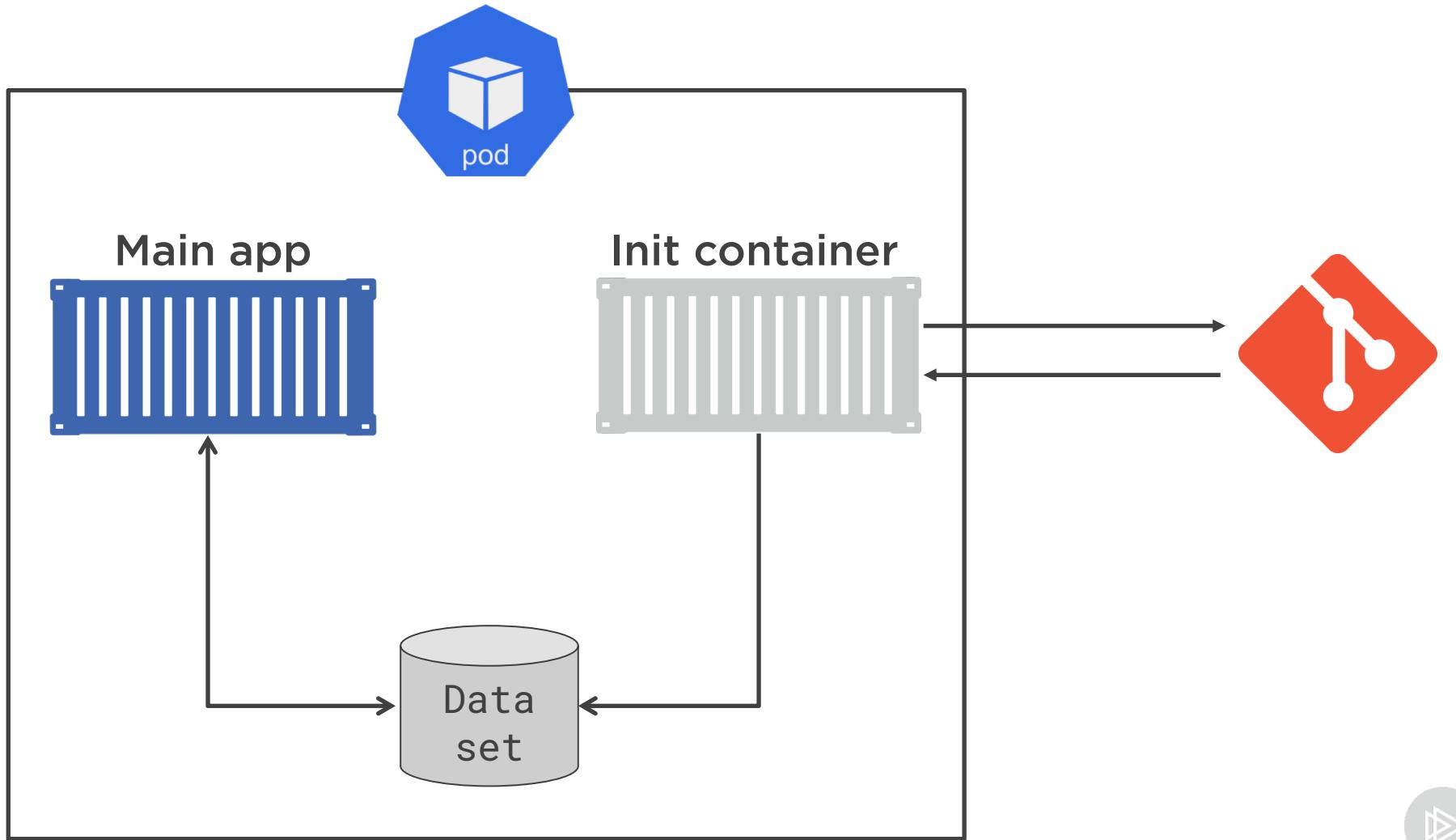


Initialization

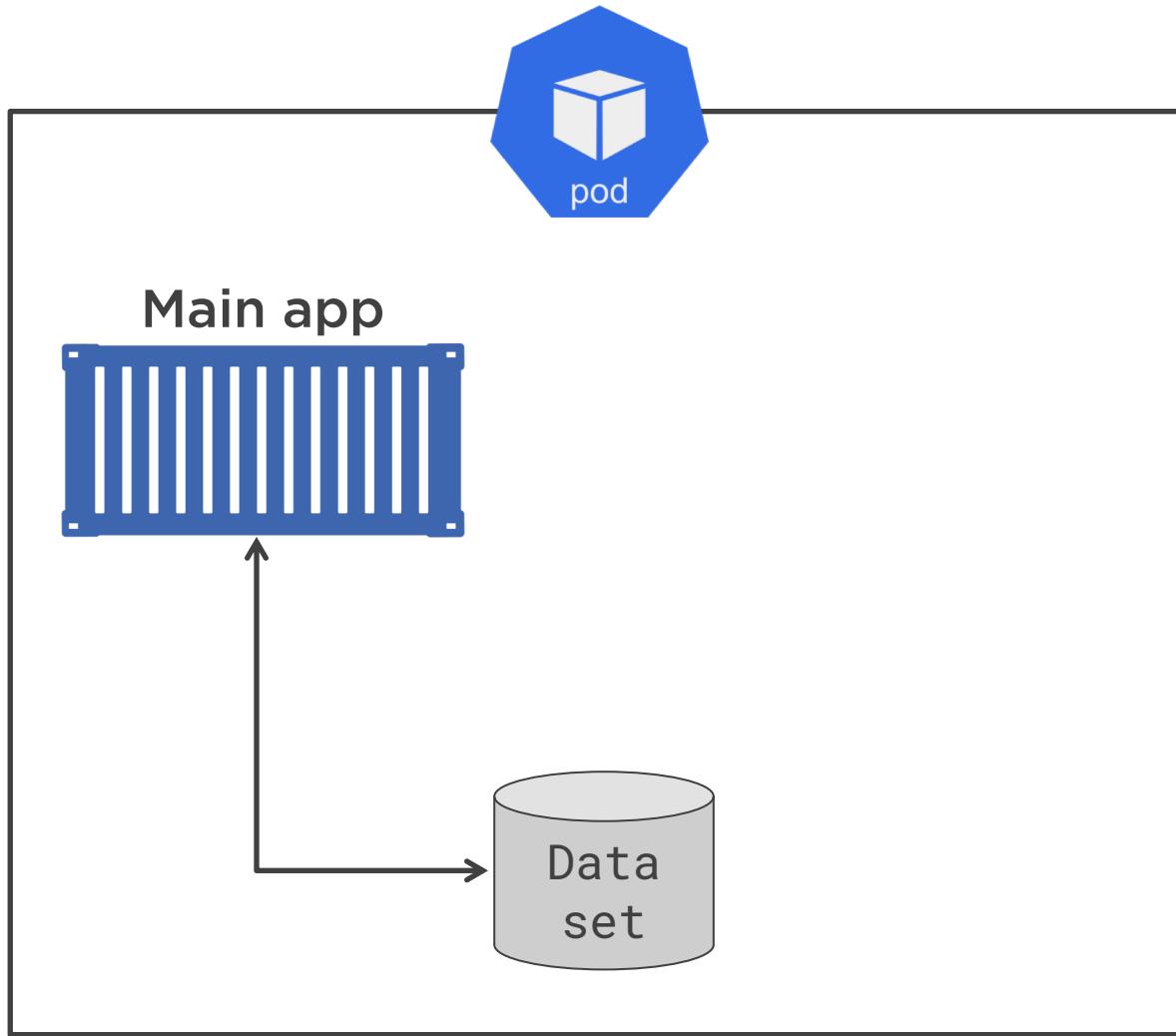
Configuring an environment ready for an application to start.



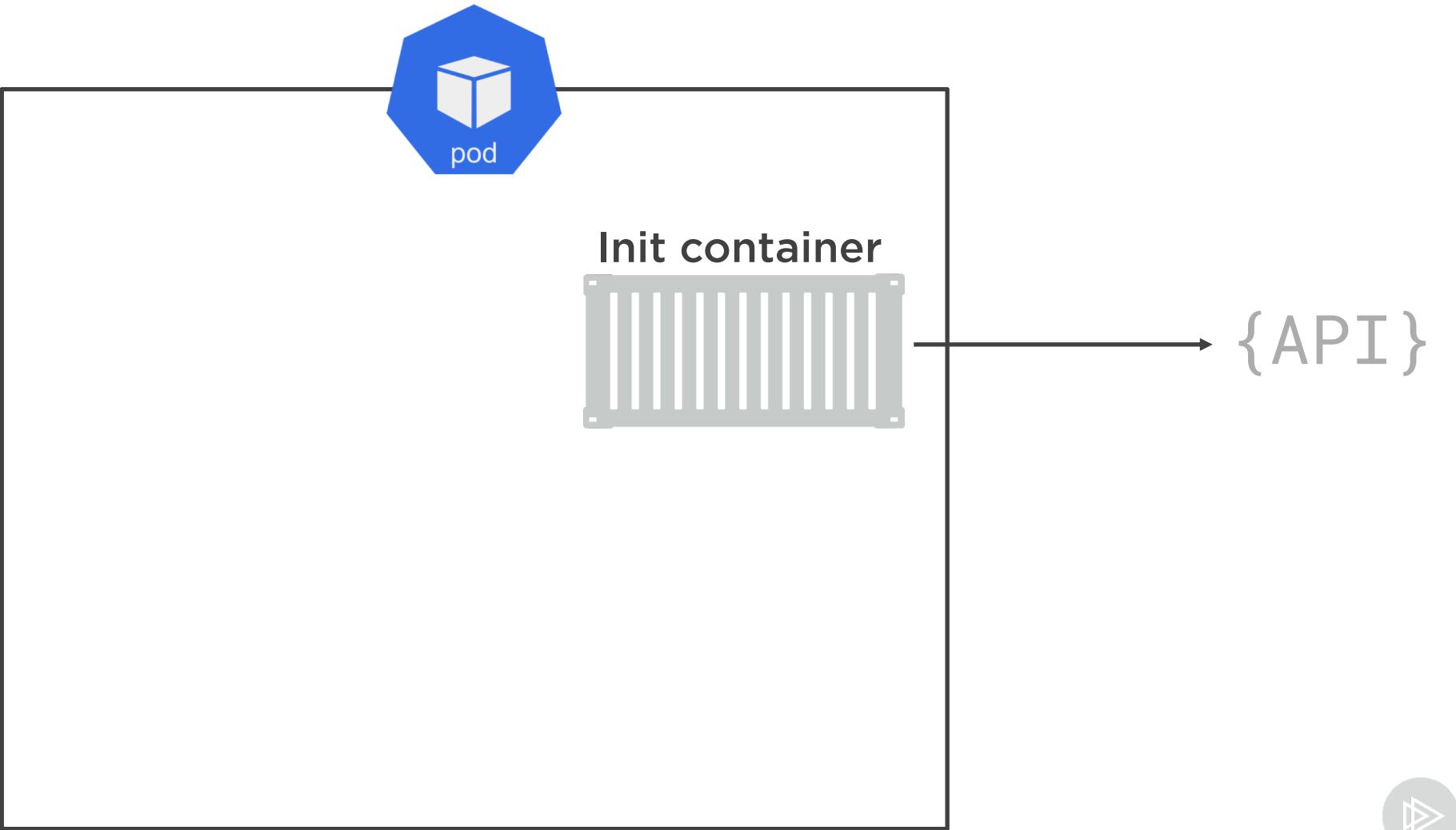
Init Pattern



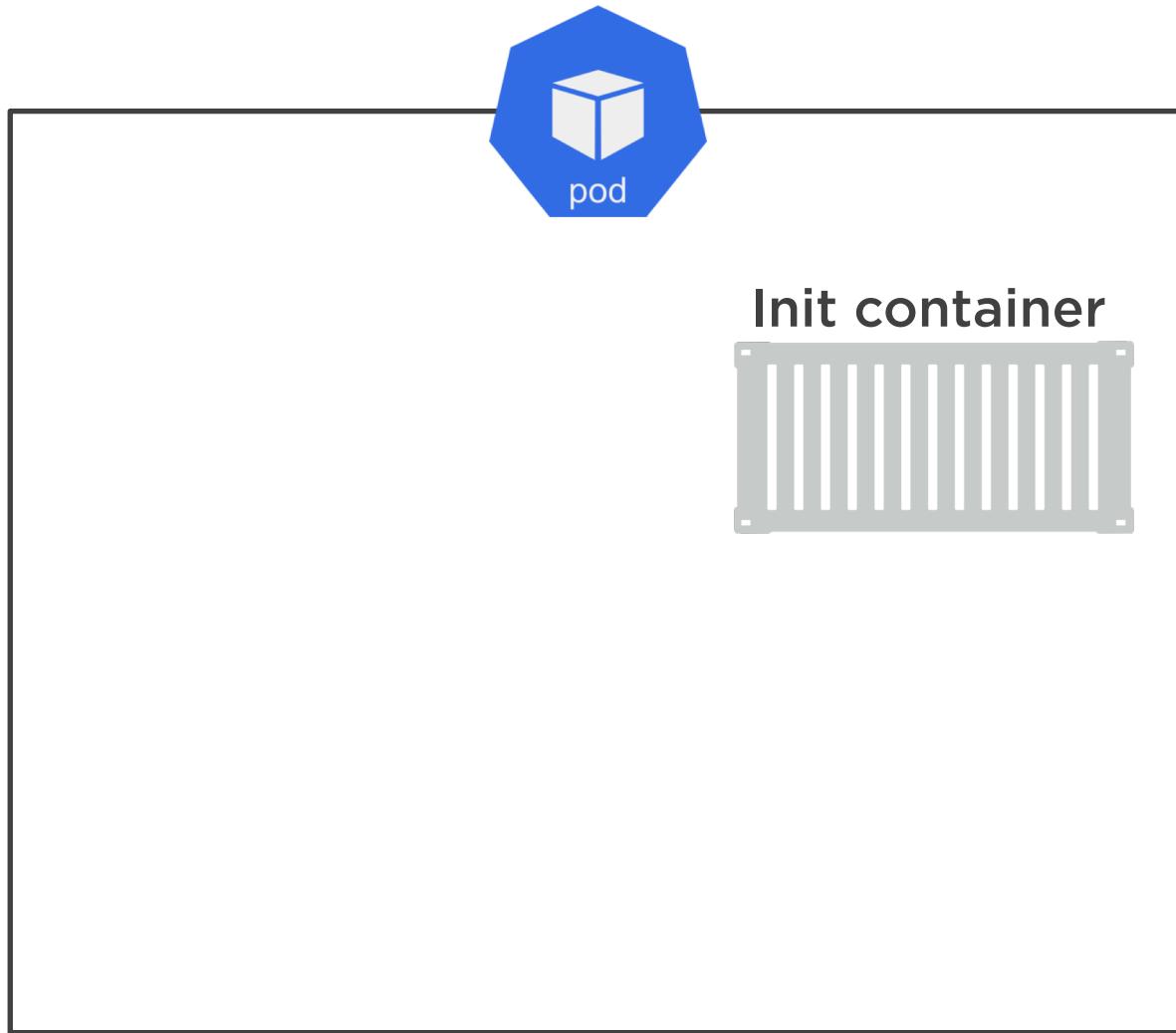
Init Pattern



Init Pattern



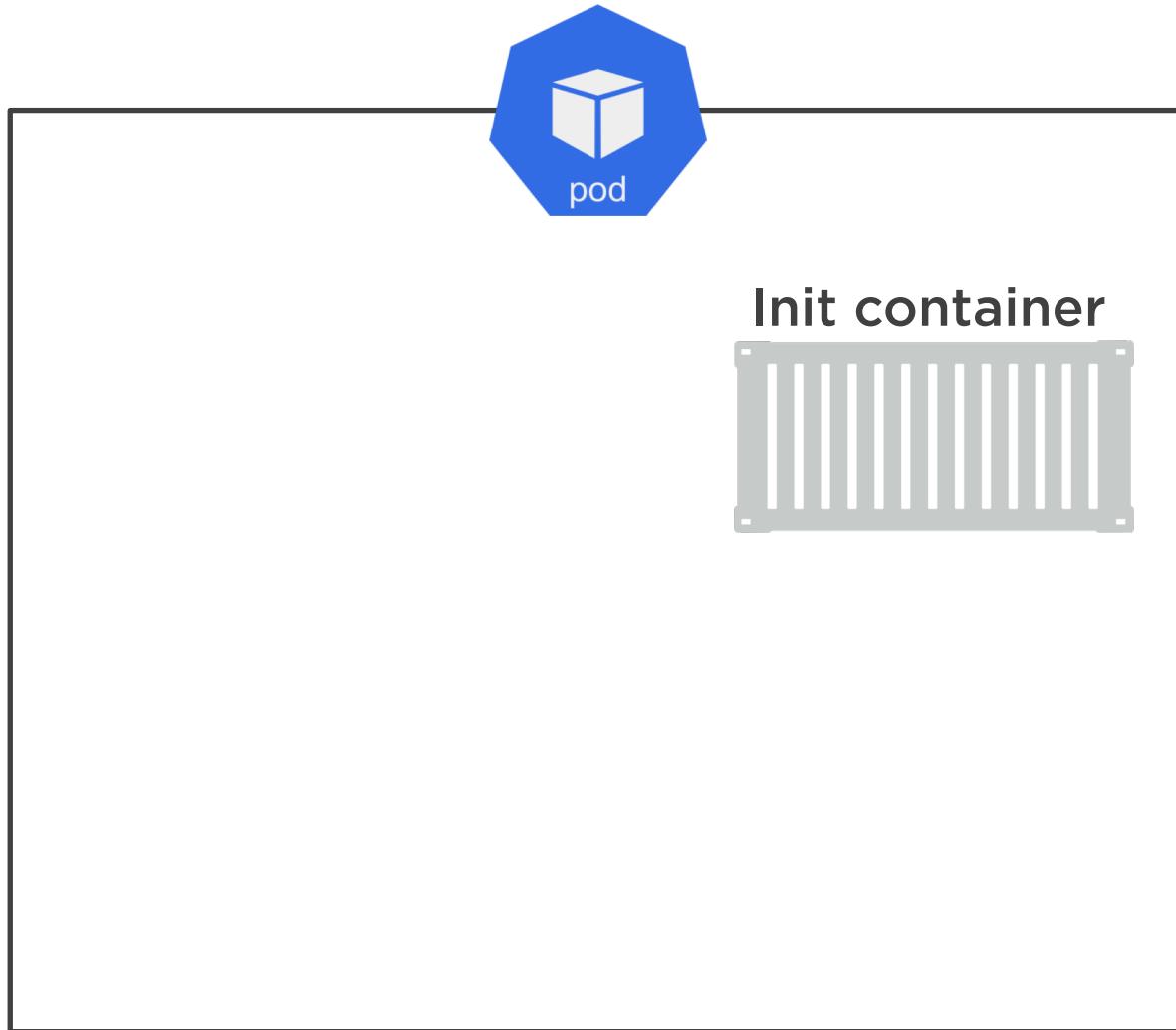
Init Pattern



{API}



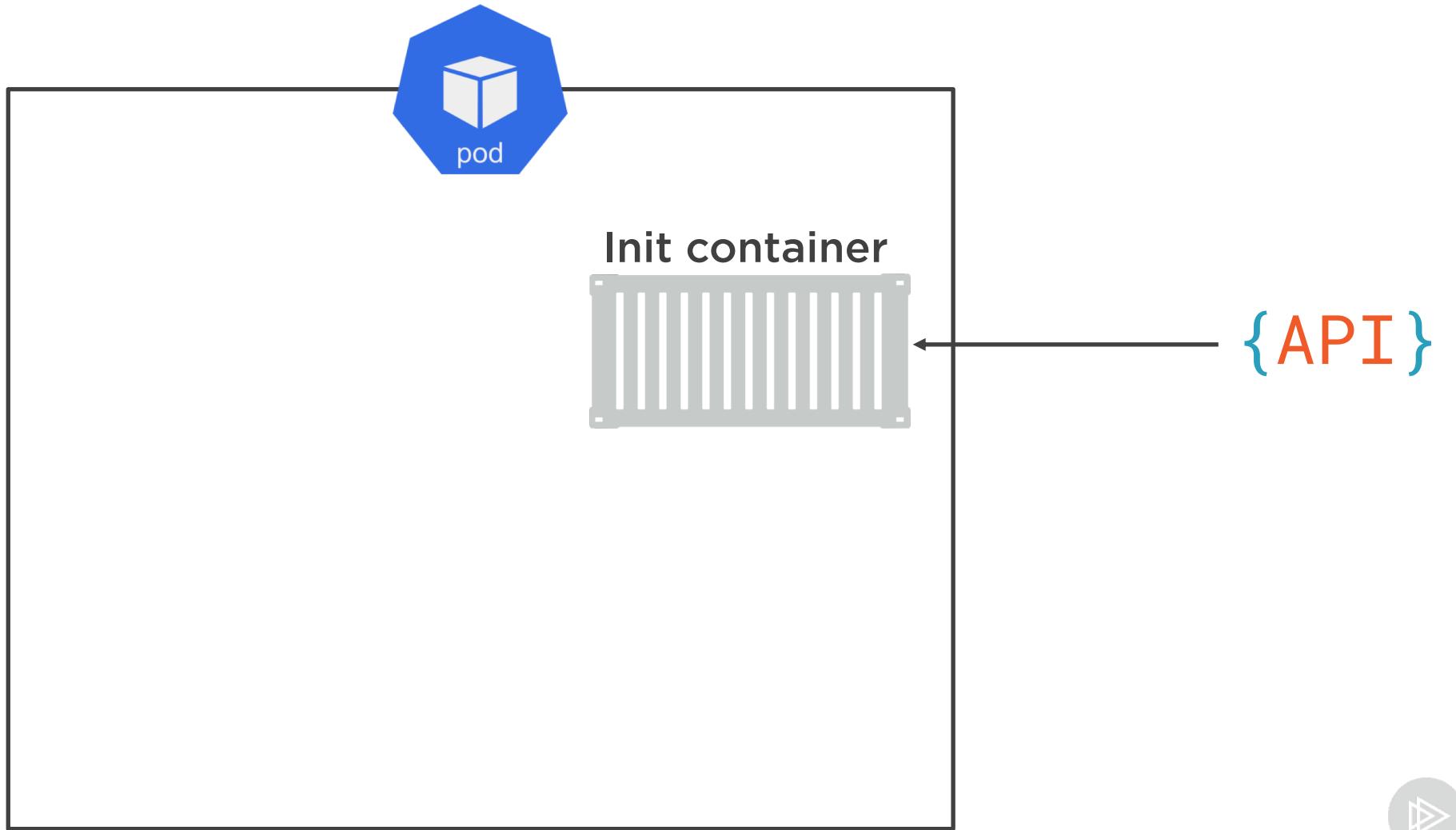
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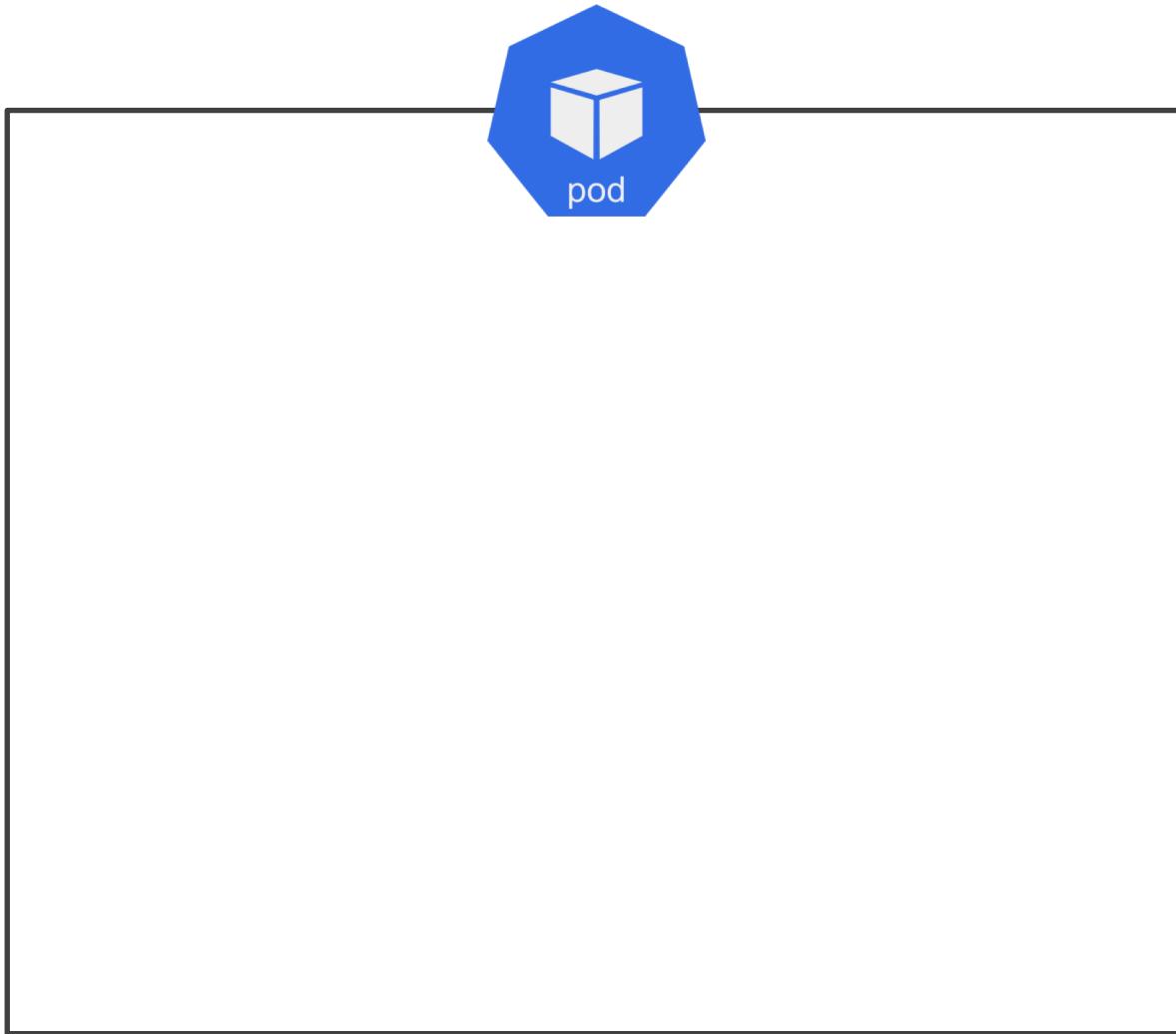
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Init Pattern



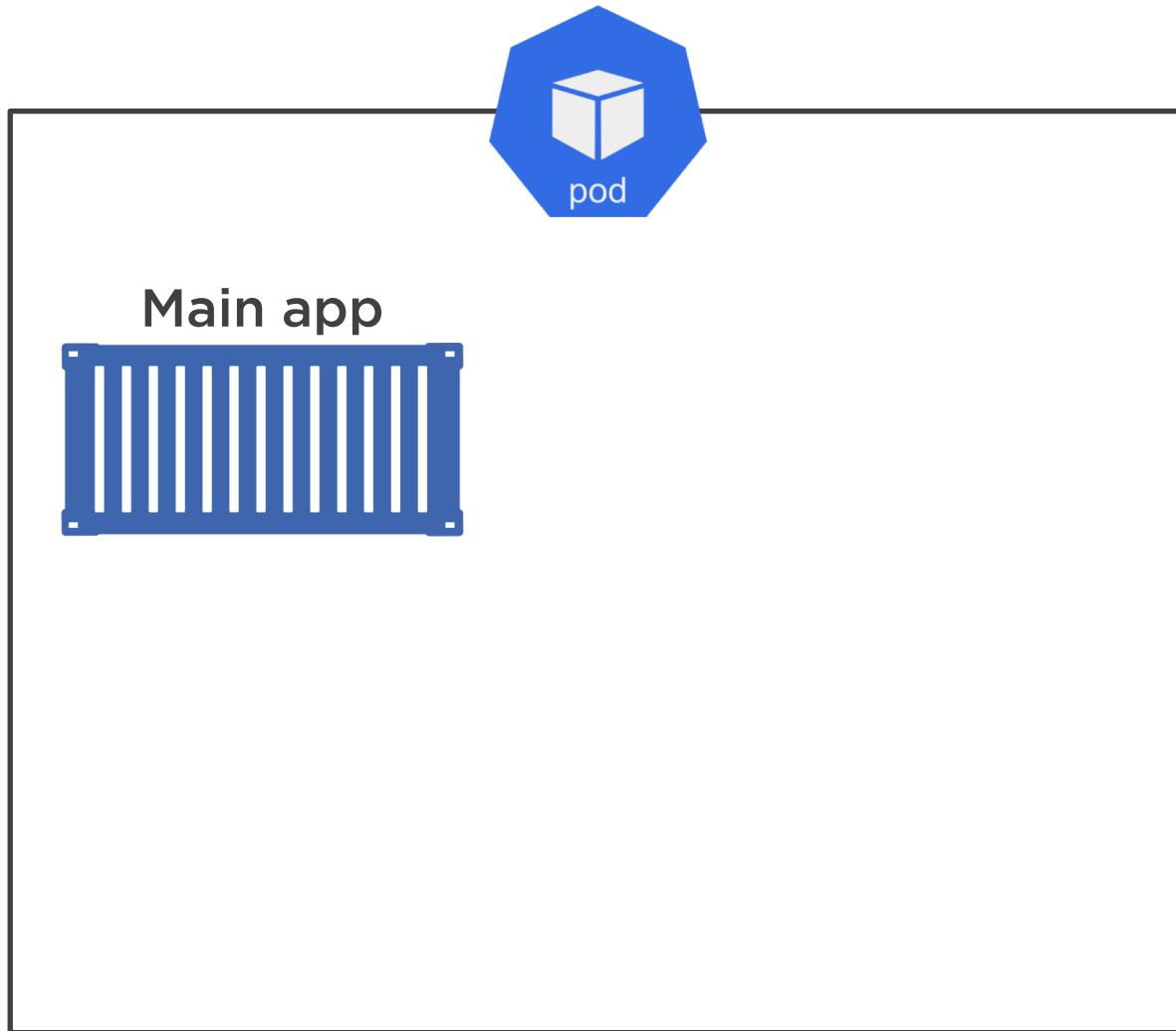
Init Pattern



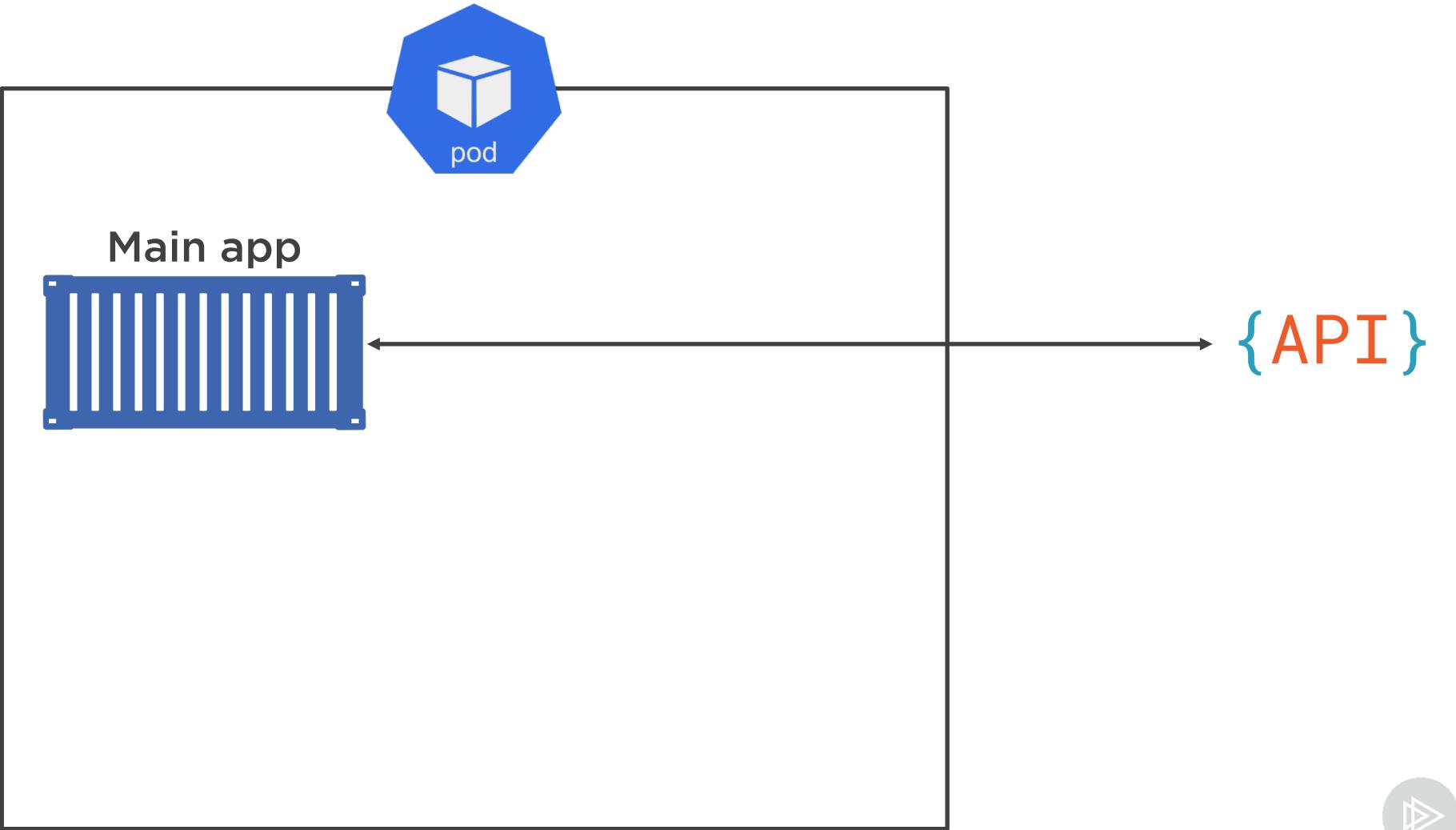
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Init Pattern



Init Pattern



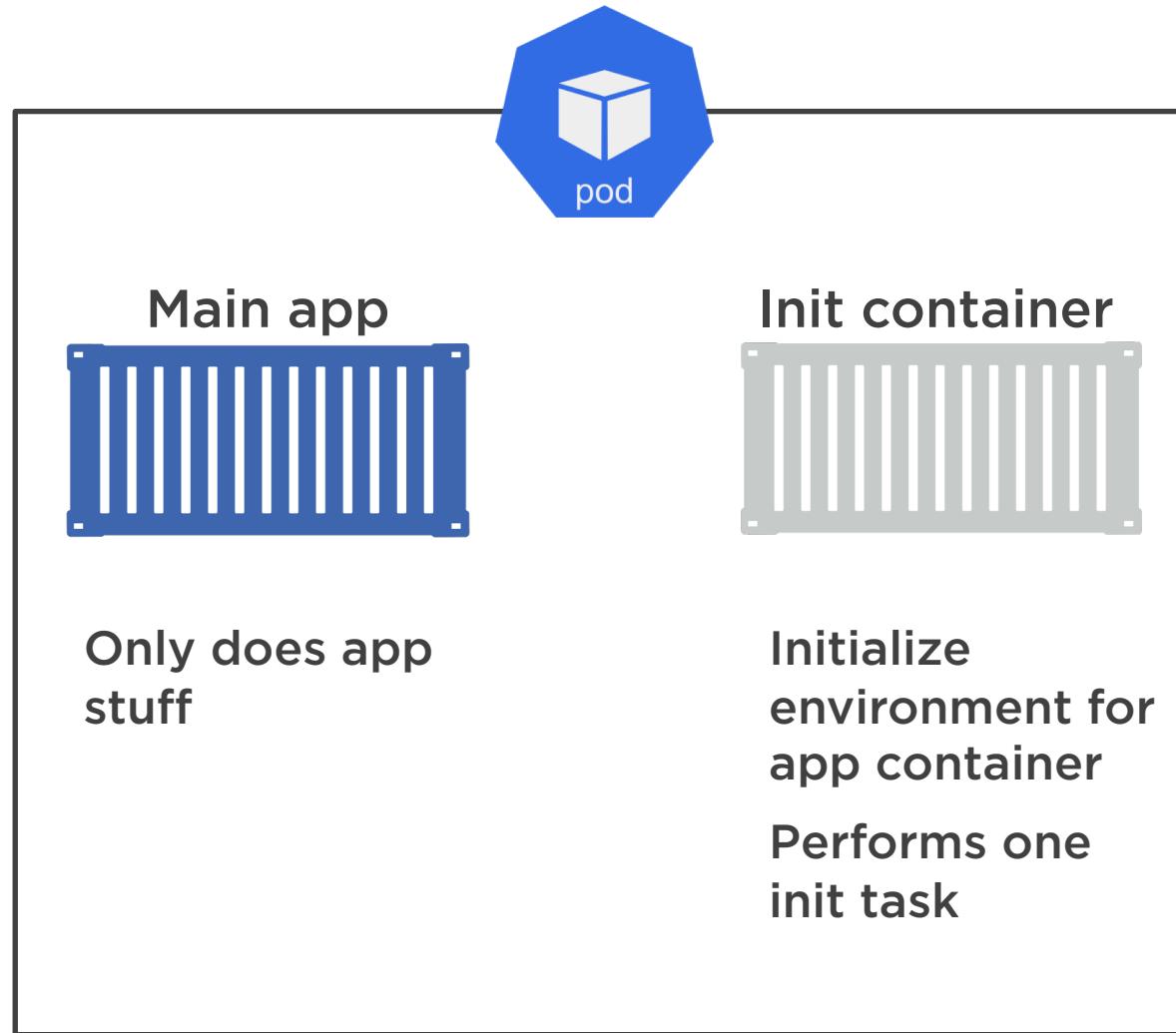
Resource Requests & Limits

Always configure containers with resource requests & limits.

- Keep them low for init containers
- Only the biggest init container is counted



Init Pattern



The Sidecar Container Pattern



Init container

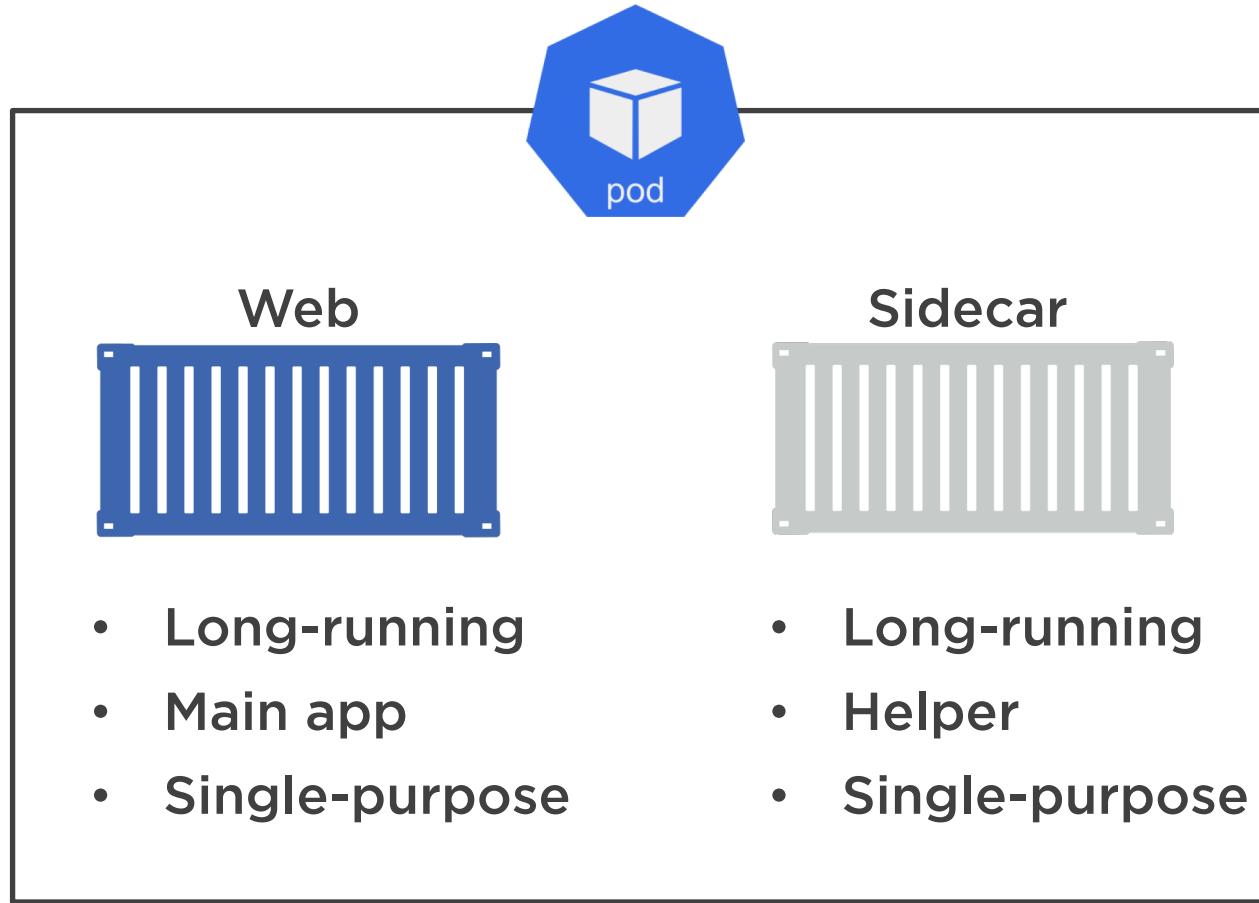
**Runs to completion before
app container starts**

Sidecar container

**Starts with app container and
runs concurrently**



Sidecar Pattern



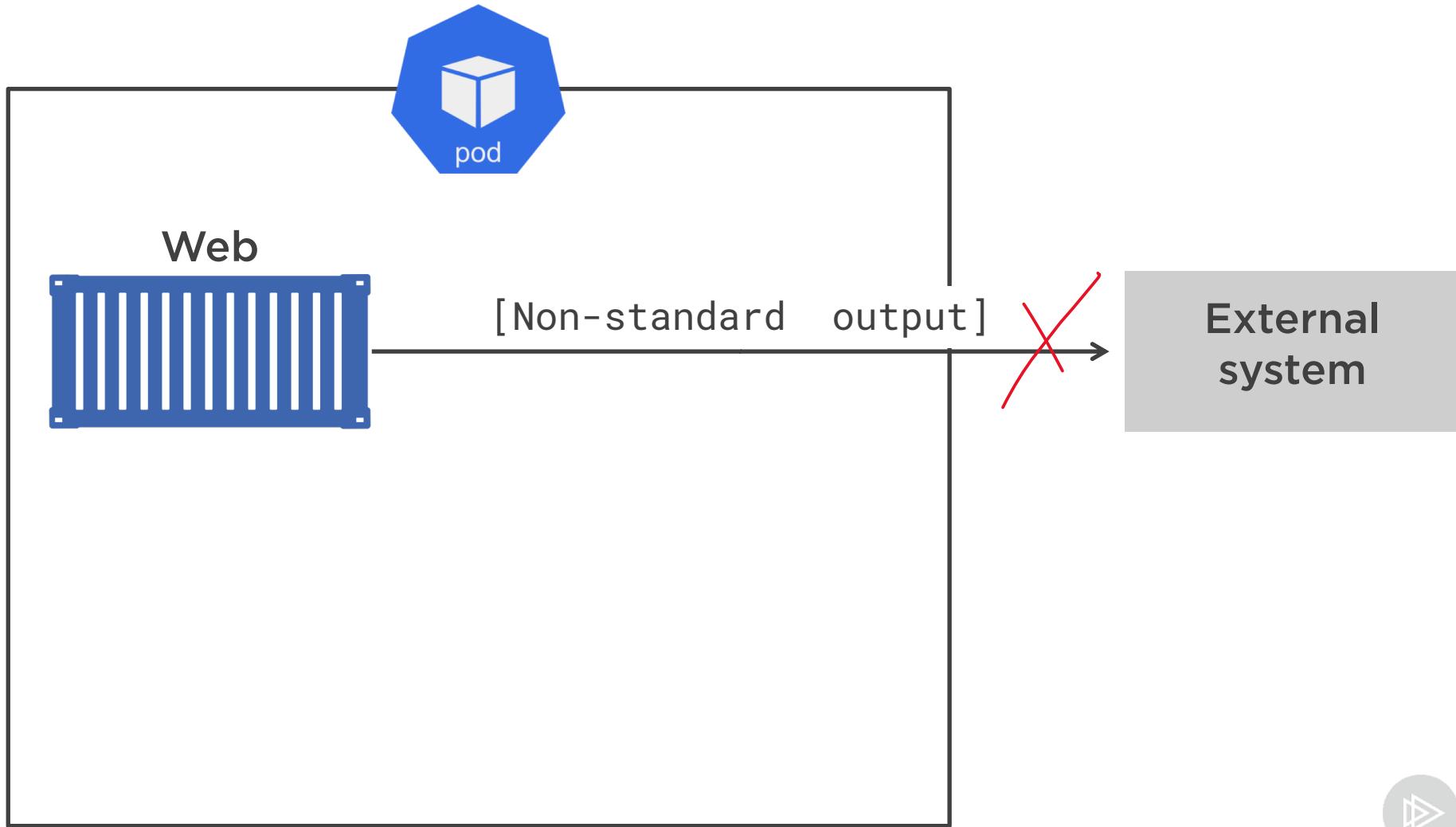
Up Next:
The Adapter Pattern



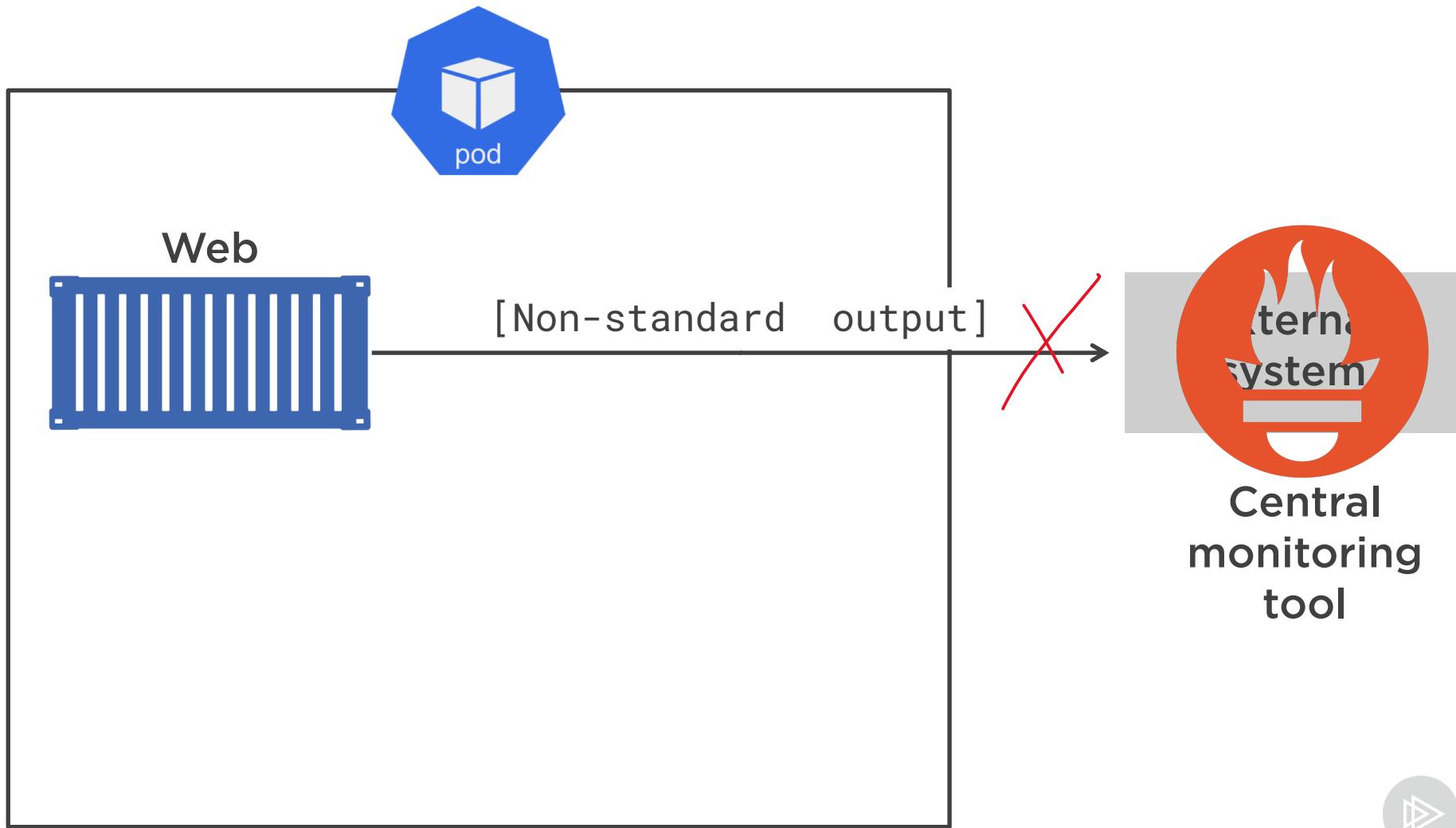
The Adapter Container Pattern



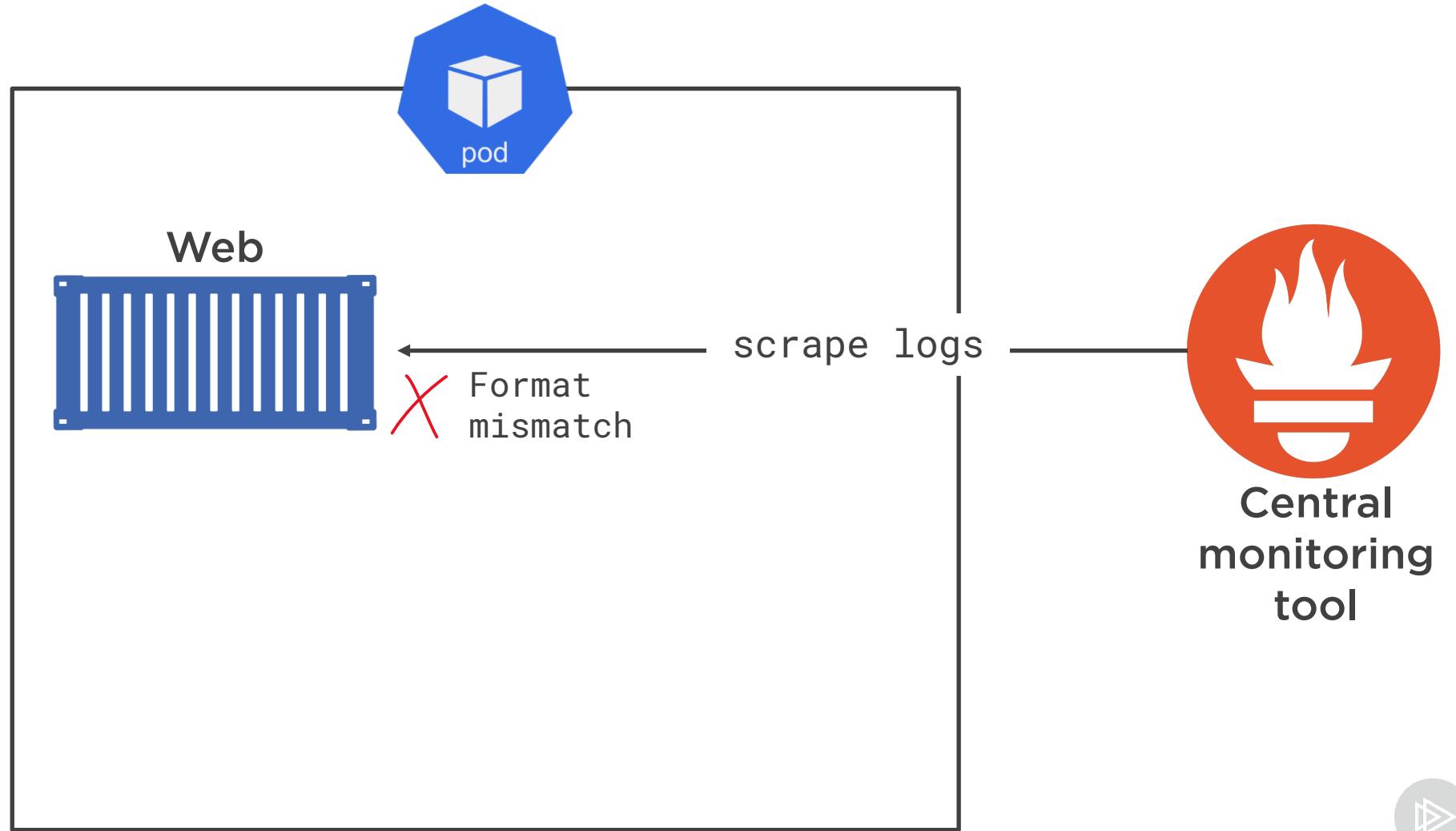
Adapter Pattern



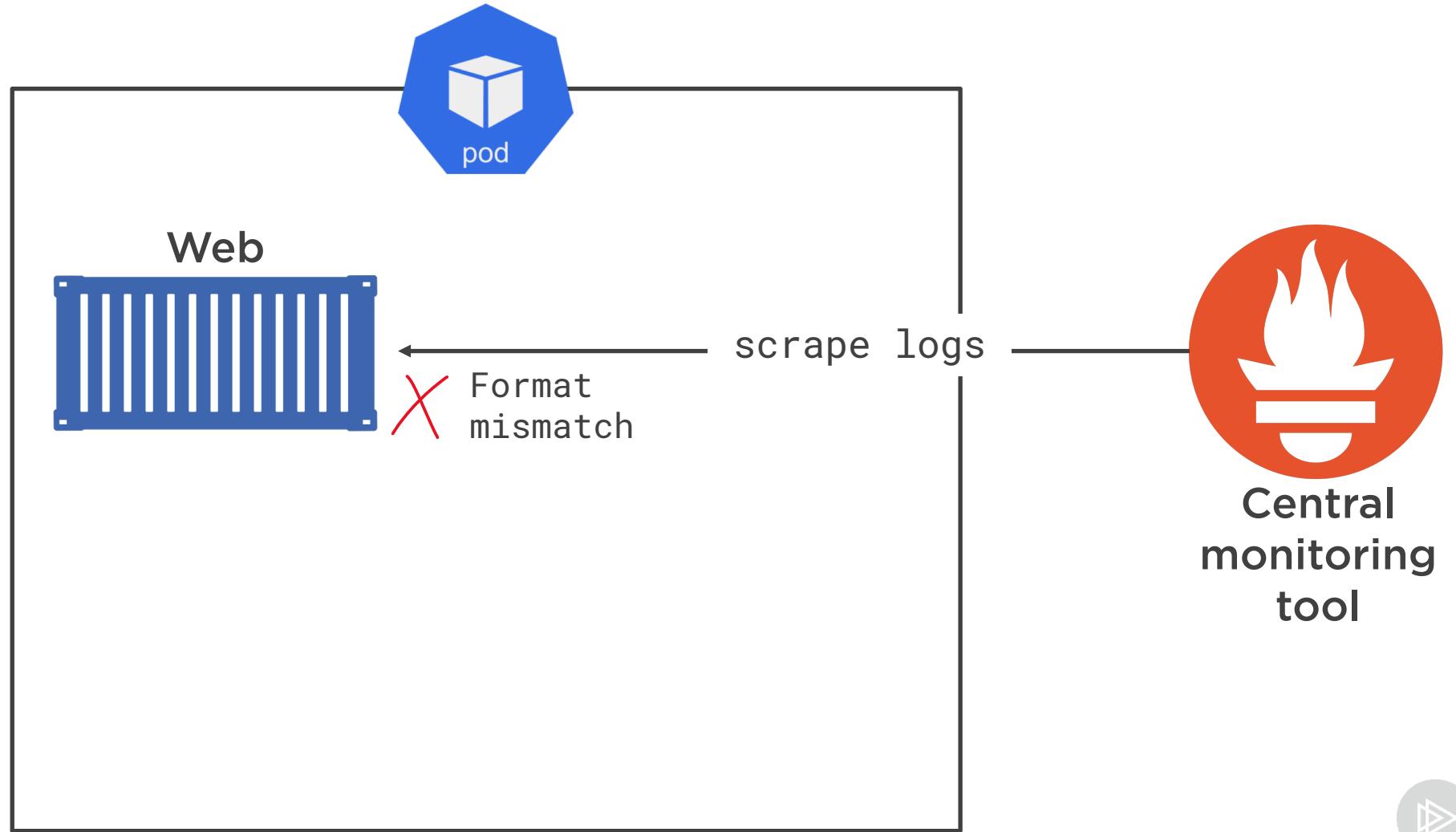
Adapter Pattern



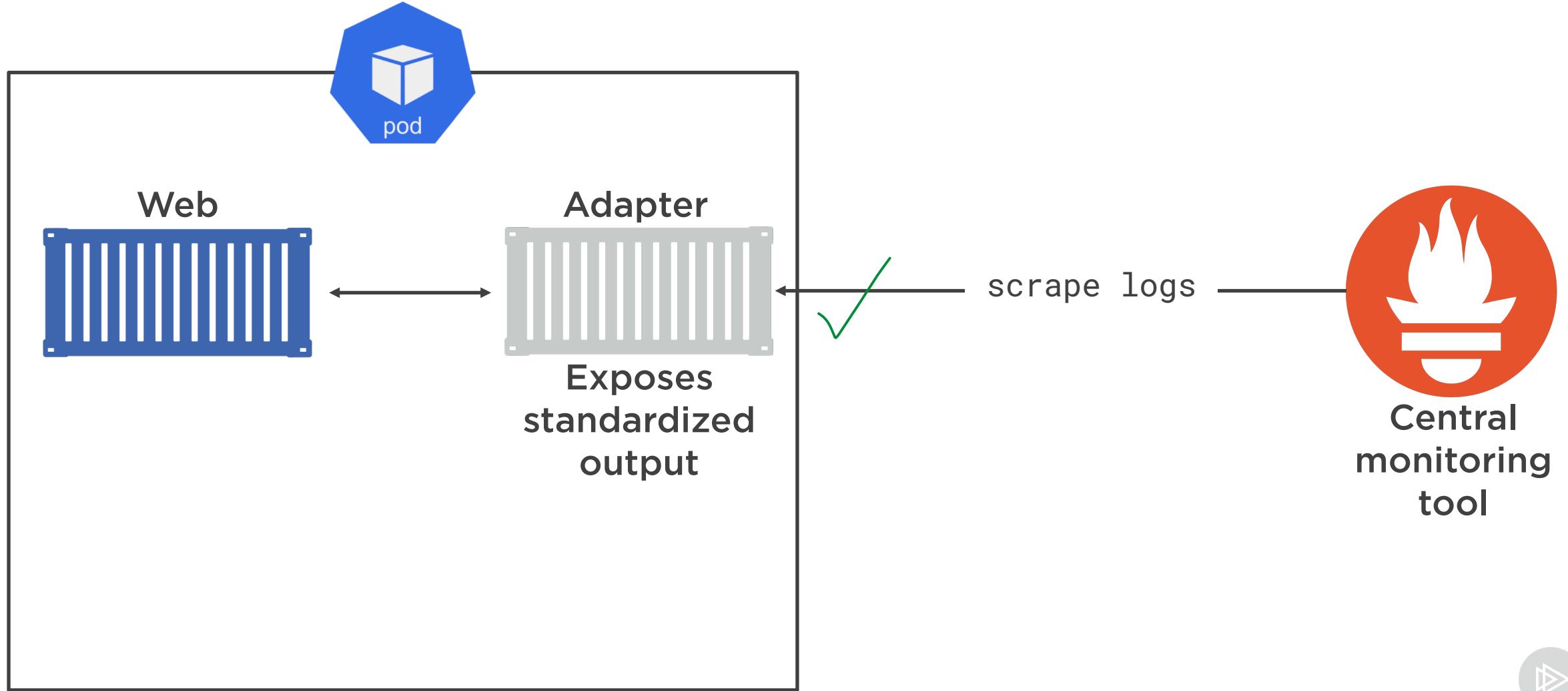
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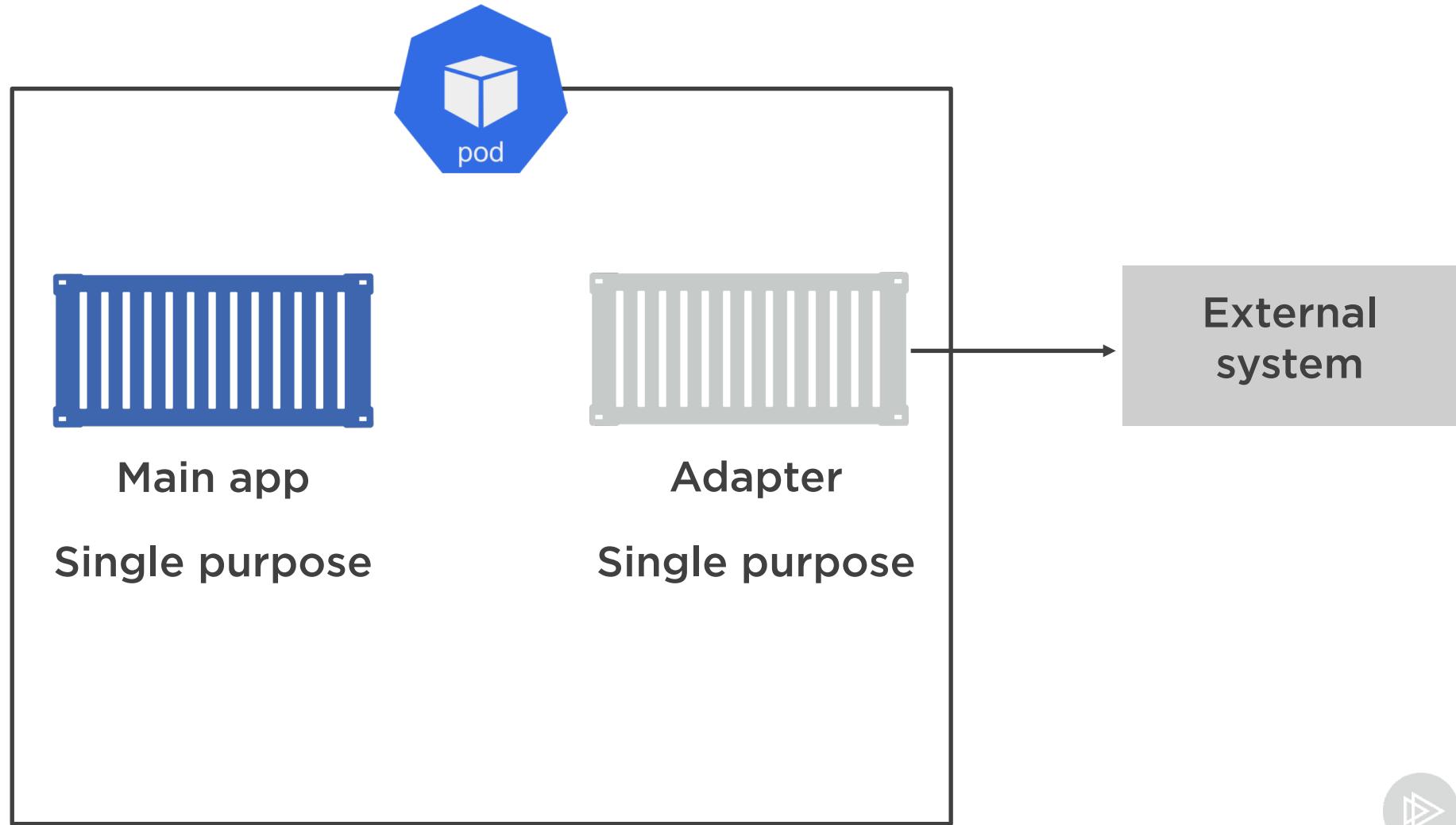
Adapter Pattern



Adapter Pattern



Adapter Pattern



Up Next:
The Ambassador Pattern



The Ambassador Container Pattern

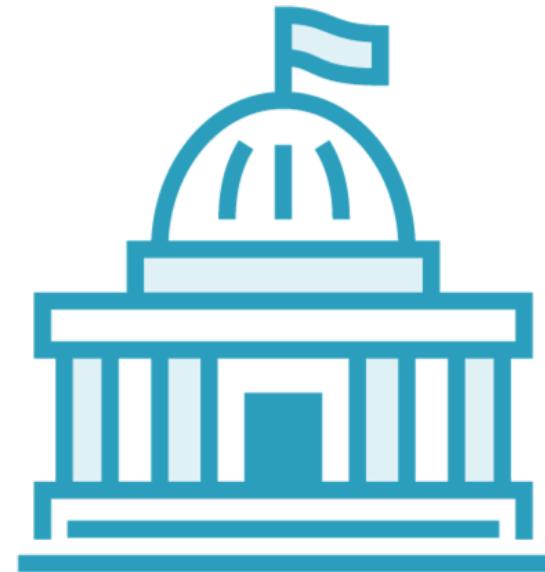




Focusses on
domestic affairs etc.



Responsible for
external relations

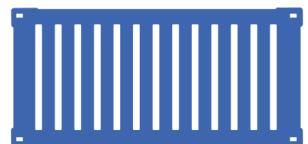


External
system

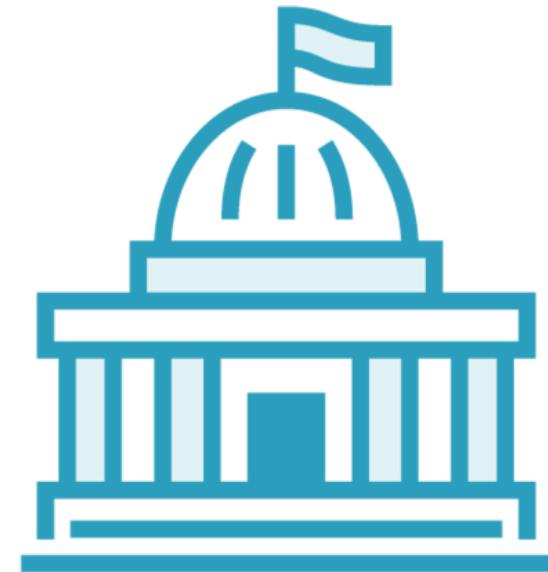




Focusses on
domestic affairs etc.

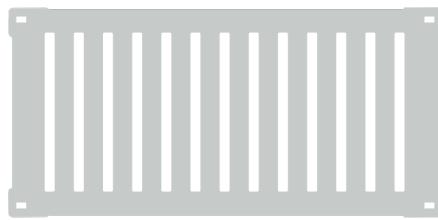
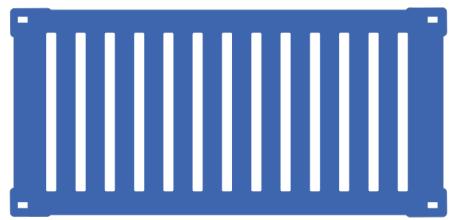


Responsible for
external relations



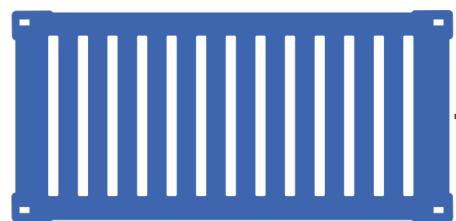
External
system



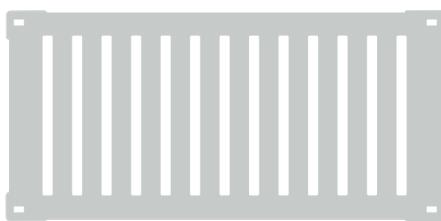


External
system

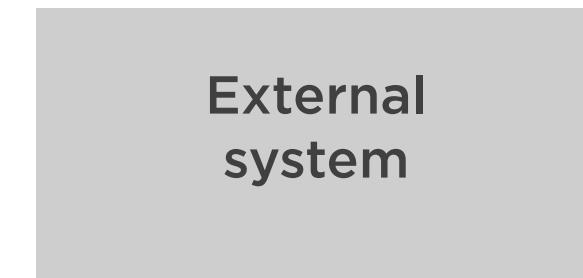


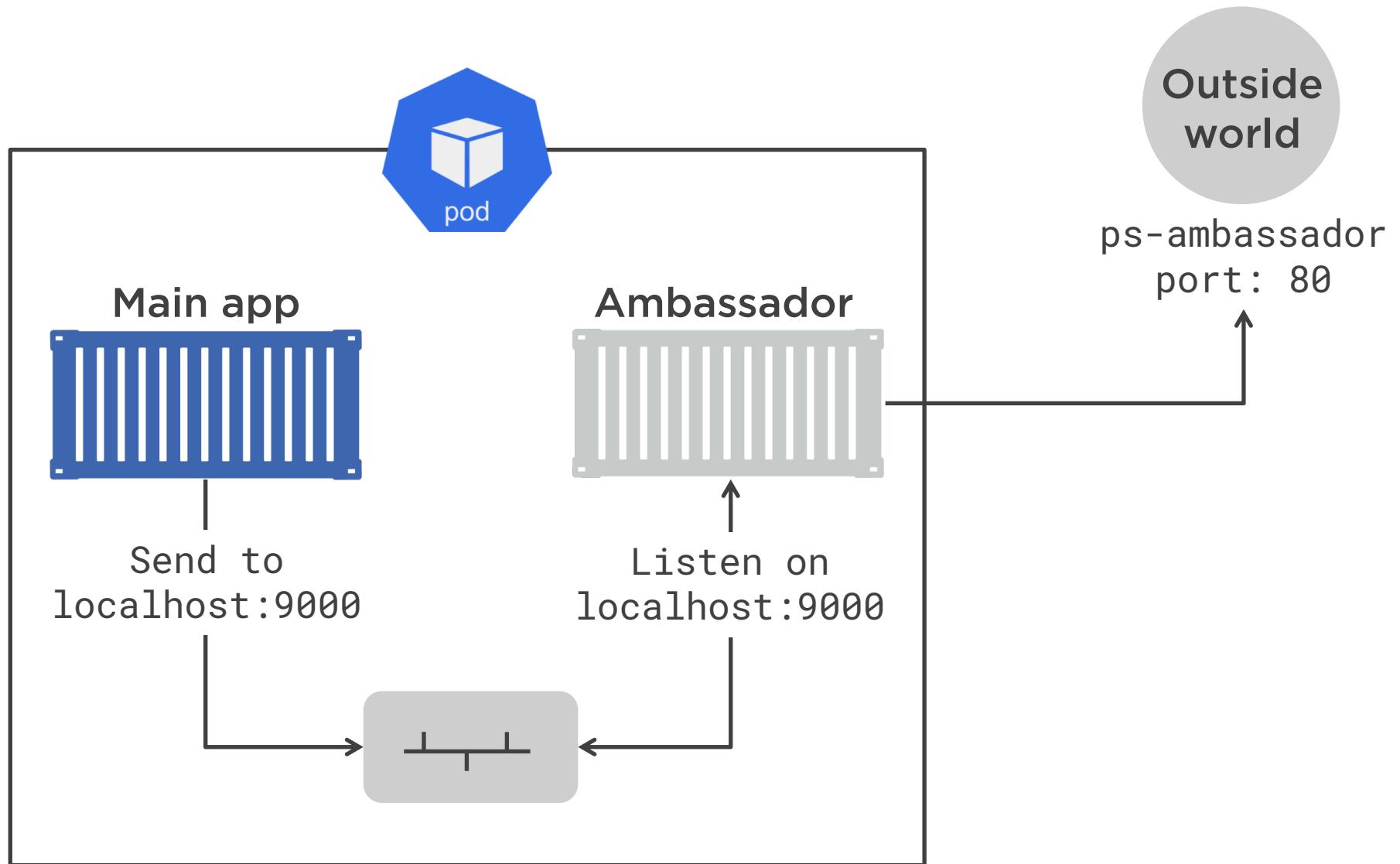


Main container
Focuses on
single task



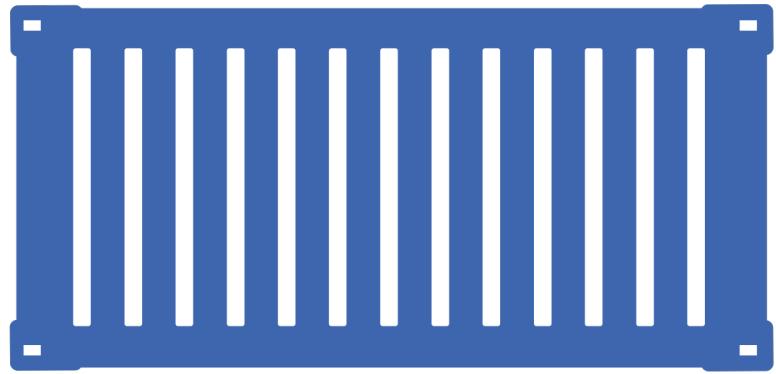
**Ambassador
container**
Brokers external
connections



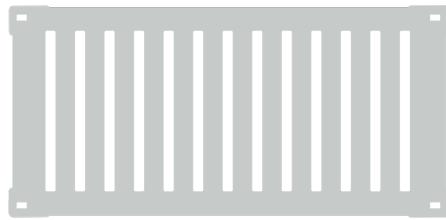


Multi-container Pods: Recap

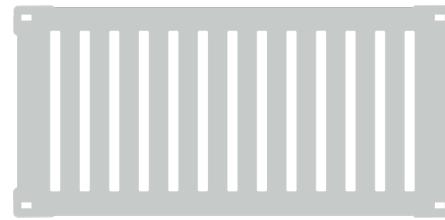




Main container
Single-purpose



Helper
Single-purpose

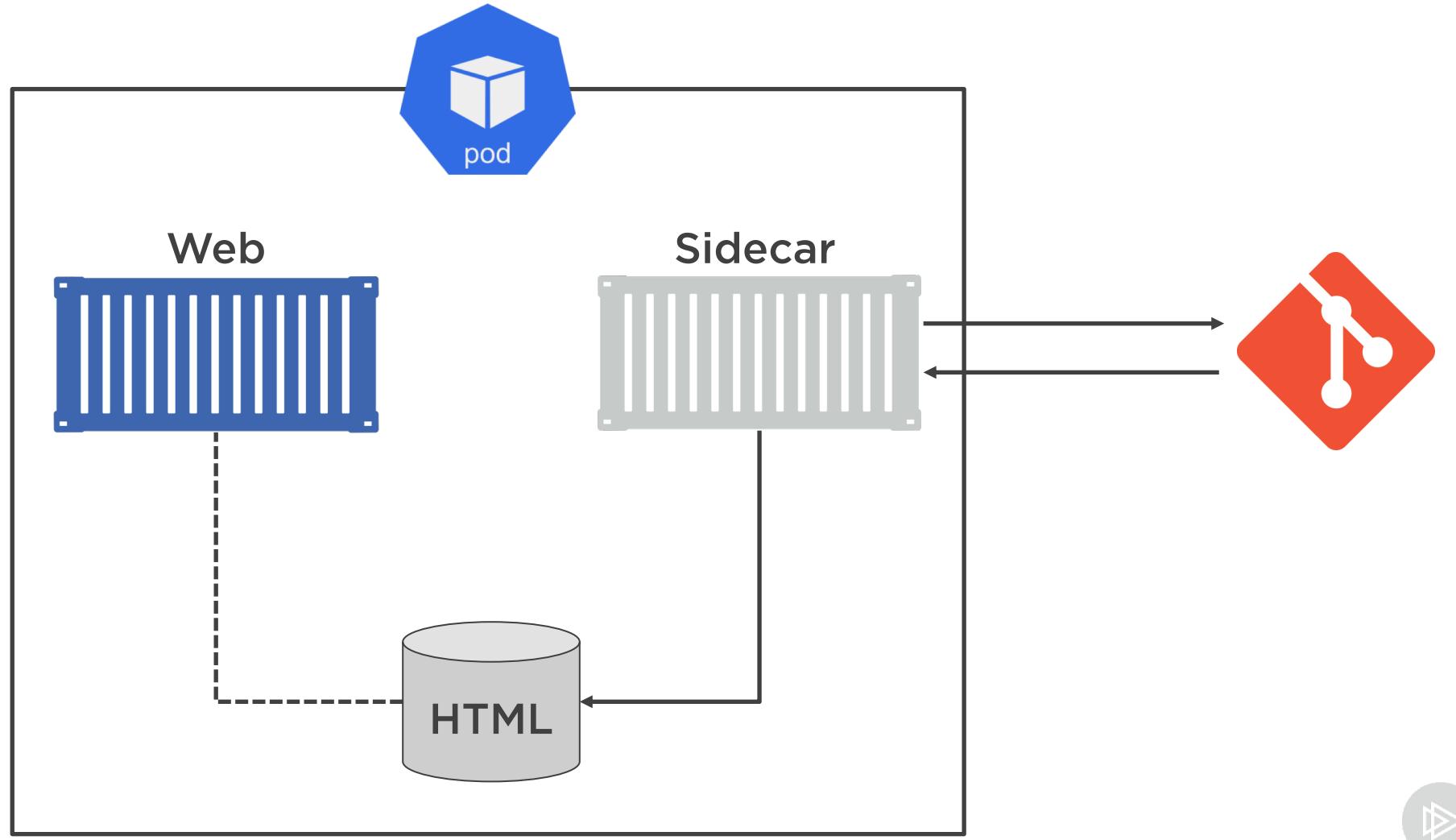


Helper
Single-purpose

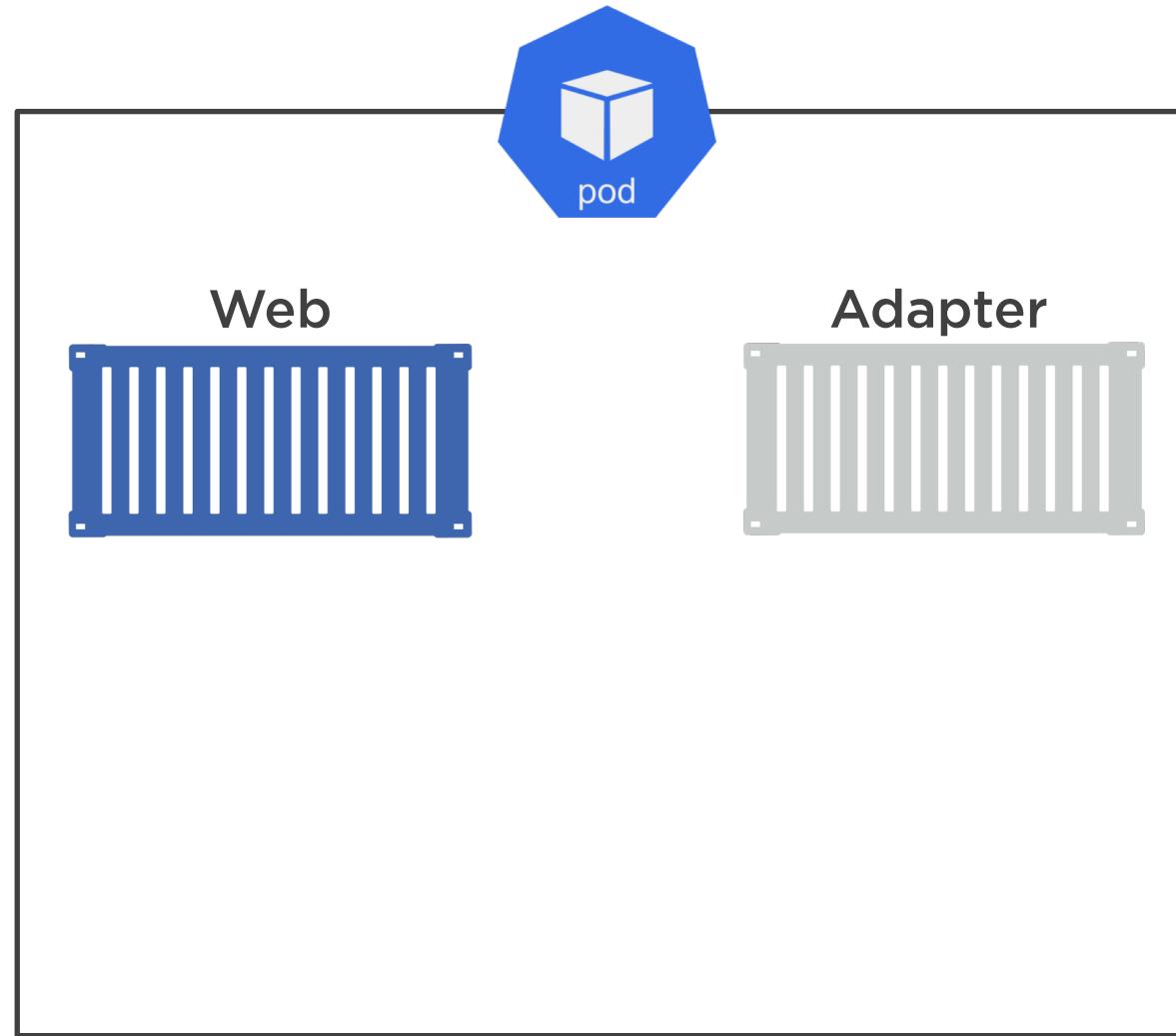
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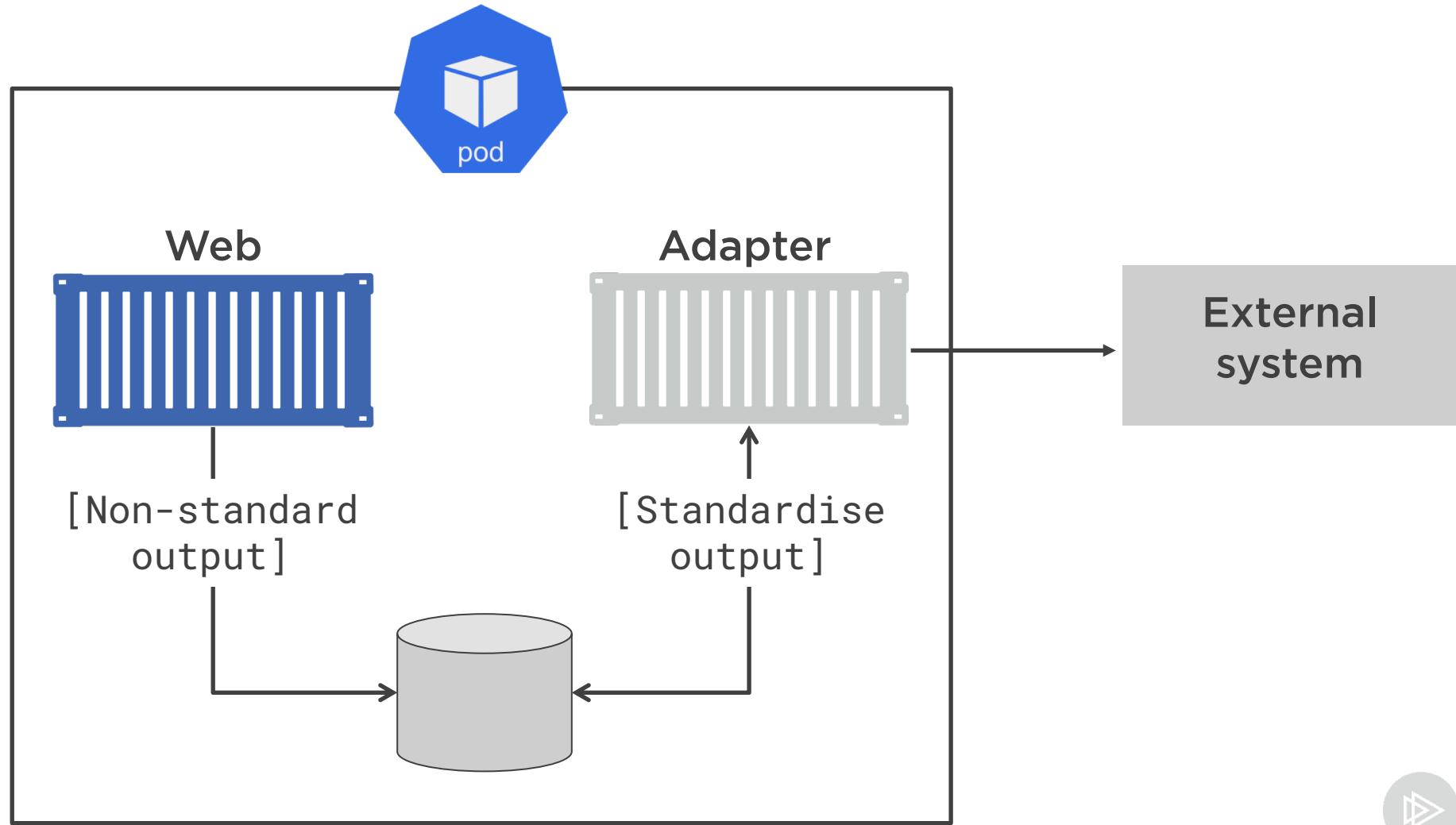
Sidecar Pattern



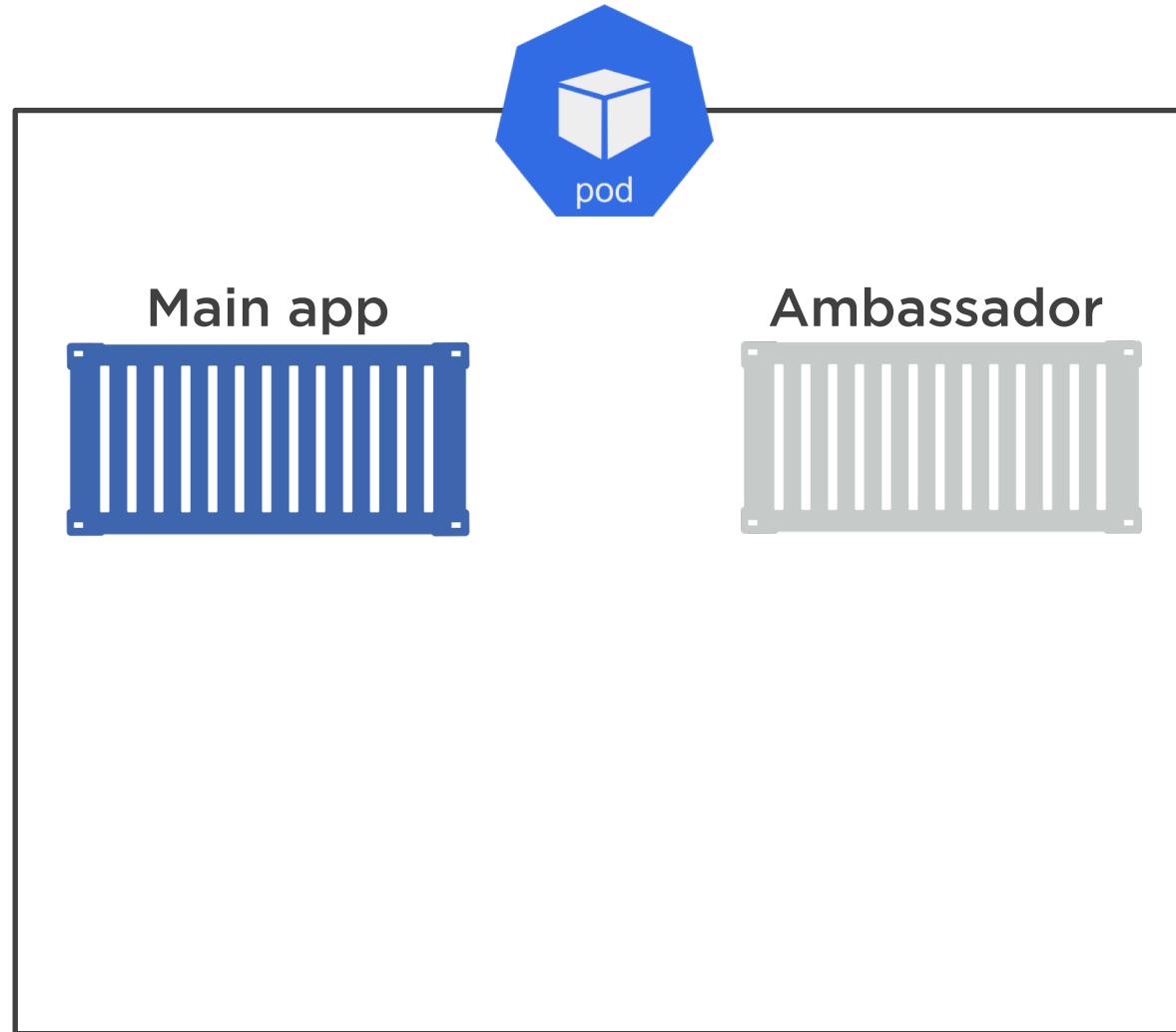
Adapter Pattern



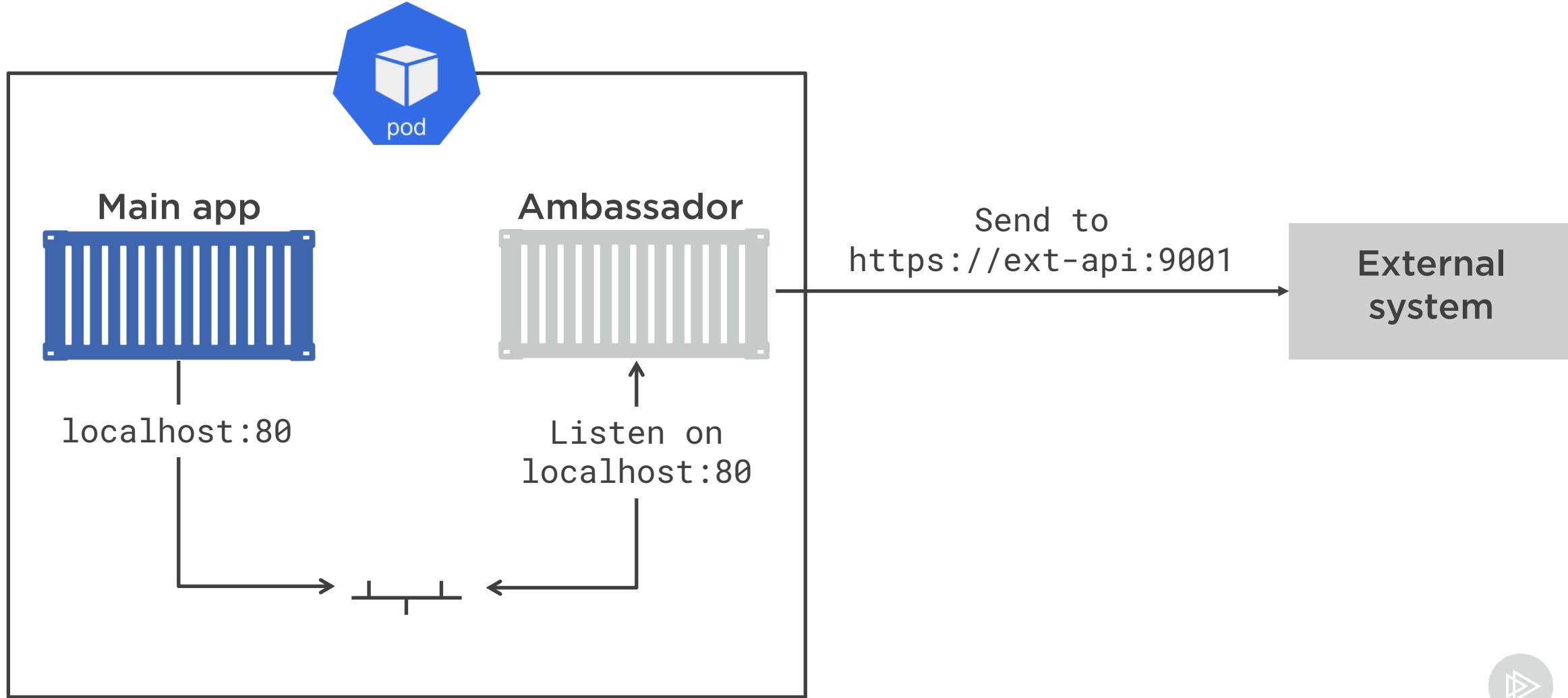
Adapter Pattern



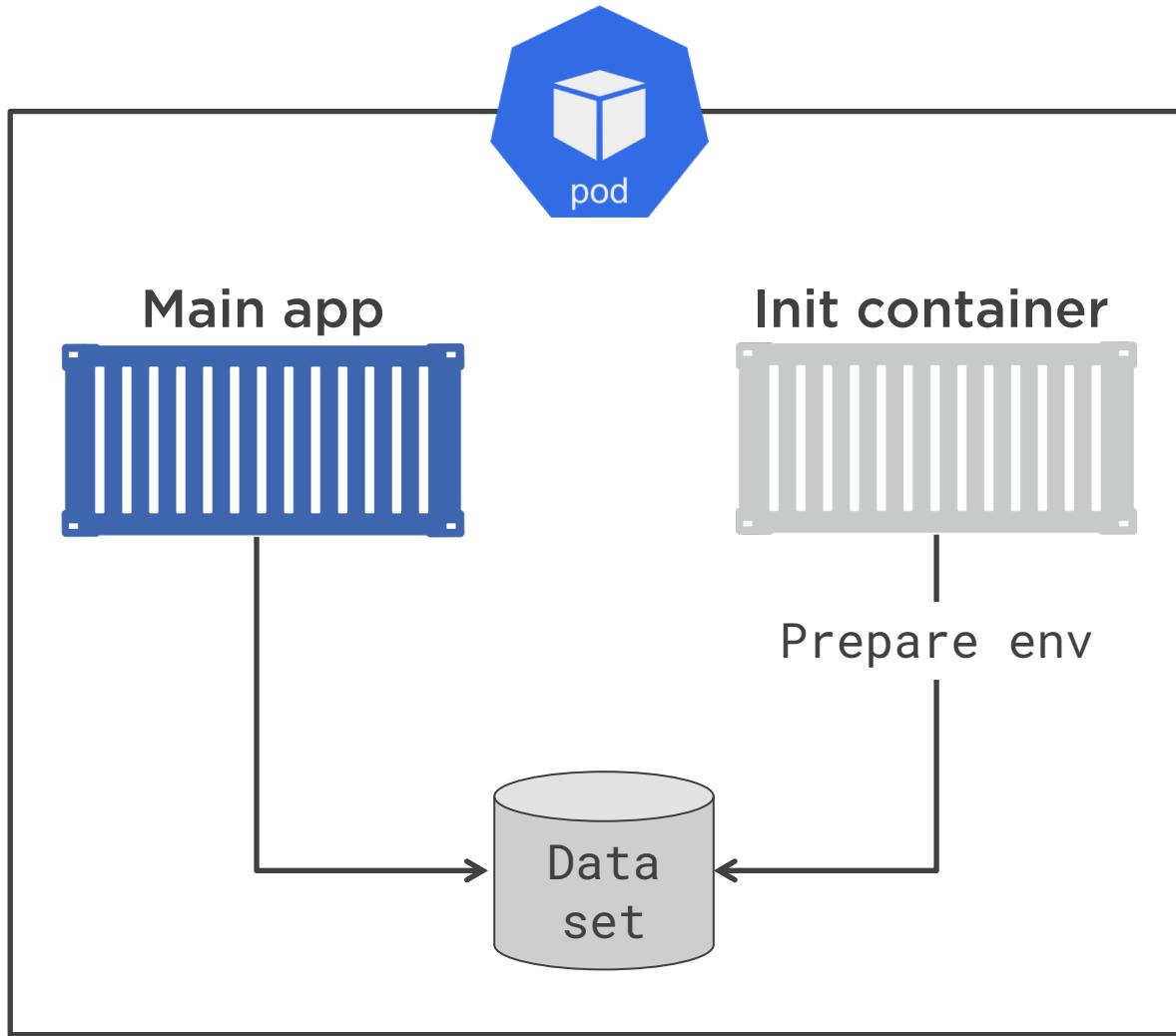
Ambassador Pattern



Ambassador Pattern



Init Pattern



Up Next:
Kubernetes Service Accounts

