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Understanding “State”

State is data created and used by your application which must not be lost

User-generated data, user accounts, ...

Often stored in a database, but could also be files (e.g. uploads)

Intermediate results derived by the app

Often stored in memory, temporary database tables or files

Volumes

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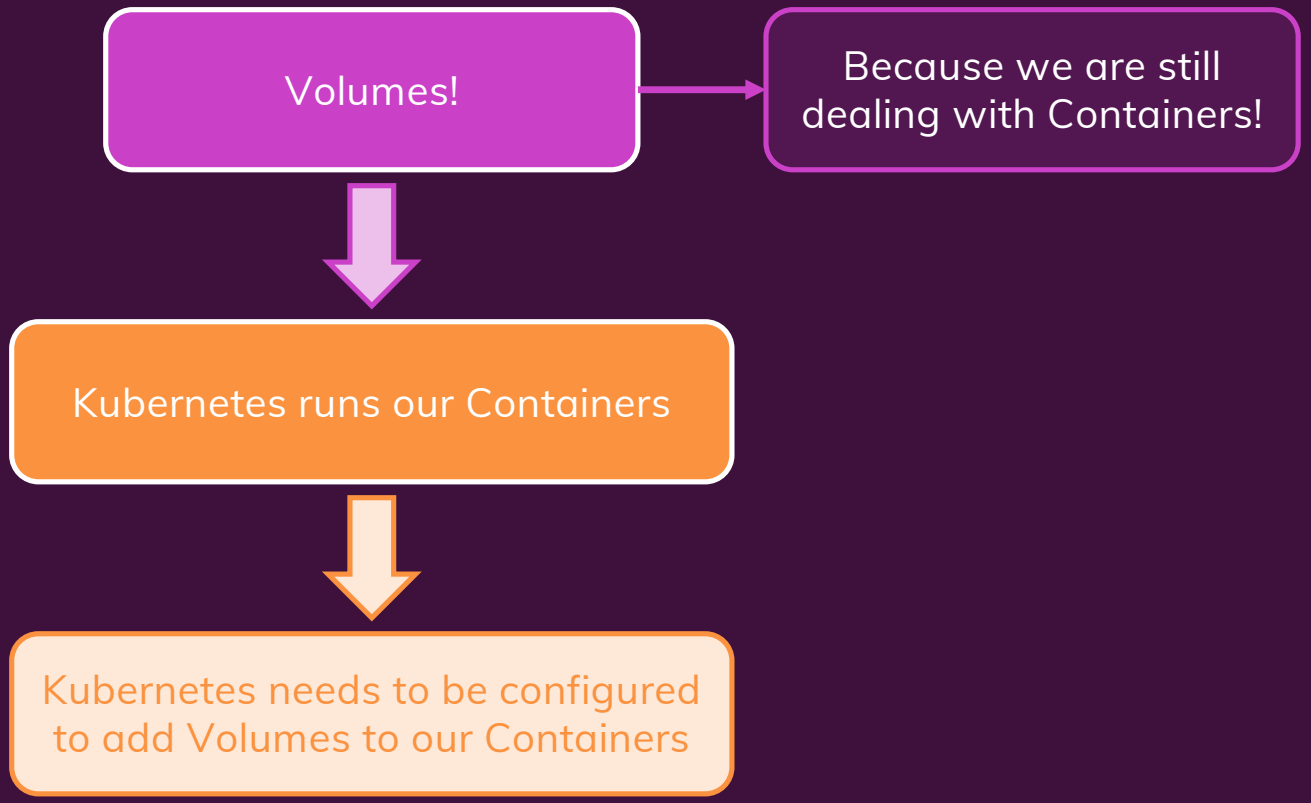
We Already Know The Solution!



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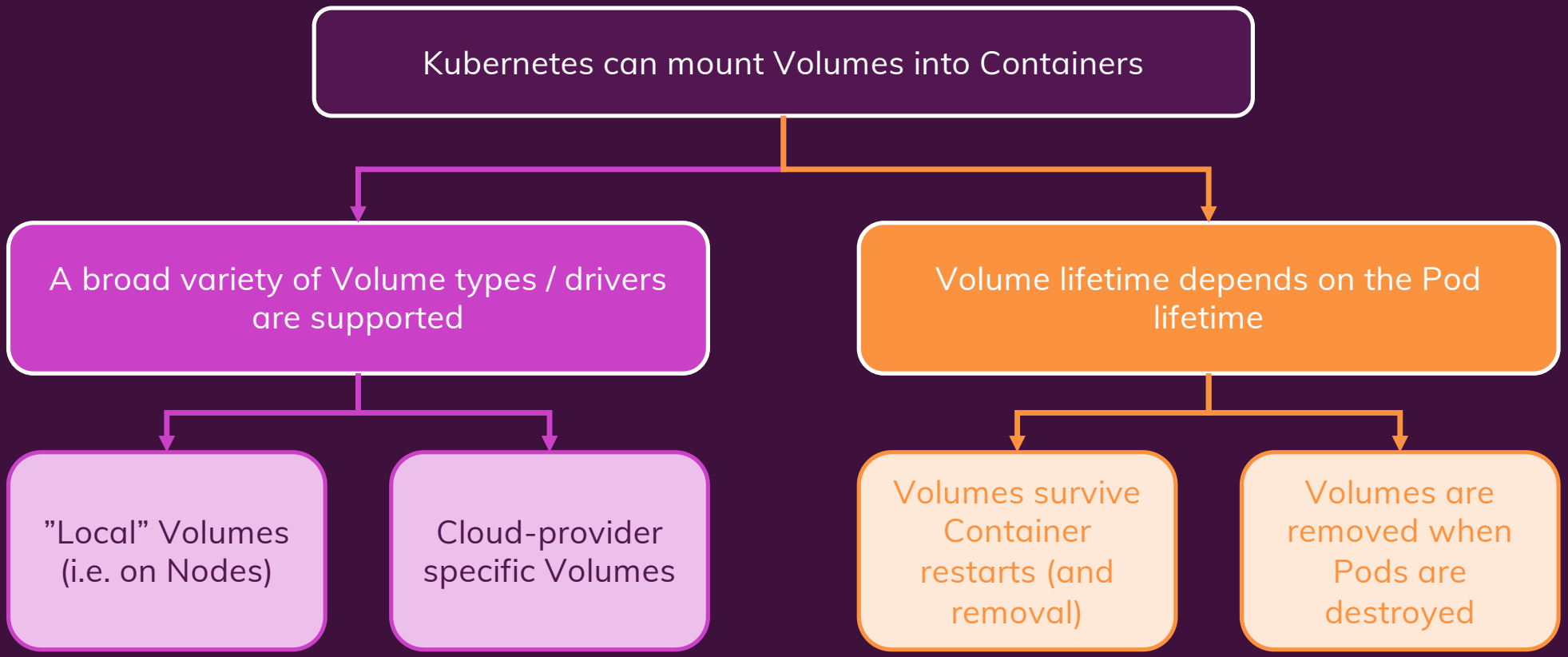
Kubernetes & Volumes



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Kubernetes Volumes vs Docker Volumes

Kubernetes Volumes	Docker Volumes
Supports many different Drivers and Types	Basically no Driver / Type Support
Volumes are not necessarily persistent	Volumes persist until manually cleared
Volumes survive Container restarts and removals	Volumes survive Container restarts and removals

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Persistent Volumes

Volumes are destroyed when a Pod is removed

hostPath partially works around that in “One-Node” environments

Pod- and Node-independent Volumes are sometimes required

Persistent Volumes

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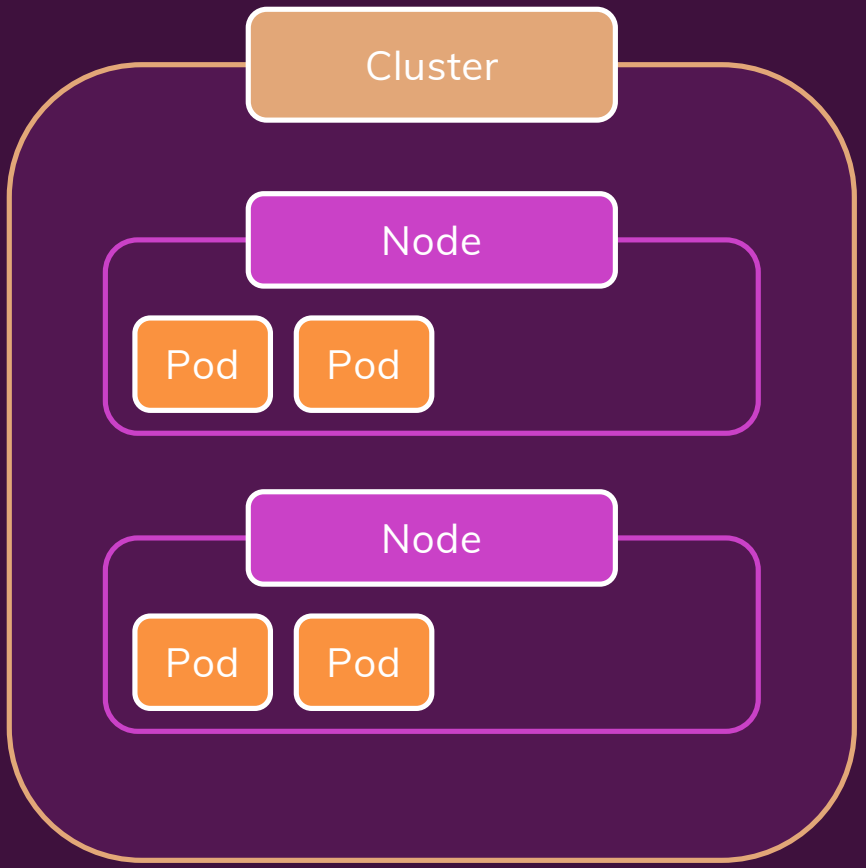
From Volumes To Persistent Volumes



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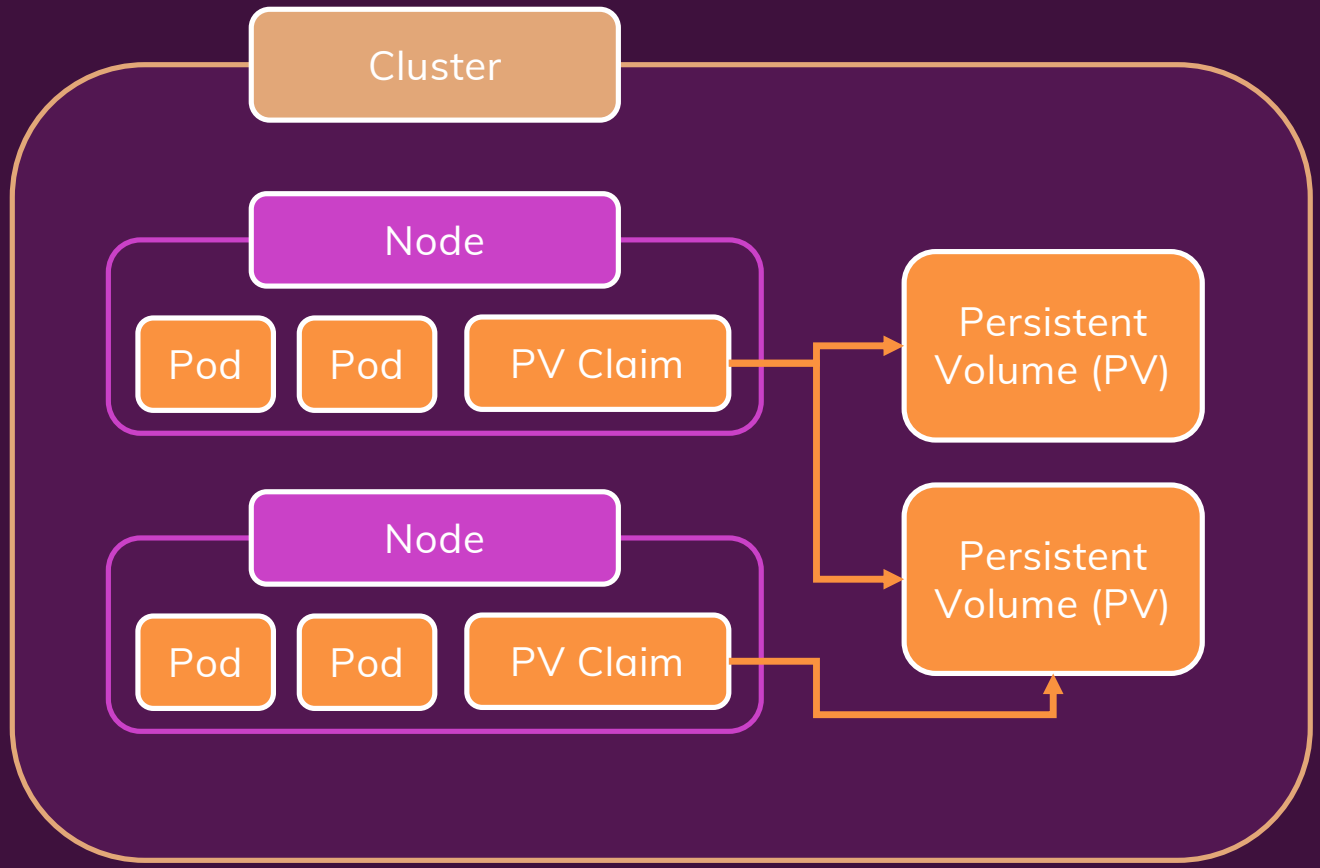
Persistent Volumes & Persistent Volume Claims



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“Normal” Volumes vs Persistent Volumes

Volumes allow you to persist data

”Normal” Volumes

- Volume is attached to Pod and Pod lifecycle
- Defined and created together with Pod
- Repetitive and hard to administer on a global level

Persistent Volumes

- Volume is a standalone Cluster resource (NOT attached to a Pod)
- Created standalone, claimed via a PVC
- Can be defined once and used multiple times