

Managing Dependencies



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Managing Dependencies



Packaging a chart

Publishing to a repository

How to define dependencies

Tags and conditions

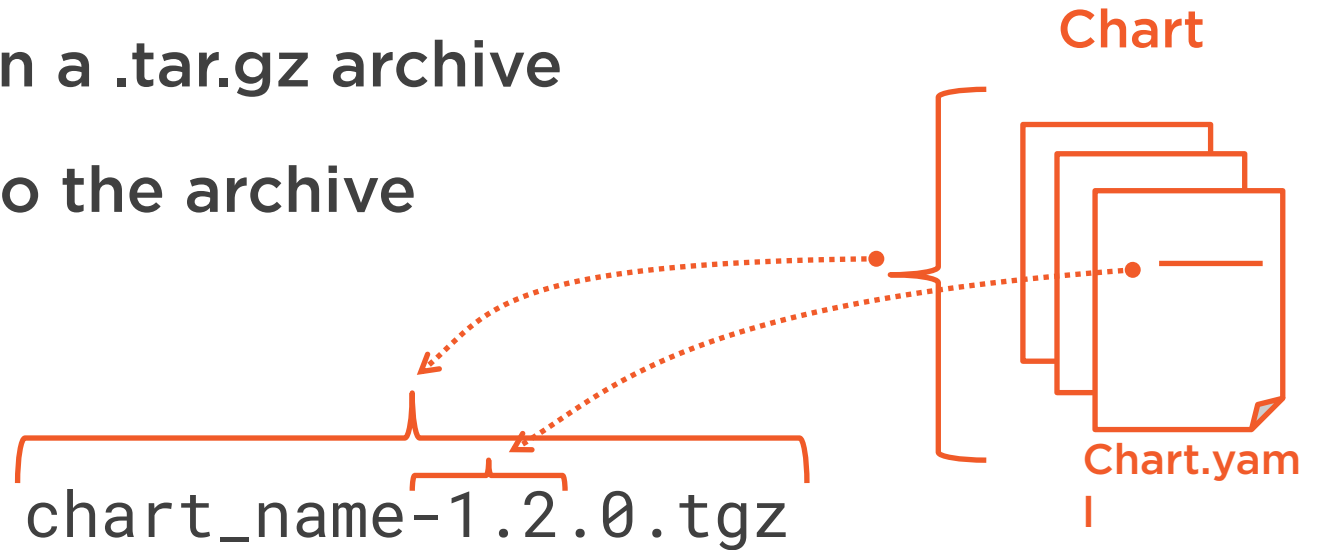


Packaging Your Charts



Packaging a Chart

- Compress chart folder in a .tar.gz archive
- Add a version number to the archive



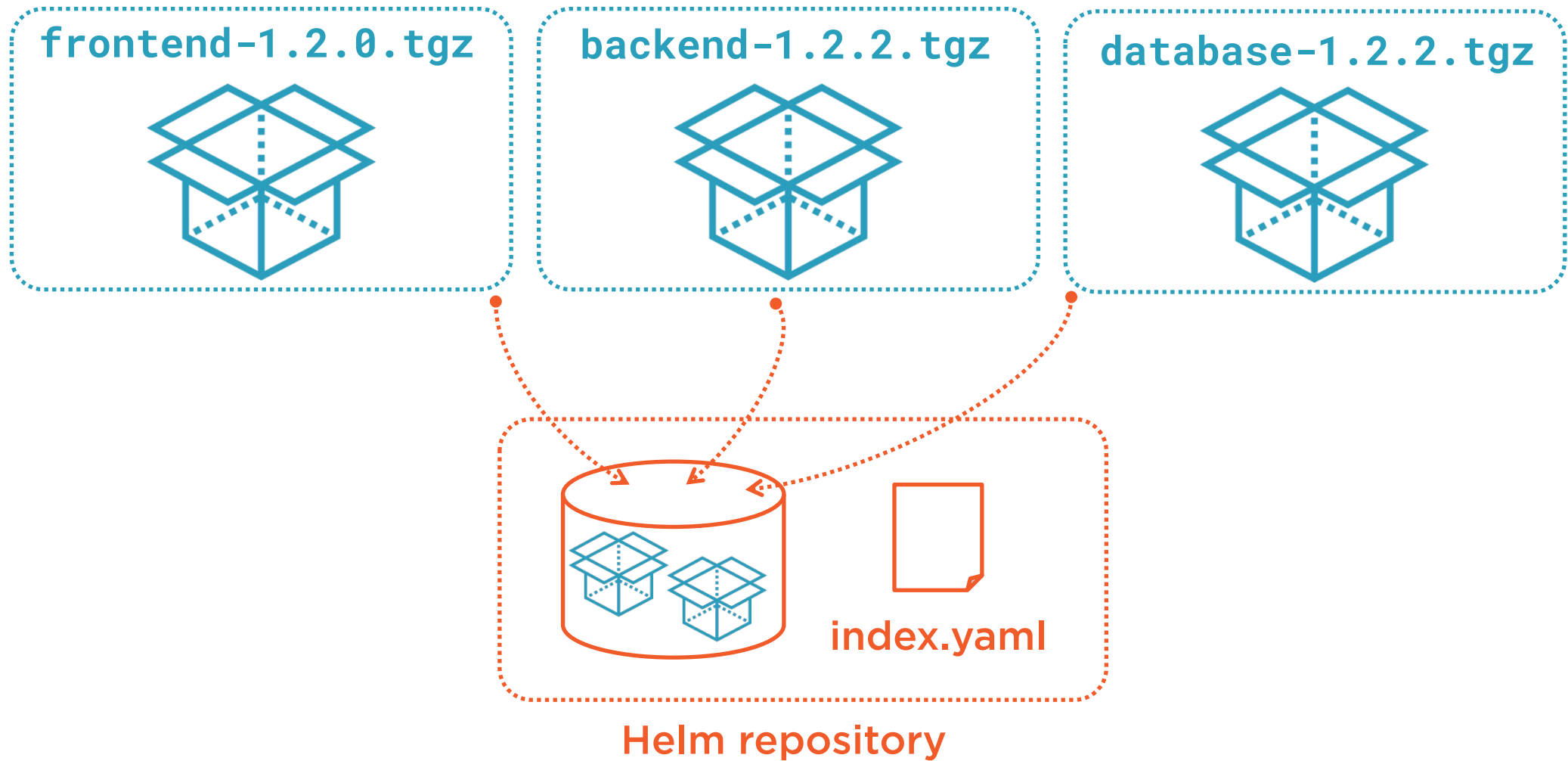
```
> tar -zcvf chart_name-1.2.0.tgz chart_name
```

```
> helm package chart_name
```

Publishing Charts in Repositories



Helm Repository



Publishing in a Repository

Create the index.yaml

Upload charts' archives and index file to an http server

– Nginx, Apache, Cloud or use Chartmuseum

Provenance files

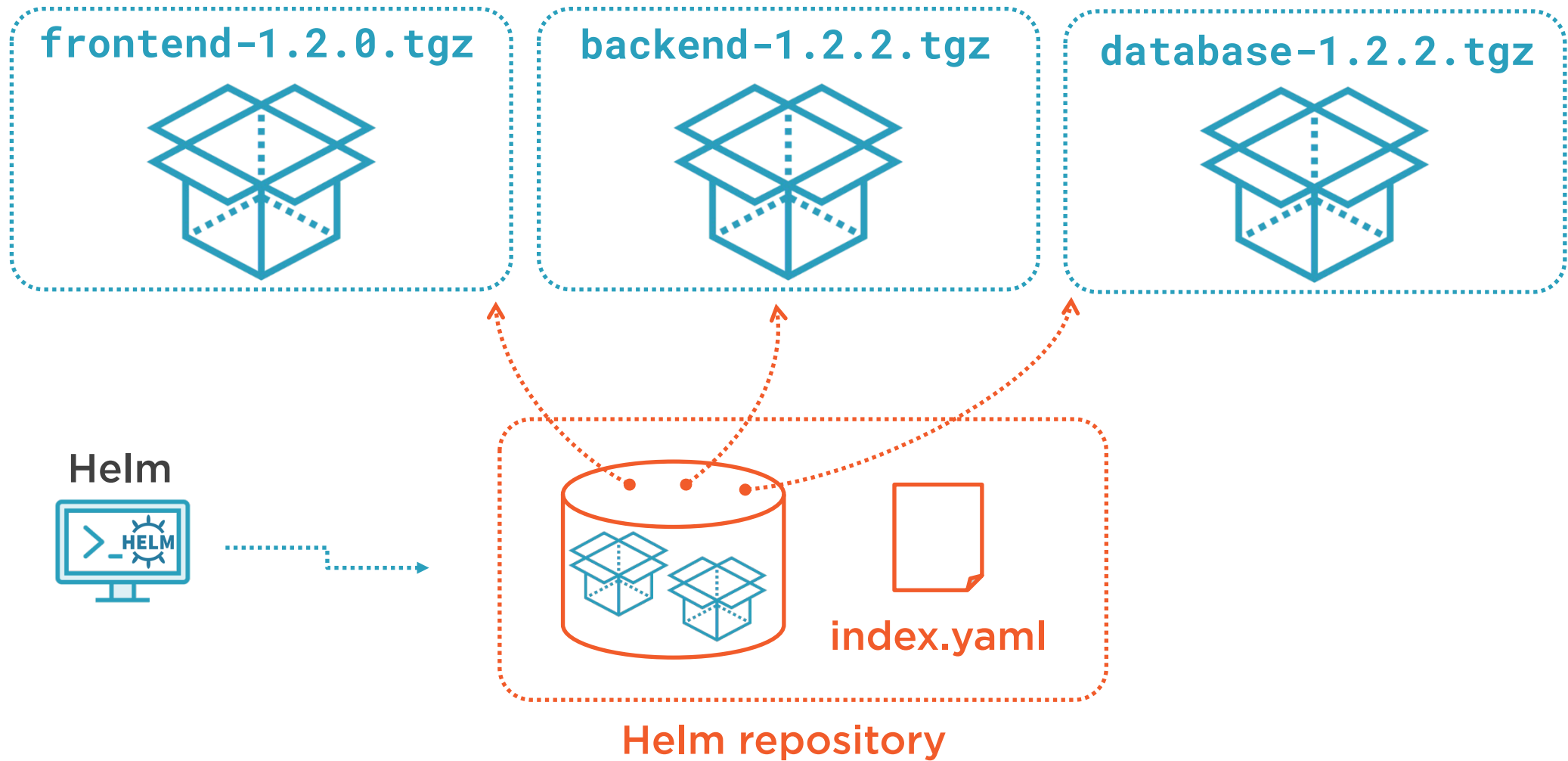
```
> helm repo index .
```

```
> helm package --sign
```

```
> helm verify chart.tgz
```

```
> helm install --verify
```

Helm Repository



Managing a Repository List

Helm maintains a list of repositories

- Stable
- Customs

Update that list by adding or removing repositories

```
me@cursus:~/helm/lab11/$ helm repo list
```

NAME	URL
------	-----

stable	https://charts.helm.sh/stable
--------	---

Default Repository

No repository by default in Helm 3

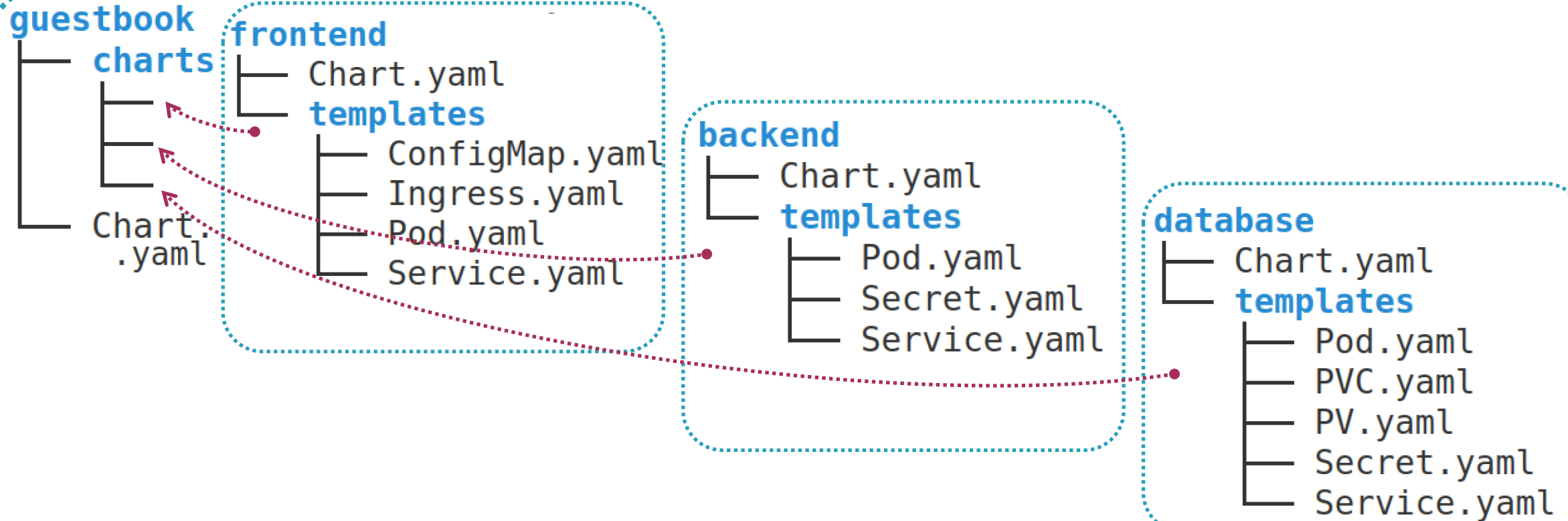
Highly recommended to add stable helm repository

```
> helm repo add stable https://charts.helm.sh/stable
```

Defining Dependencies



Charts Dependencies



Charts Dependencies

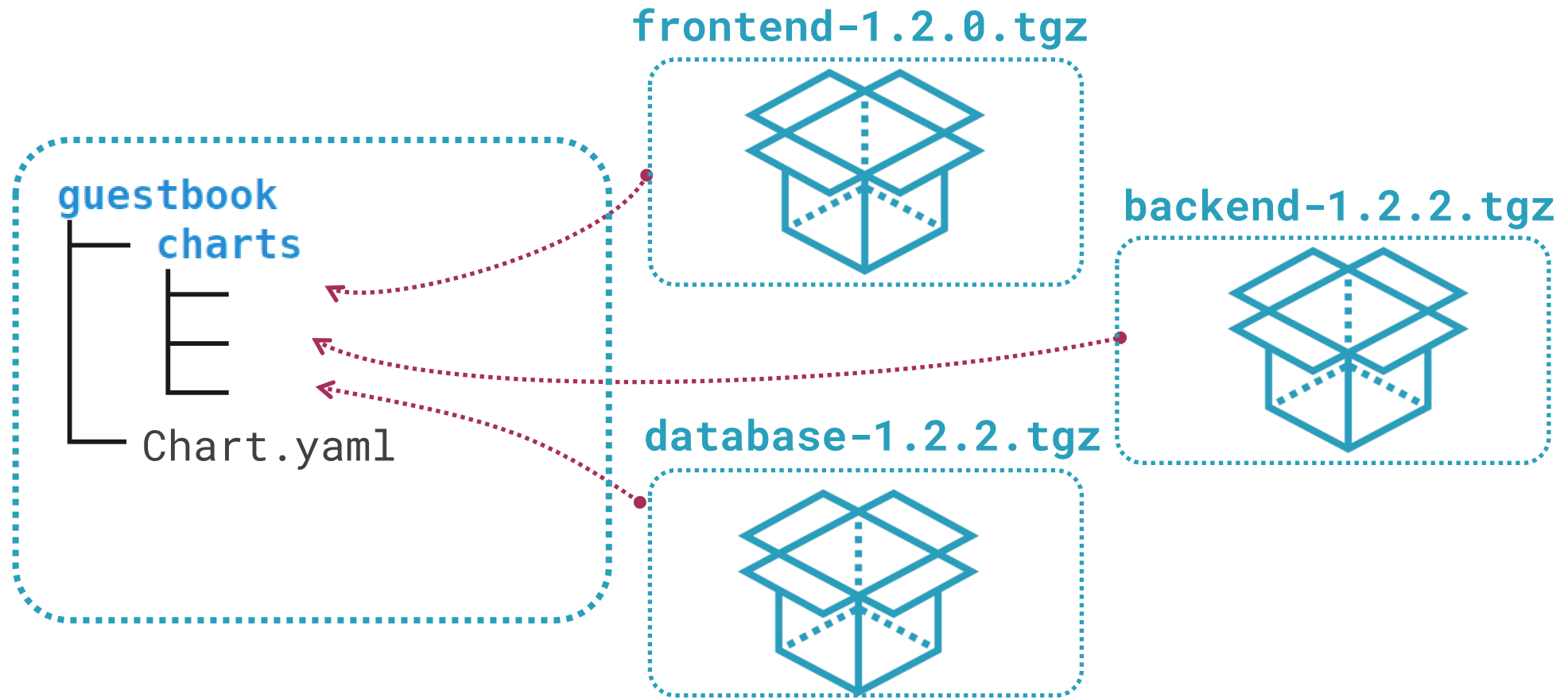


Chart.yaml

```
apiVersion: v2
name: guestbook
appVersion: "2.0"
description: A Helm chart for Guestbook 2.0
version: 1.2.2
type: application

dependencies:
  - name: backend
    version: ~1.2.2
    repository: http://localhost:8080
  - name: frontend
    version: ^1.2.0
    repository: http://localhost:8080
  - name: mongodb
    version: 7.8.x
    repository: https://charts.helm.sh/stable
```



requirements.yaml

requirements.yaml

```
dependencies:  
  - name: backend  
    version: ~1.2.2  
    repository: http://127.0.0.1:8879/charts  
  - name: frontend  
    version: ^1.2.0  
    repository: http://127.0.0.1:8879/charts  
  - name: mariadb  
    version: 5.x.x  
    repository: https://kubernetes-charts.storage.googleapis.com/
```



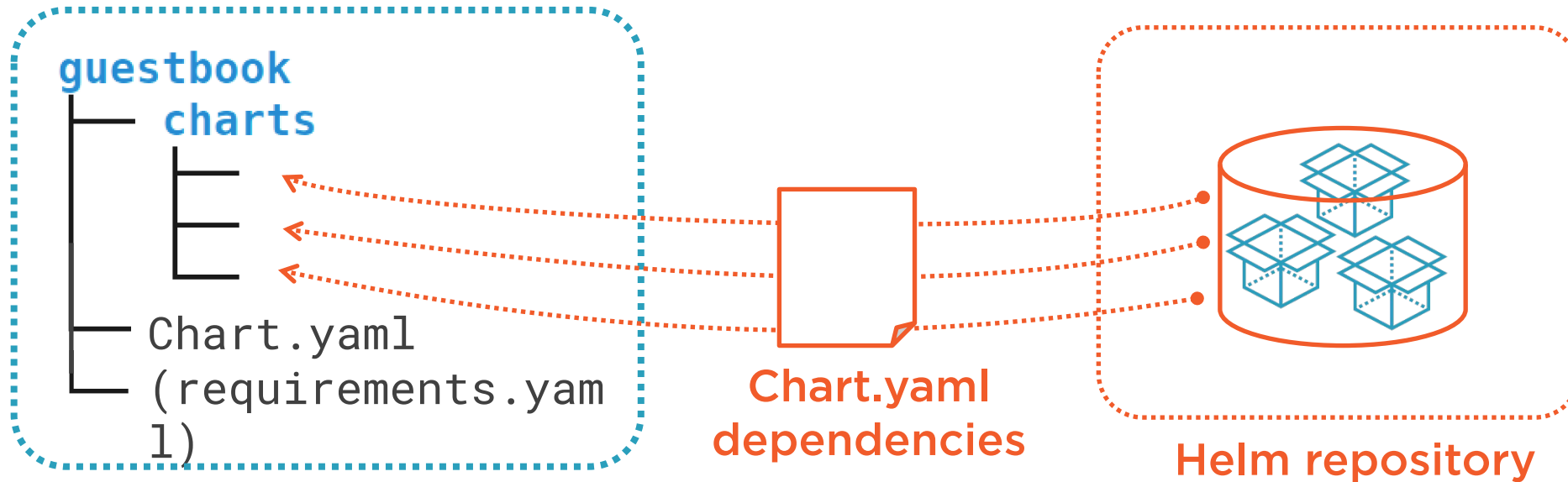
Semver 2.0 Versions

Range	Versions
~1.2.3	$\geq 1.2.3, < 1.3.0$
1.2.x	$\geq 1.2.0, < 1.3.0$
^1.2.3	$\geq 1.2.3, < 2.0.0$
1.x.x	$\geq 1.2.0, < 2.0.0$
1.2 - 1.4.5	$\geq 1.2, \leq 1.4.5$

<https://github.com/masterminds/semver>



Charts Dependencies



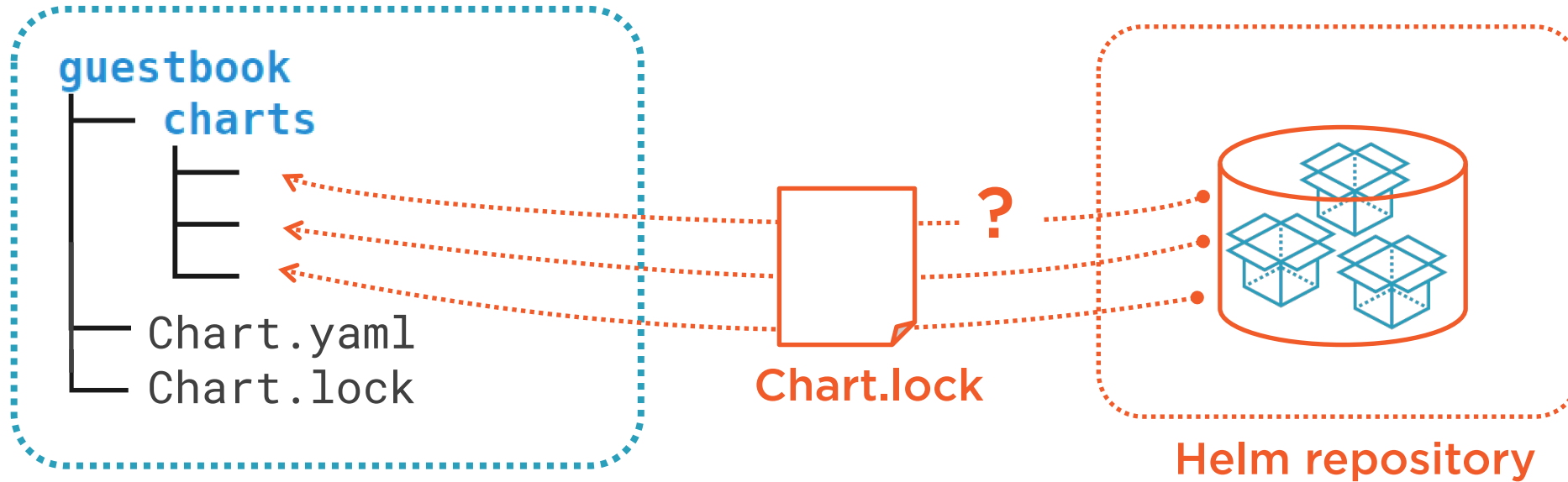
- > `helm dependency update guestbook`
- > `helm dependency list guestbook`

Chart.lock

```
dependencies:
- name: backend
  repository: http://localhost:8080
  version: 1.2.2
- name: frontend
  repository: http://localhost:8080
  version: 1.2.2
- name: database
  repository: http://localhost:8080
  version: 1.2.2
digest: sha256:6a58a52c55ee4296ec43ffe1985ec1147186025c4d9724bcbe5c5354a13df635
generated: "2020-02-27T12:16:00.991397779+01:00"
```



Charts Dependencies



```
> helm dependency build guestbook
```

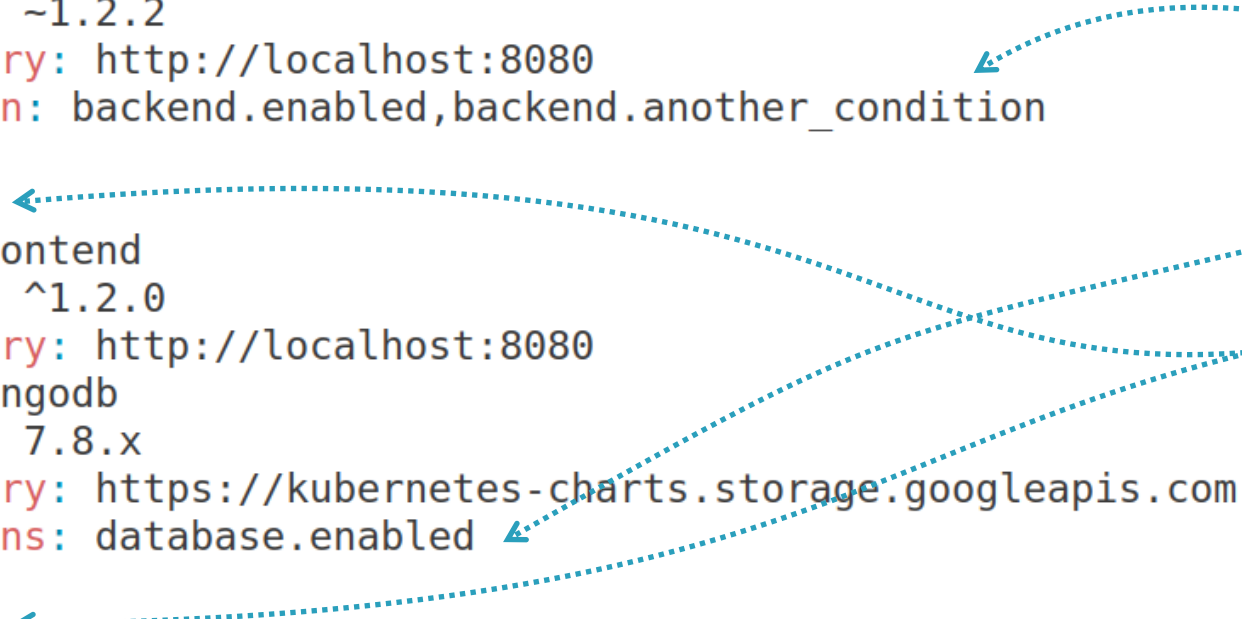
Adding Conditions and Tags



Conditions & Tags

Chart.yaml

```
apiVersion: v2
name: guestbook
[...]
dependencies:
- name: backend
  version: ~1.2.2
  repository: http://localhost:8080
  condition: backend.enabled,backend.another_condition
  tags:
    - api
- name: frontend
  version: ^1.2.0
  repository: http://localhost:8080
- name: mongodb
  version: 7.8.x
  repository: https://kubernetes-charts.storage.googleapis.com
  conditions: database.enabled
  tags:
    - api
```



values.yaml

```
backend:
frontend:
database:
```



Conditions & Tags

All charts are downloaded with “helm dependency update”

Partial installation with “helm install”

“--set ..” overrides value.yaml

Conditions override tags

```
> helm dependency update guestbook  
> helm install demo guestbook  
> helm install demo guestbook --set database.enabled=true  
> helm install demo guestbook --set tags.api=false
```

Demo



Packaging charts

Publishing charts in repositories

```
http://github.com/phcollignon/helm3/  
lab10_helm_dependencies_begin  
lab10_helm_dependencies_final
```



Demo



Managing dependencies

```
http://github.com/phcollignon/helm3/  
lab10_helm_dependencies_begin  
lab10_helm_dependencies_final
```



Demo



Controlling dependencies with conditions and tags

```
http://github.com/phcollignon/helm3/  
lab10_helm_dependencies_begin  
lab10_helm_dependencies_final
```



Summary



Packaging your chart

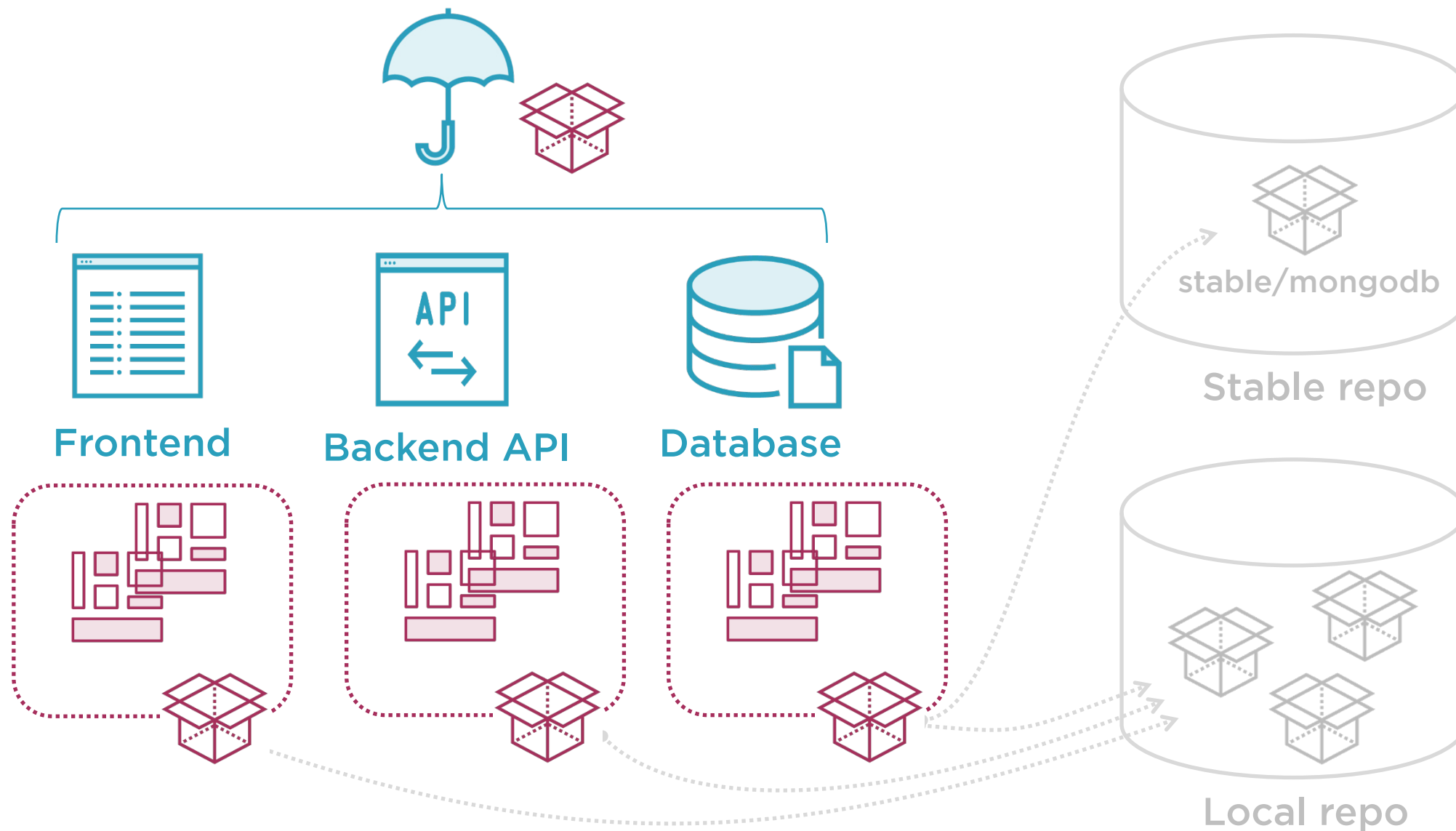
Publishing in a Helm repository

Define and manage dependencies

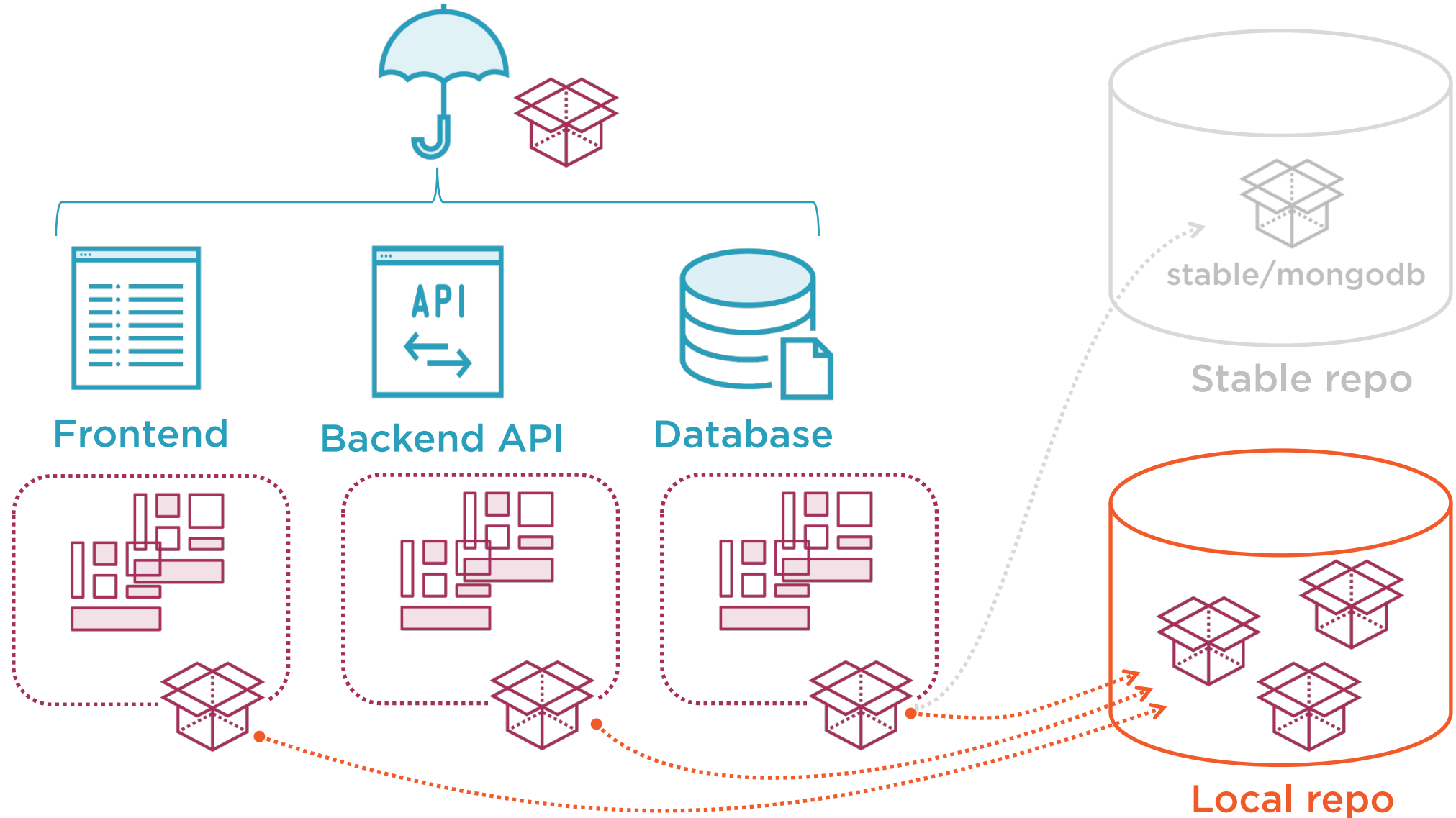
Add conditions and tags



Guestbook application



Guestbook application



Guestbook application

