

Creating Platform Agnostic Packages That Can Run Anywhere

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What is the one true way to deploy applications?

?

In the Cloud!



In the Cloud!



In Cloud Foundry!

In the Cloud!

In Containers!

?

In Cloud Foundry!

In the Cloud!

In Containers!

?

In Cloud Foundry!

In Kubernetes!

There is no one true way to deploy applications...

**It depends on the needs of the
business....**

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business....**

for that particular application...

**It depends on the needs of the
business....**

for that particular application...

at that particular time....

It will change...

It will change...
as the application changes...

It will change...
as the application changes...
as the business changes

Today's reality – mixed infrastructure

Mixed Infrastructure

- **Containers** for stateless parts of an application

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- **Virtual Machines** for persistent data stores

Mixed Infrastructure

- **Containers** for stateless parts of an application
- **Virtual Machines** for persistent data stores
- **Bare metal** for static, compute heavy loads

Does this mean I need a different build and install process for each part of my application?

Automation Evolution

- **Infrastructure Automation**

Automation Evolution

- **Infrastructure Automation**
- **Container Automation**

Automation Evolution

- **Infrastructure** Automation
- **Container** Automation
- **Application** Automation

CHEF HABITAT™

Who am I?

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- Principal Software Engineer – Community Engineering Lead at Chef
- Core maintainer of Habitat Open Source project
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Why Application Automation?

Building and running software is painful!

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- Tied to particular runtimes and environments

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- **Different packages for different flavors of Linux**

Building and running software is painful!

- Tied to particular runtimes and environments
- Different packages for different flavors of Linux
- **Different packages for bare metal/virtual machines and containers**

Modern Applications

Modern application

- Is immutable

Modern application

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- **Is agnostic to running environment**

Modern application

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- Is agnostic to running environment
- **Reduces complexity**

Modern application

- Is immutable
- Is agnostic to running environment
- Reduces complexity
- **Enables scaling**

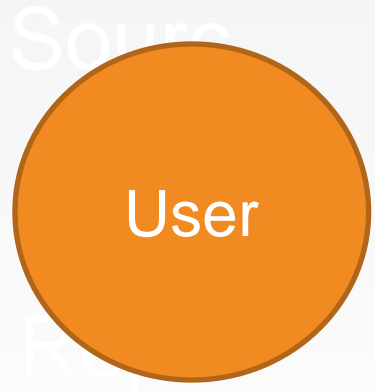
What is Habitat?

**Habitat is a new technology to
build, deploy, and manage
applications...**

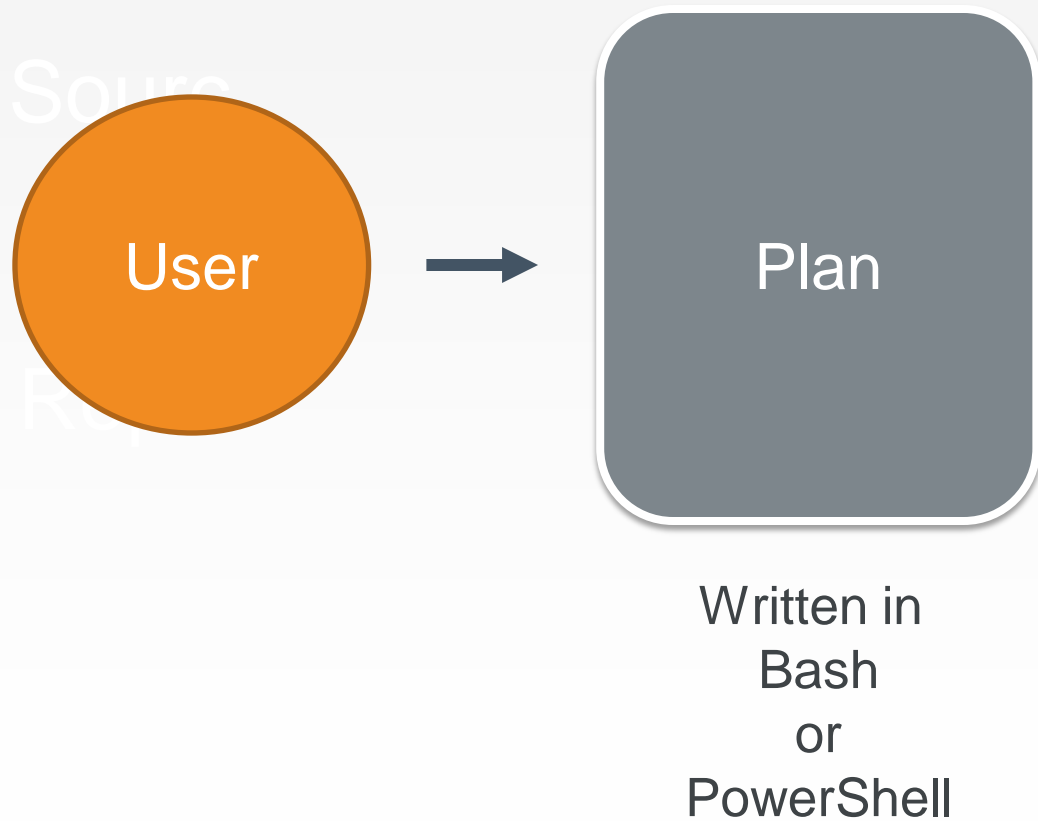
**...in any environment
from traditional datacenters
to containerized microservices**

**In Habitat, the application
is the unit of automation**

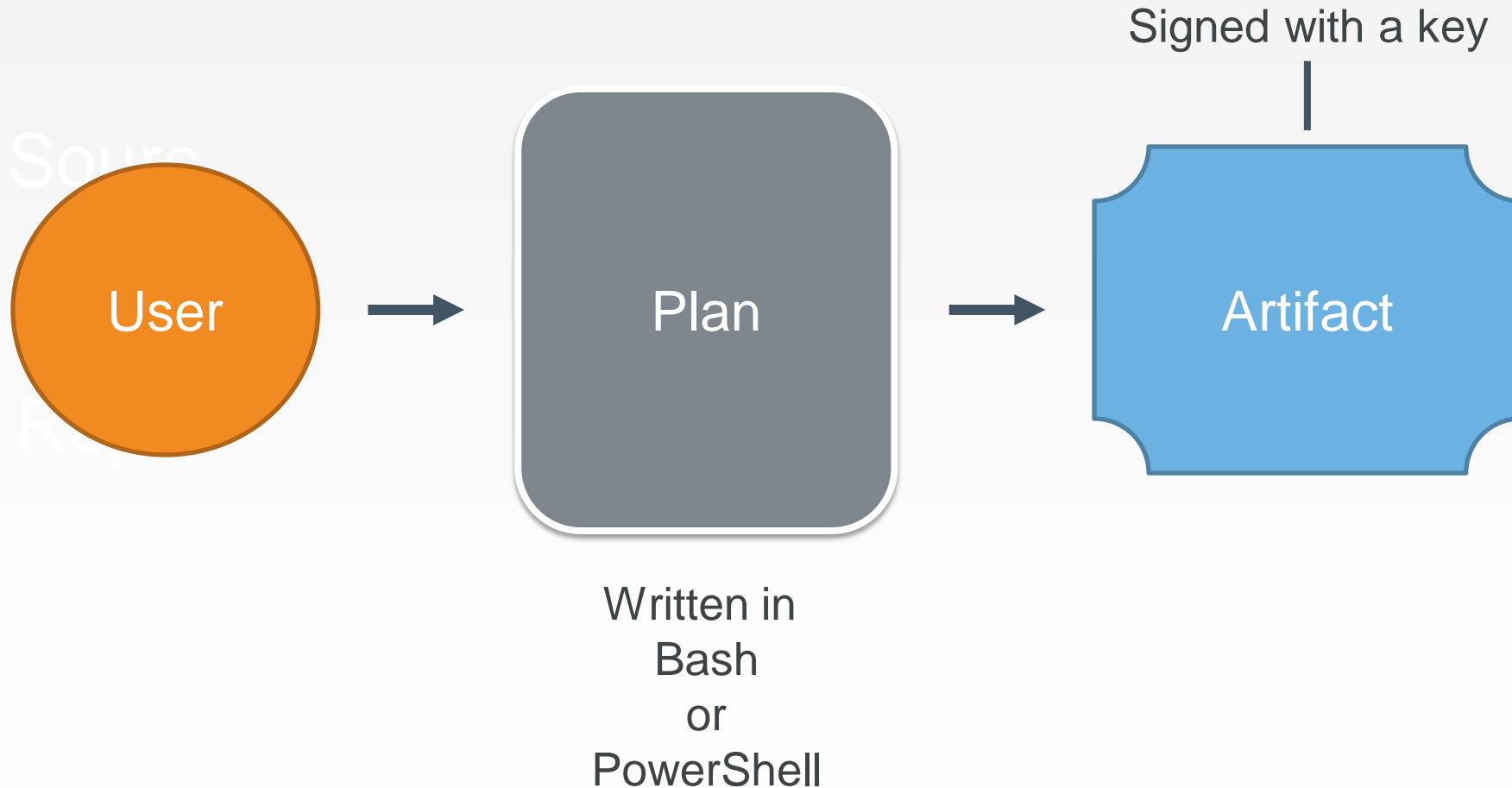
Packaging an application with Habitat



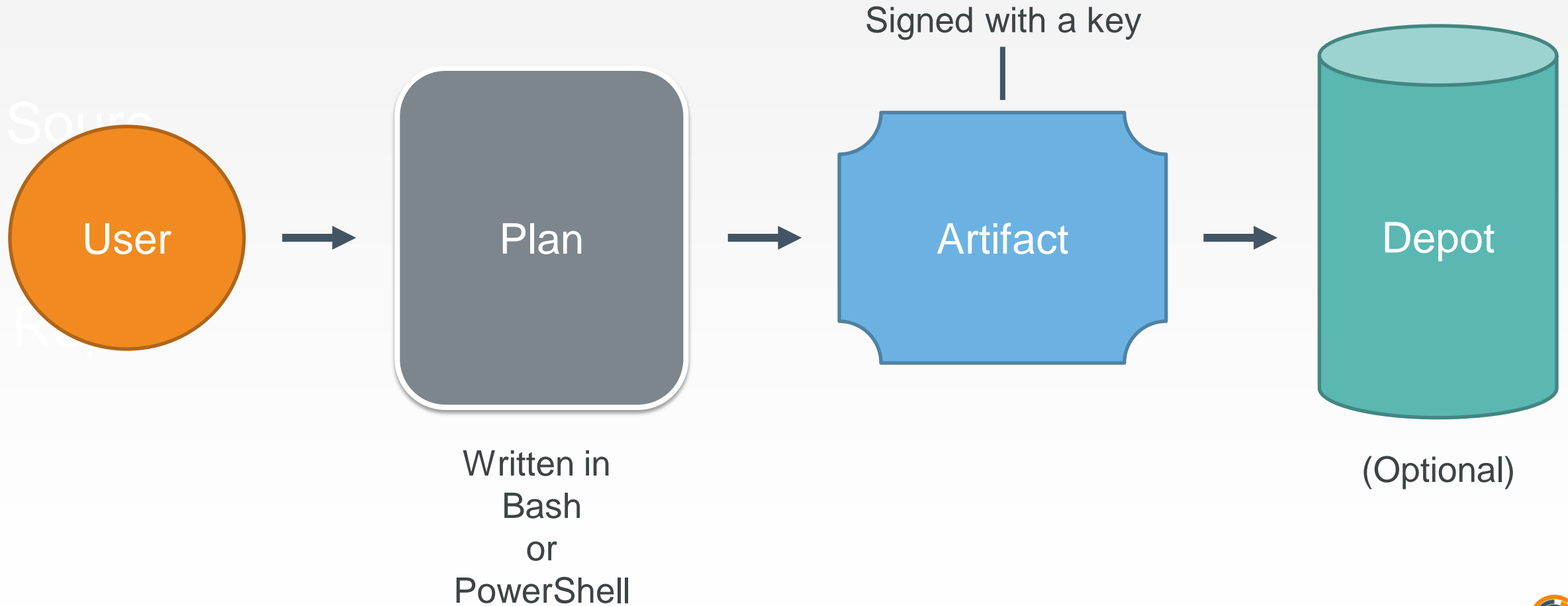
Packaging an application with Habitat



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Packaging an application with Habitat



Public Builder Depot

<https://bldr.habitat.sh>

habitat
by CHEF

BUILDER

🔍 Search Packages

QUICK LINKS

⬇ Download Habitat

📄 Docs

📖 Tutorials

📖 Blog

🌐 Website

🔄 GitHub

SERVICE STATUS

● All Systems Operational

Search Packages

Sign In

Search Results

core/7zip

core/LuaJIT

core/R

core/acbuild

core/acl



Public Builder Depot

<https://bldr.habitat.sh>

The screenshot shows the Habitat Public Builder Depot website. On the left is a dark blue sidebar with the Habitat logo (by CHEF) and navigation links under 'BUILDER', 'QUICK LINKS', and 'SERVICE STATUS'. The main content area has a light blue header with 'Search Packages' and a 'Sign In' button. Below the header is a search bar and a list of package results: core/7zip, core/LuaJIT, core/R, and core/acbuild. A large orange text overlay at the bottom reads 'On Premises Depot Available Too!'.

habitat
by CHEF

BUILDER

- Search Packages

QUICK LINKS

- Download Habitat
- Docs
- Tutorials
- Blog
- Website
- GitHub

SERVICE STATUS

- All Systems Operational

Search Packages

Search Results

Sign In

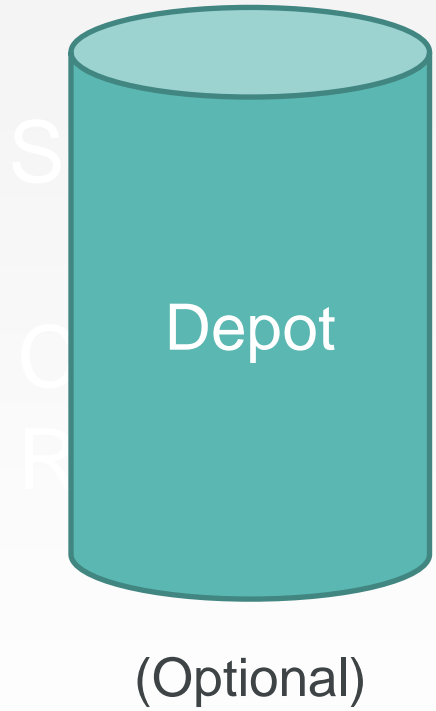
Search Packages...

- core/7zip
- core/LuaJIT
- core/R
- core/acbuild

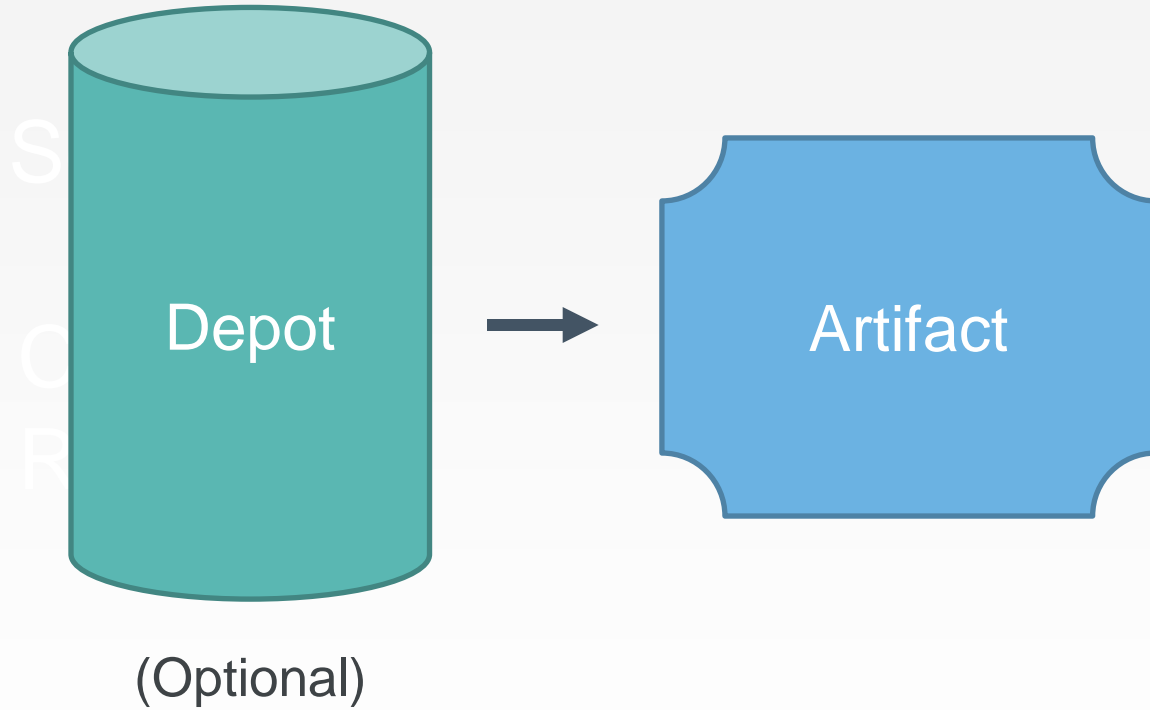
On Premises Depot Available Too!

Demo – Creating a Linux Package

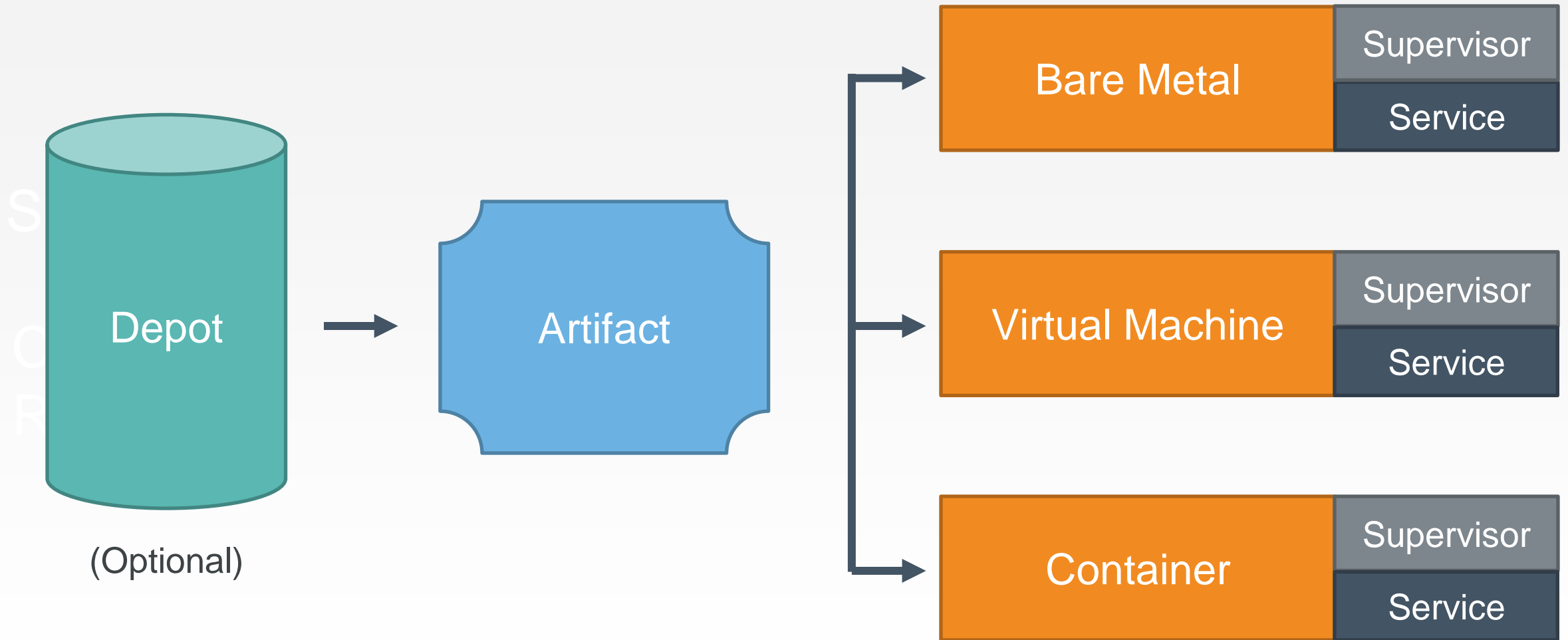
Running an application with Habitat



Running an application with Habitat

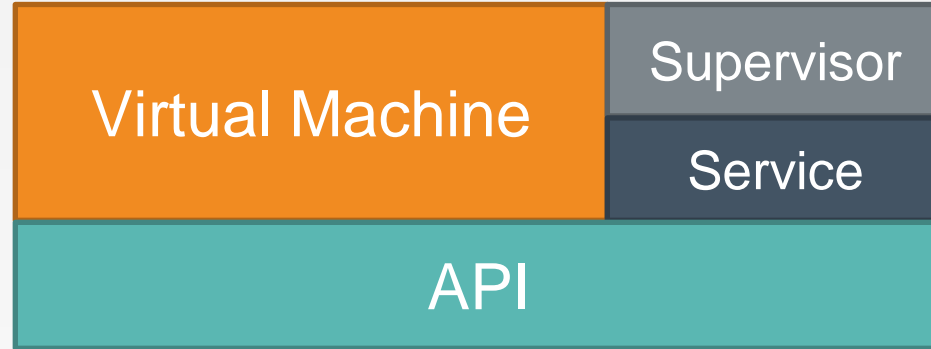


Running an application with Habitat



Demo – running a package with a supervisor

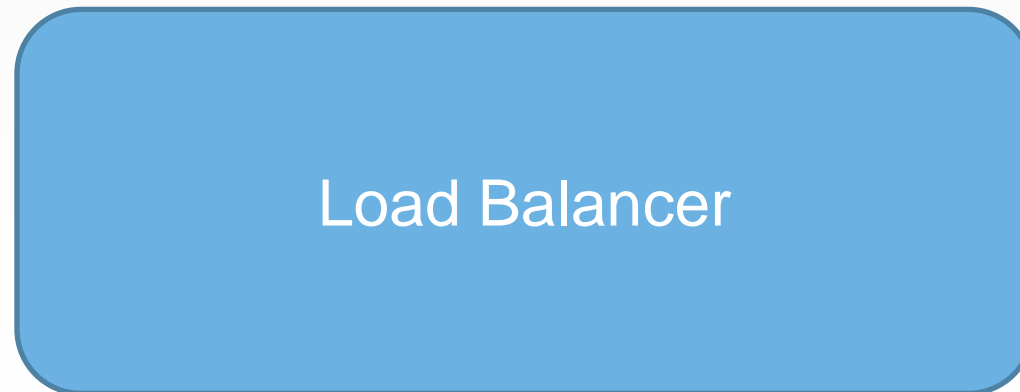
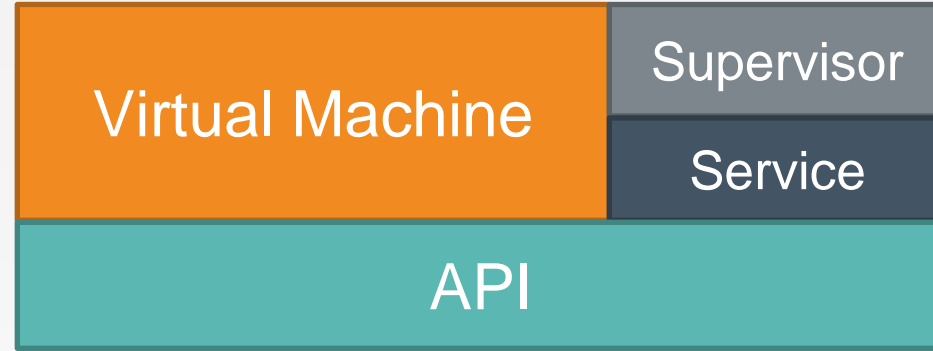
Running an application with Habitat



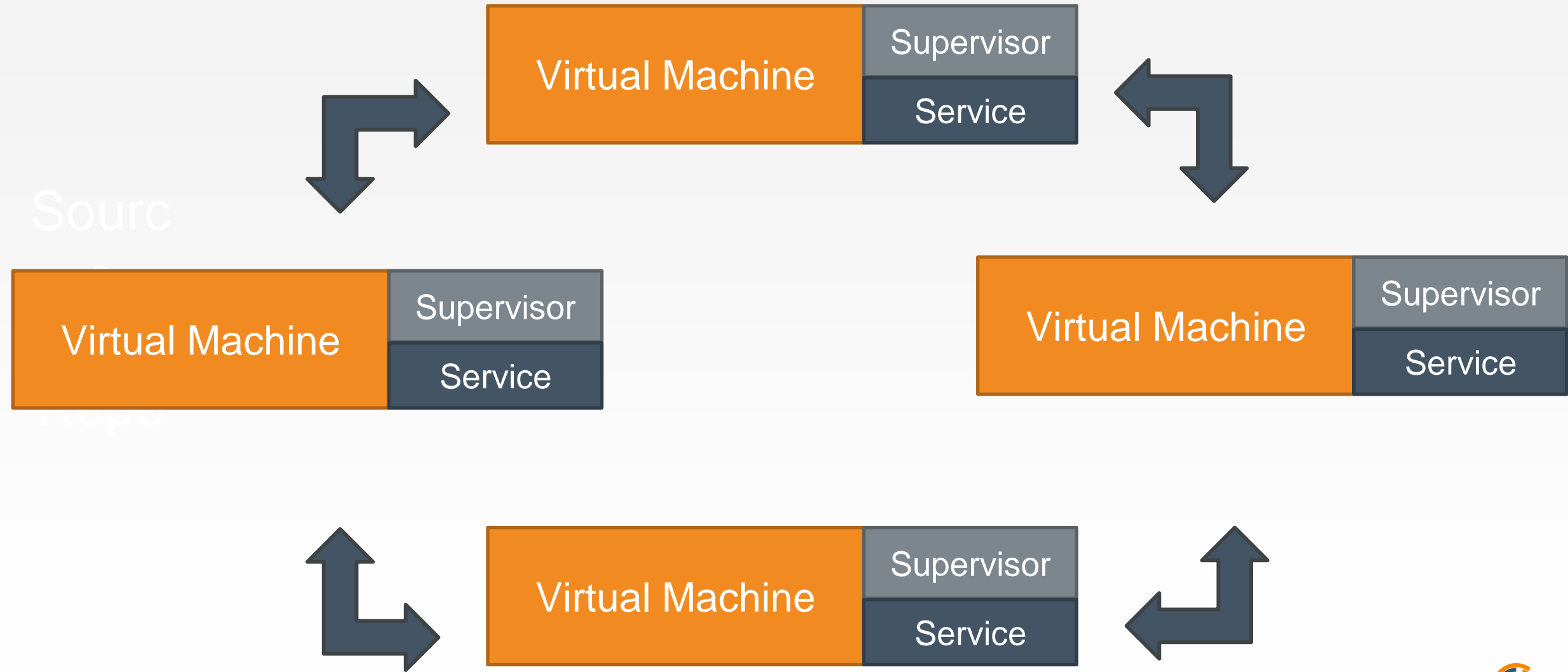
Source
Code
Repo

Running an application with Habitat

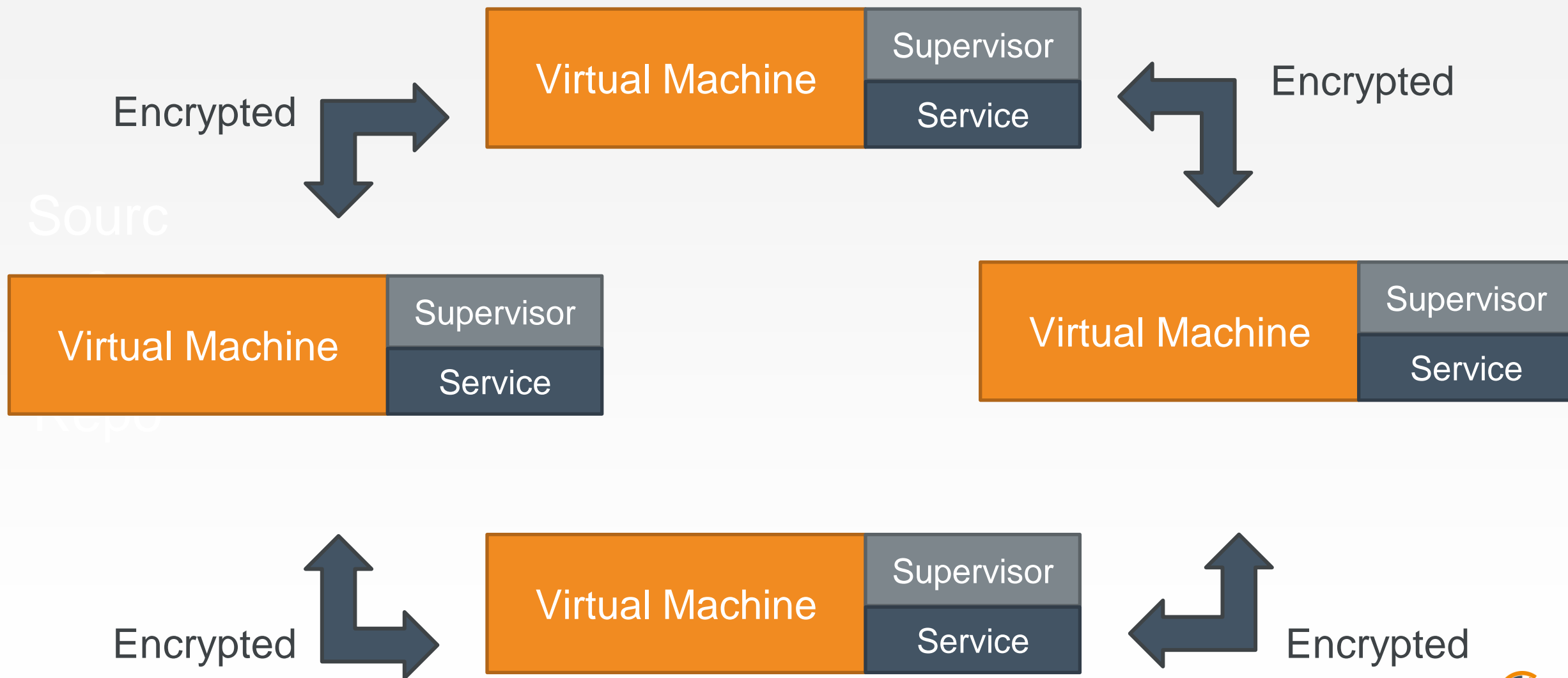
Source
Code
Repo



Running an application with Habitat



Running an application with Habitat



**Along with running HART
packages with Habitat...**

**...you can also export them
to other formats...**

**Including container images,
by far the most popular is
Docker**

Habitat and Containers

**Getting artifacts to run
anywhere is very difficult**

**Containers were supposed to
solve this problem, but...**

Current Container Pain

- Major learning cliff between development and production

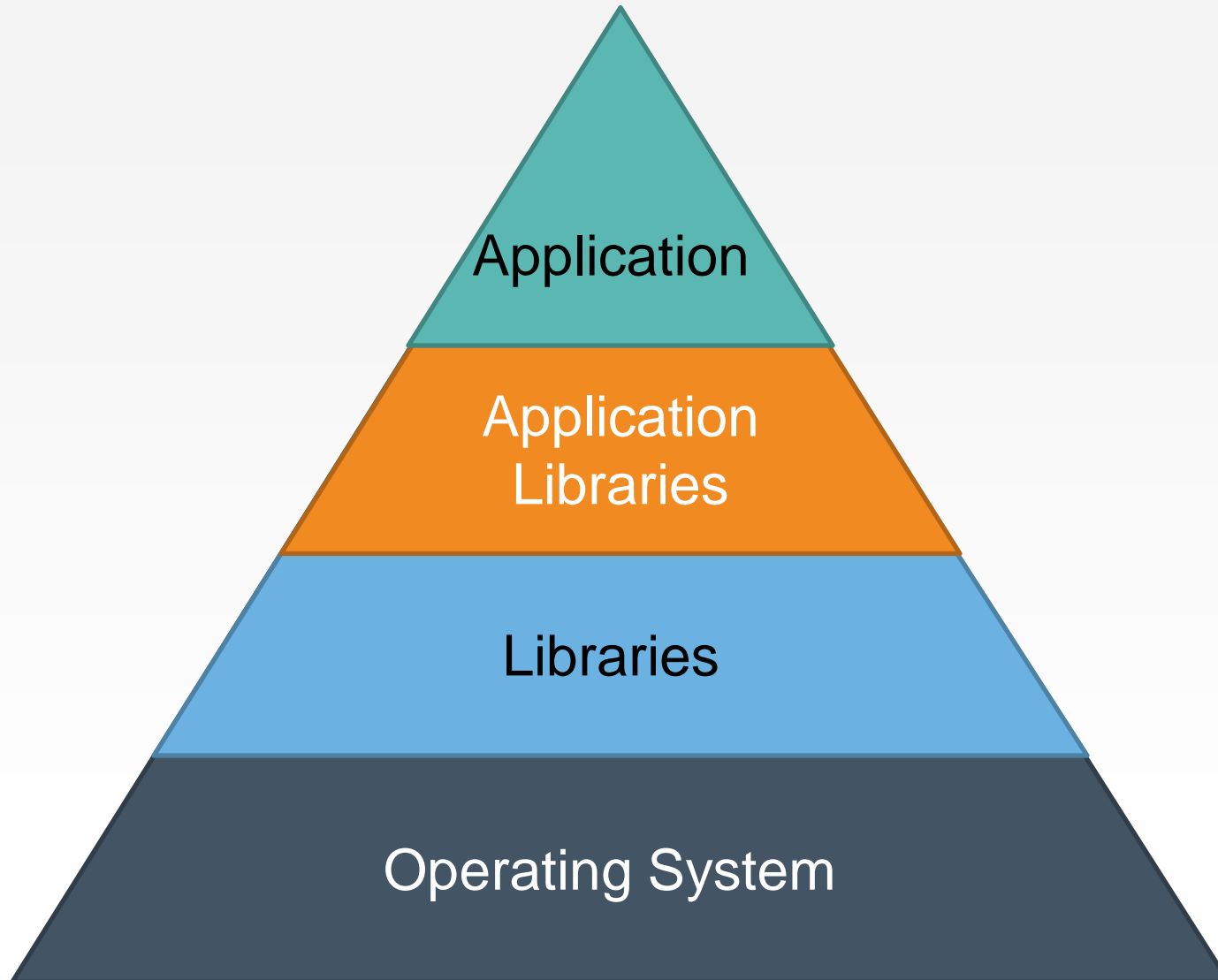
Current Container Pain

- Major learning cliff between development and production
- Containers become black boxes – don't always know what is in them

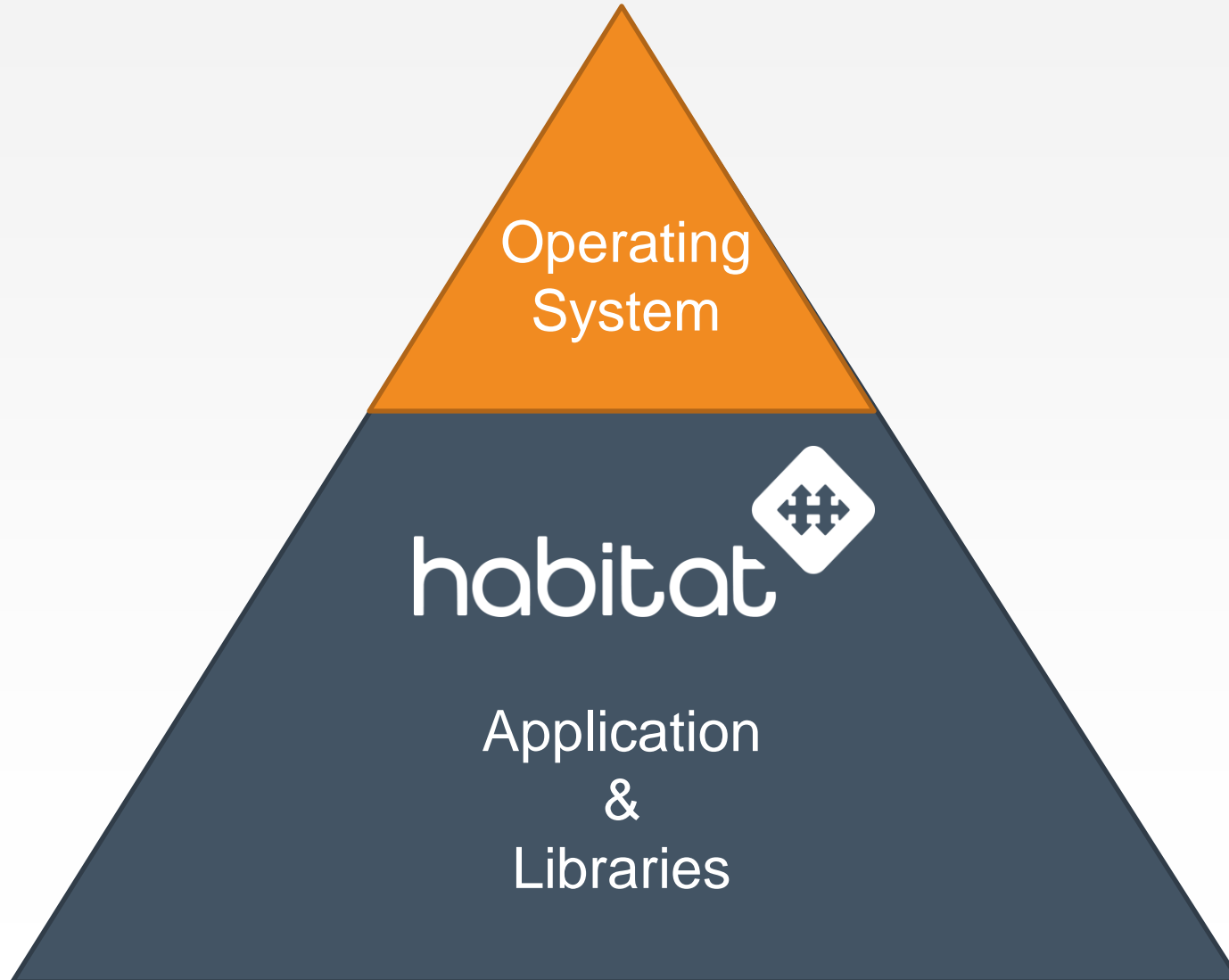
Current Container Pain

- Major learning cliff between development and production
- Containers become black boxes – don't always know what is in them
- Black boxes cause security issues

Current Container Pain



Containers with Habitat



Containers with Habitat

- Habitat starts with the application – minimal operating system comes later

Containers with Habitat

- Habitat starts with the application – minimal operating system comes later
- Application declares dependencies, dependencies are resolved from the application

Containers with Habitat

- Habitat starts with the application – minimal operating system comes later
- Application declares dependencies, dependencies are resolved from the application
- Exposes API for external services

**When you create a container
image with Habitat...**

**You know exactly what went into
the container and
what is configurable about
the container**

Demo – Exporting HART package to a Docker image

Deploying Containers with Habitat

- You can deploy the container using...

Deploying Containers with Habitat

- You can deploy the container using...
 - Cloud based container services
 - Azure Container Services, Amazon ECS

Deploying Containers with Habitat

- You can deploy the container using...
 - Cloud based container services
 - Azure Container Services, Amazon ECS
 - Container scheduling services
 - Kubernetes, Mesosphere, Docker Swarm

Wrap Up...

**Most of today's
applications run on
mixed infrastructure**

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How do you get involved?

- [Habitat.sh/community](https://habitat.sh/community)

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Thank You!



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CODE CAN

