

Understanding Cloud Native Application Bundles

CNAB UNPACKED

porter.sh/cnab-unpacked

INTRODUCTIONS



Carolyn Van Slyck

[@carolynvs](https://twitter.com/carolynvs)

Senior Software Engineer

Microsoft

WHAT IS CNAB?

Cloud Native Application Bundles is an open-source packaging and distribution specification for managing distributed applications with a single installable file.

WHERE DID IT COME FROM?



We had contributions from other companies and the community! ❤️

WHAT DOES CNAB SOLVE?

The gap between your application's code and everything necessary to deploy your application.

LET'S DEFINE AN APP

- Terraform to create the infrastructure
- Helm to deploy to a kubernetes cluster
- Obligatory bash script

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- Still be your friend? 🤔

LET'S TRY THIS WITH A BUNDLE

GET READY...

```
$ porter explain --tag deislabs/tron:v1.0

name: Tron
description: The classic game of light cycles and disc wars
version: 1.0.0
```

Credentials

Name	Type	Description	
<hr/>			
kubeconfig	string	Path to kubeconfig	

Parameters

Name	Type	Description	Default (Required)
<hr/>			
sparkles	boolean	Moar ✨	false

🚧 <https://github.com/deislabs/porter/issues/635>

GET SET...

```
$ porter credentials generate -t deislabs/tron:v1.0

Generating new credential azure from bundle tron
==> 1 credentials required for bundle tron
? How would you like to set credential "kubeconfig" file path
? Enter the path that will be used to set credential "kubeconfig"

Saving credential to /Users/carolynvs/.porter/credentials/azure.yaml
```

GO!

```
$ porter install tron -t deislabs/tron:v1.0 --creds azure --param sparkles=true
```

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- Installed with a single command
- Underlying toolsets and logic were abstracted in the bundle
- Distributed via OCI (Docker) registry
- You are still friends 😎

WHAT WAS IN THE BUNDLE?

The application **and everything needed to install it**

- Helm and terraform CLIs
- Helm chart
- Terraform files
- Bash script that orchestrates installing everything

AWKWARD QUESTION TIME!



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- 🙋 Does this replace < my favorite tech >?
- 🙋 Why wouldn't I just use < my favorite tech >?

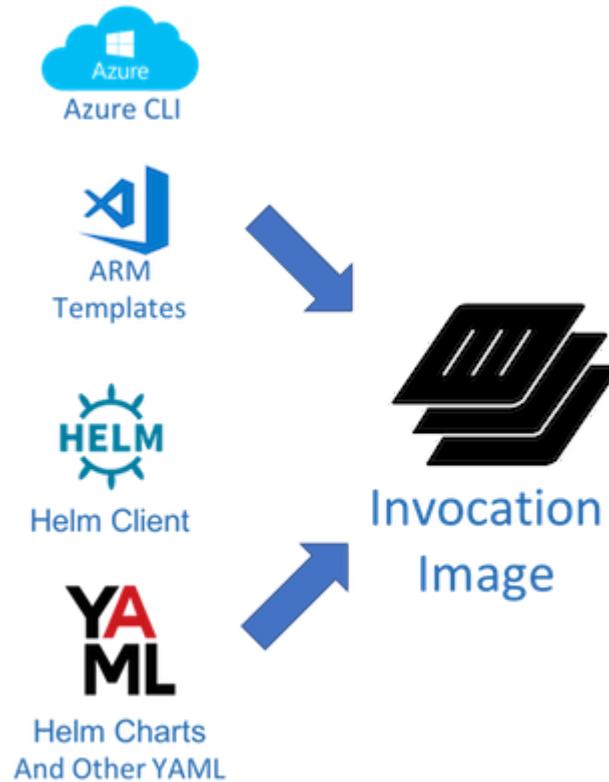
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- 🙋 Does this replace < my favorite tech >?
- 🙋 Why wouldn't I just use < my favorite tech >?
- 🙋 I don't like the sound of that bash script...

WHEN WOULD YOU USE A BUNDLE?

INCLUDE REQUIRED TOOLS

Distribute files in the CNAB invocation image



DEPLOY APP'S INFRASTRUCTURE

Custom script for the invocation image endpoint

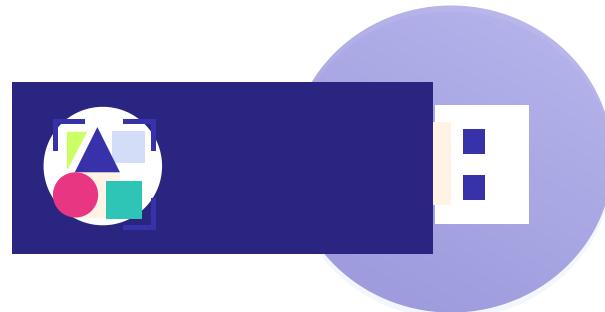


Google Cloud



AIRGAPPED NETWORKS OR OFFLINE

Thick bundles include referenced images



MANAGE MULTIPLE TECH STACKS

Consistent interface regardless horrors inside



IMMUTABLE, VERIFIED INSTALLER

Signed bundles referencing image digests



SdILZkhEscXa5QD4UtEbTbI
MEz2BcCjLr0P8pzQiGvAUzV
MMRR7N8DiJrODuHers=

--- END PGP ---



CNAB SUB SPECIFICATIONS

Core

Registries 

Security 

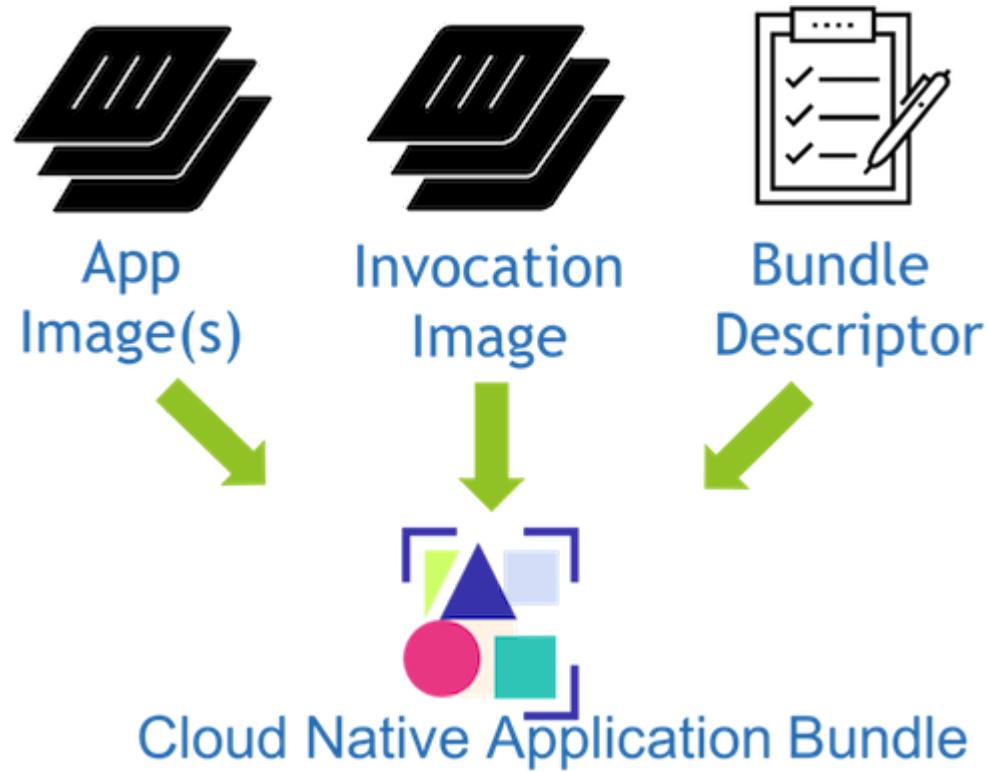
Dependencies 

CORE SPECIFICATION

- Bundle file format (bundle.json)
- Invocation image format, aka "the installer"
- Entrypoint in invocation images
- Bundle format (thin or thick)
- Bundle runtime execution behavior
- Well-known Actions
 - Install
 - Upgrade
 - Uninstall
- Custom Actions

Version 1.0 was released this month! 

ANATOMY OF A BUNDLE



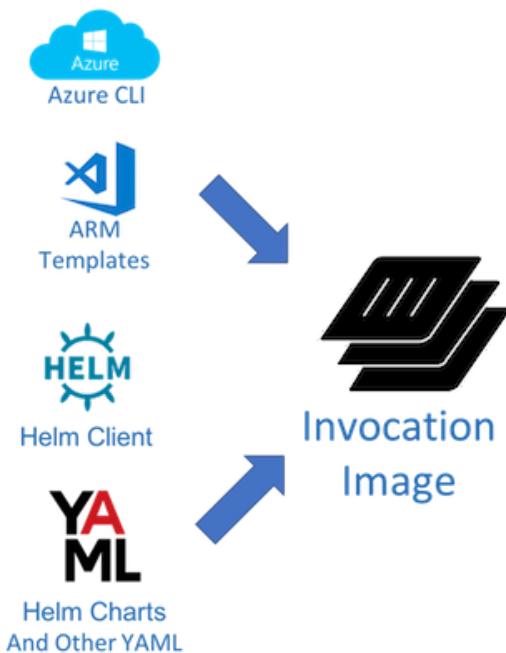
APPLICATION IMAGES

- The same same docker images you use now
- Continue to build and distribute them without change
- CNAB doesn't affect this

THE INVOCATION IMAGE

The Installer or MSI for the Cloud

- Includes all the tools you need to install your app
- Has your configuration, metadata, templates, etc
- Run script with your logic for install, upgrade and uninstall

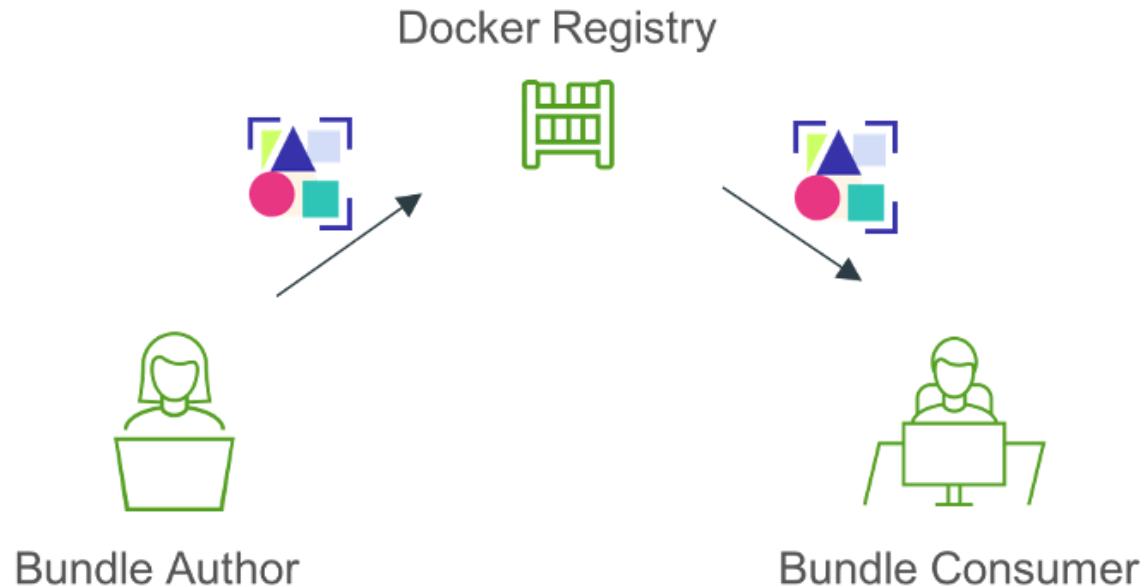


THE BUNDLE DESCRIPTOR

- **bundle.json**
- Invocation and Application images with their content digests
- Credentials and Parameters accepted by the installer
- Outputs generated by the installer

REGISTRIES SPECIFICATION

Push and pull bundles to OCI registries



SECURITY SPECIFICATION

- Image digests
- Signing bundles
- Bundle attestation

DEPENDENCIES SPECIFICATION

 Very early stage

- Require other bundles
- Specify their version
- Use their outputs

CNAB TOOLING

- Porter
- Docker App
- Duffle

Anyone can write their own too! These are all based on:

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Are all CNAB tools interchangeable?

PORTER

The friendly cloud installer that bootstraps your bundles using tools and assets from your current pipeline. ✨

- Doesn't require knowledge of CNAB
- Uses mixins to include tools into bundles
- Designed to make bundles easier to manage
- Community focused



DEMO

Deploy a bundle with Porter

<https://github.com/jeremyrickard/do-porter>

PARTING AWKWARD QUESTIONS



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Is Porter a Microsoft-only tool?

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🙋‍♀️ Ask me yours!

RESOURCES

- cnab.io
- cnab.io/community-meetings/#communications - #cnab CNCF Slack
- porter.sh
- porter.sh/contribute - New Contributor Guide
- porter.sh/community - #porter CNCF Slack and Office Hours