# Using NodeSource on Cloud Foundry

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# Patrick Mueller

- Senior Node Engineer at NodeSource
- Fooling around on the internet since the late 1980's
- Developing with Node.js development on Cloud Foundry since 2013
- Worked at IBM for 30 years, developing a variety of software platforms including IDEs, mobile runtimes and libraries, and server platforms
- He can bore you to death talking about how great development in Smalltalk was.

# Agenda

- **Understanding Cloud Foundry** and how to run Node.js applications on it.
- Get started **running Hello World on Cloud Foundry**.
- Learn some **Node.js tips n' tricks for Cloud Foundry** to optimizing your development cycle.
- **Use N|Solid to diagnose your Cloud Foundry Applications** to find performance and memory issues

# Understanding Cloud Foundry

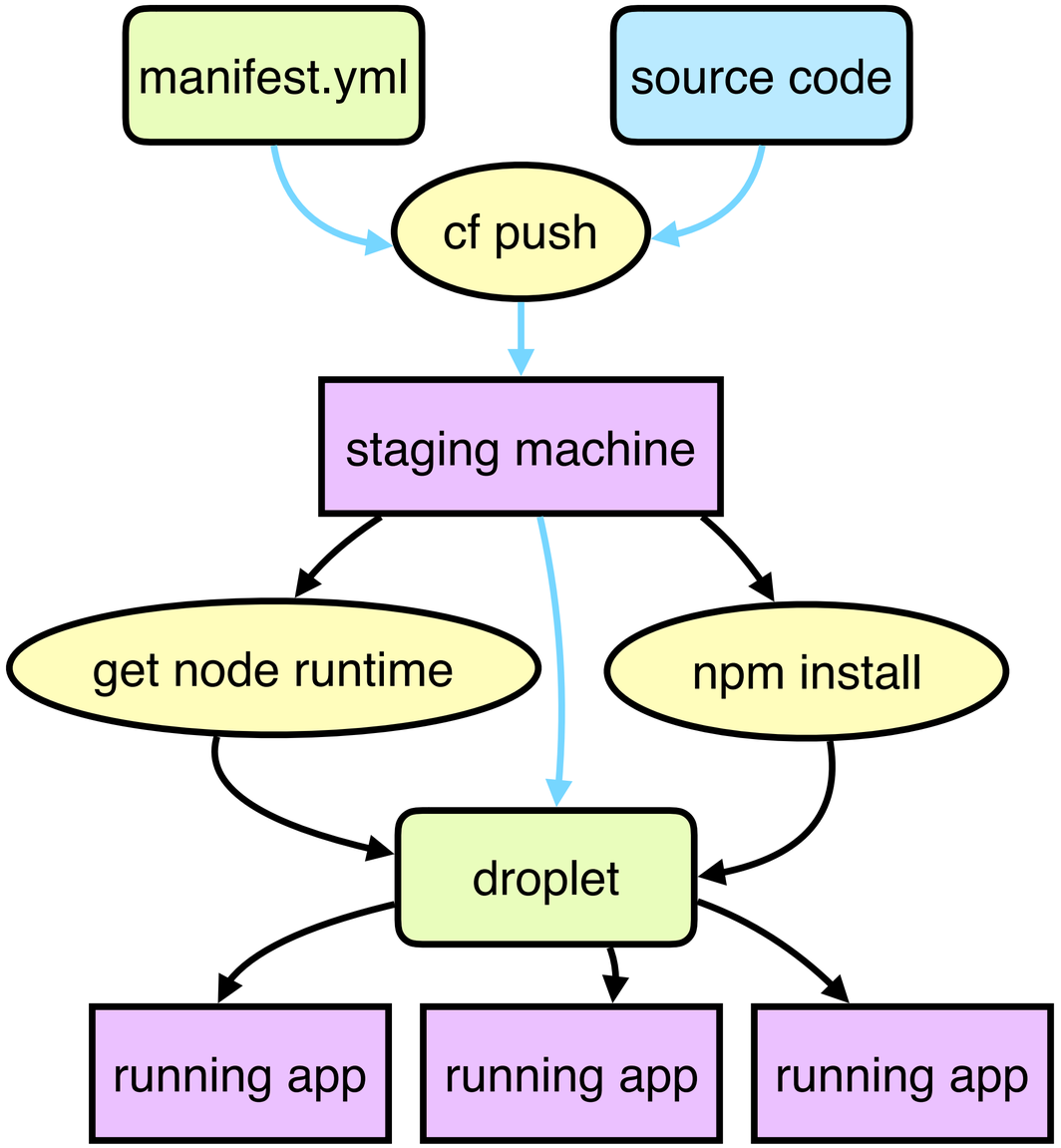
# Understanding Cloud Foundry

- **Platform-as-a-Service** product
  - very similar to Heroku, shares some technology
- **Open Source**, part of Cloud Foundry Foundation
- **Commercial** hosted, and on-prem deployments from multiple vendors
  - Pivotal, IBM, etc
- Supports **multiple languages** out-of-the-box
  - **Node.js**, Ruby, Python, Java, Go

# Understanding Cloud Foundry - Deploying a Node.js application

- Create a `manifest.yml` file in your project root directory
- Run `cf push` to deploy app
  - sends your application code to a staging machine
  - staging machine obtains Node.js runtime, runs `npm install`
  - packages result in a droplet
  - runs the droplet in a container



# Running Hello World on Cloud Foundry

# Running Hello World - server.js - simple http server

```
'use strict'

const http = require('http')

const PORT = process.env.PORT || '3000'  // PORT env var provided by CF

const server = http.createServer(onRequest)
server.listen(PORT, onListening)

function onRequest (req, res) {
  res.end('<h1>Hello, World</h1>')
}

function onListening () {
  console.log(`Server listening on http://localhost:${PORT}`)
}
```

# Running Hello World - package.json and manifest.yml

## package.json

```
{
  "name": "hello-world",
  "version": "1.0.0",
  "dependencies": {
  }
}
```

## manifest.yml

```
---
applications:
- name:      hello-world-nodejs
  memory:    128M
  command:   node server
```

# Running Hello World - pushing the app

```
$ cf push
Using manifest file /path/to/hello-world/manifest.yml

Updating app hello-world-nodejs in org pcfdev-org / space pcfdev-space as user...
OK
...
                    ~ 30 seconds later
...
requested state: started
instances: 1/1
usage: 128M x 1 instances
urls: hello-world-nodejs.local.pcfdev.io
buildpack: node.js 1.5.15

     state     since                    cpu    memory           disk
#0   running   2016-12-14 01:47:45 PM   0.0%   10.8M of 128M    39M of 512M
```

# Node.js tips n’ tricks for Cloud Foundry

# Node.js CF Tips n' Tricks - skip uploading files not used at runtime

- Use `.cfignore` to have files not uploaded to staging machine to
  - Quicker turn around time on `cf push`
  - Add `node_modules` when starting a new app, tests whether your `dependencies` in `package.json` are correct, saves time.
  - Add other directories not used at runtime to `.cfignore`, like tests, docs, etc

# Node.js CF Tips n' Tricks - use cfenv to parse VCAP_SERVICES

- Cloud Foundry provides two environment variables - `VCAP_SERVICES` and `VCAP_APPLICATION` which provides environmental information for your application.
  - JavaScript object in JSON format
  - a bit unwieldy to traverse
- Use `cfenv` to get simple access to the data, eg:

```
- appEnv.getServiceCreds('redis-counters')
```

https://www.npmjs.com/package/cfenv

```
npm install cfenv --save
```

# Using N|Solid to Diagnose your Cloud Foundry Applications

# Using N|Solid on Cloud Foundry

- Run your apps with the N|Solid Runtime by using the N|Solid buildpack instead of the Node.js buildpack
- Bind your app to a `nsolid-storage` service
- Run N|Solid Storage and Console servers

# Using N|Solid on Cloud Foundry

- **N|Solid buildpack**
  - Supports the same functionality as the Node.js buildpack
  - Installs N|Solid Runtime instead of open source Node.js
  - Sets N|Solid env vars based on `nsolid-storage` service and VCAP environment variables
  - Use from GitHub, or download bundled (offline) buildpack to install in Cloud Foundry
  - Open Source - contribute new features!

# changes to manifest.yml

```
---
applications:
- name:      hello-world-nodejs
  memory:    128M
  command:   node server
  buildpack: https://github.com/nodesource/nsolid-buildpack-cf.git
  services:
    - nsolid-storage
```

# Using N|Solid on Cloud Foundry

- **Bind your app to nsolid-storage service**

  - Create a User-Provided Service from JSON

```
cf cups nsolid-storage -p example.json

{
  "sockets": {
    "command": "nsolid-storage.example.com:9001",
    "data":    "nsolid-storage.example.com:9002",
    "bulk":    "nsolid-storage.example.com:9003"
  }
}
```

  - Bind the service to all apps using the N|Solid buildpack

  - Provides coordinates to the N|Solid Storage server

# Using N|Solid on Cloud Foundry

- **Run N|Solid Storage and Console servers**
  - For production, should run in a network visible to the Cloud Foundry applications
  - For “trying it out”, the N|Solid Storage and Console servers can be run as Cloud Foundry applications w/caveats:
    - Historical data and settings cannot be persisted
    - Requires `cf ssh` to be enabled
  - Coming “Some Day” - provision and run N|Solid servers when creating an nsolid-storage service

# Demo

# References

# References

during webinar, post questions to Twitter with hashtag: #needtonode

- **These Slides and Samples**
  http://pmuellr.github.io/slides/
- **N|Solid Buildpack for Cloud Foundry**
  https://github.com/nodesource/nsolid-buildpack-cf
- **N|Solid Samples for Cloud Foundry**
  https://github.com/nodesource/nsolid-cf
- **Node Package `cfenv`**
  https://www.npmjs.com/package/cfenv
- **N|Solid Console demo (available during demo section)**
  https://pjm-nsolid-console.cfapps.io/

# Thank you.

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