

# Building Ingress From Concept to Connection

**Scott McAllister**

Principal Developer Advocate

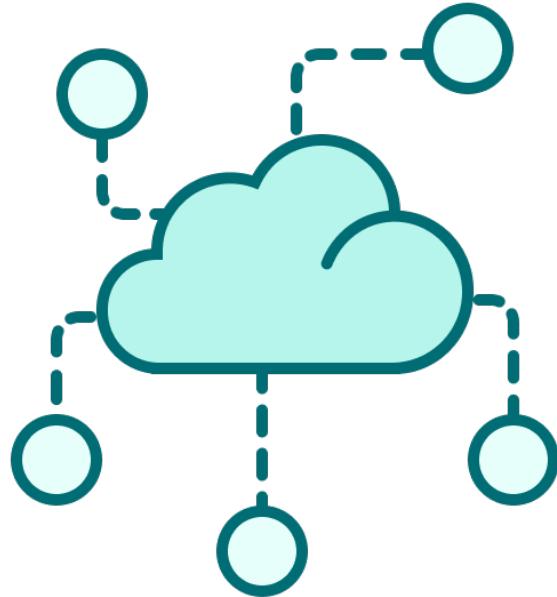
**ngrok**



**kubernetes**

# Trade-offs





**Your service**

# Before ngrok

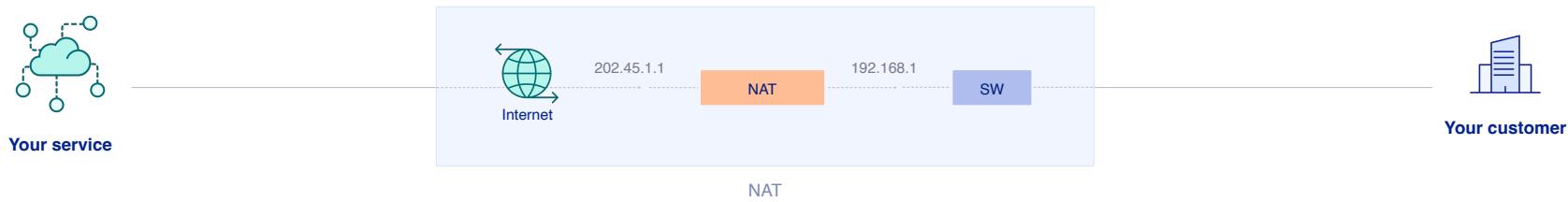


Your service



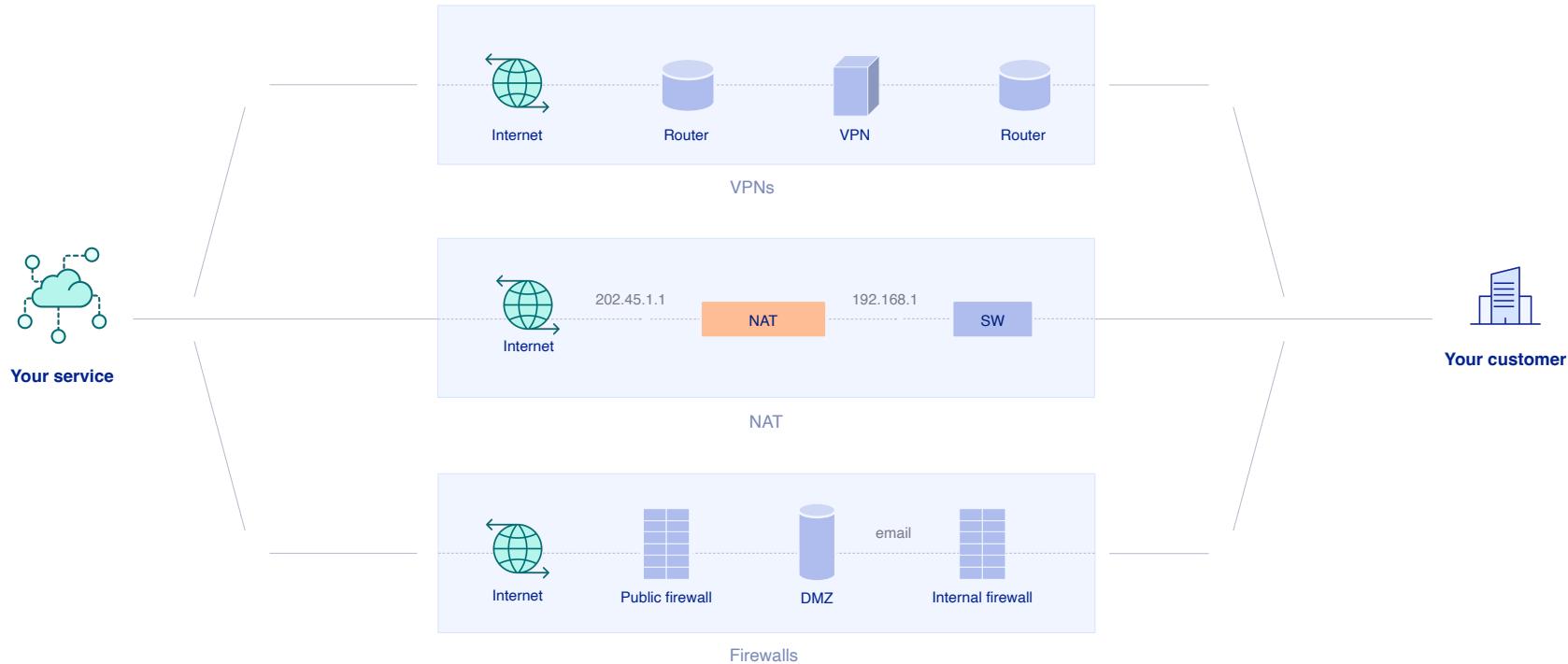
Your  
customer

# Before ngrok



**ngrok**

# Before ngrok



ngrok

# After ngrok



Your service



Your customer

**ngrok**

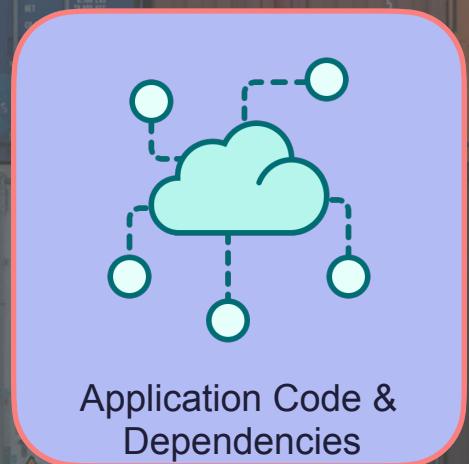
# ngrok CLI

```
> ngrok http 80 --domain="stirtrek-2023.ngrok.dev"

Session Status      online
Account            Scott McAllister (Plan: Pro)
Version             3.2.2
Region              Europe (eu)
Latency             235ms
Web Interface       http://127.0.0.1:4040
Forwarding          https://stirtrek-2023.ngrok.dev
```

“Developers are still being forced to work  
with the **assembly language** of  
**networking**”

– *Alan Shreve, Founder of ngrok*



ngrok

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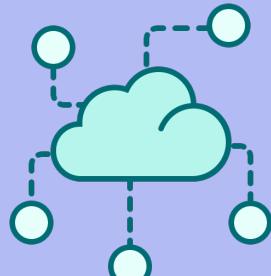
# Container



Application Code &  
Dependencies

Pod

Container



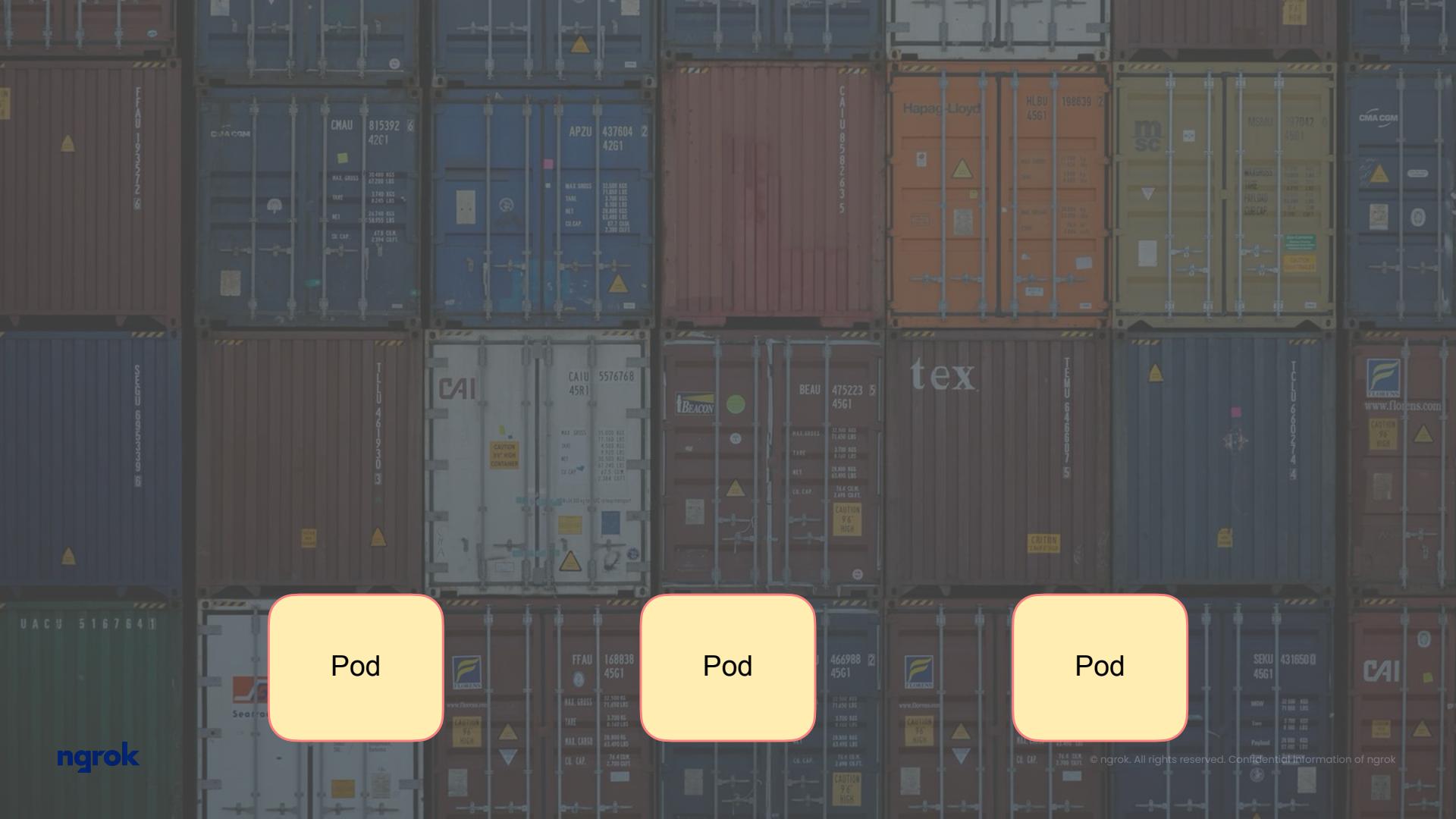
Application Code &  
Dependencies

ngrok

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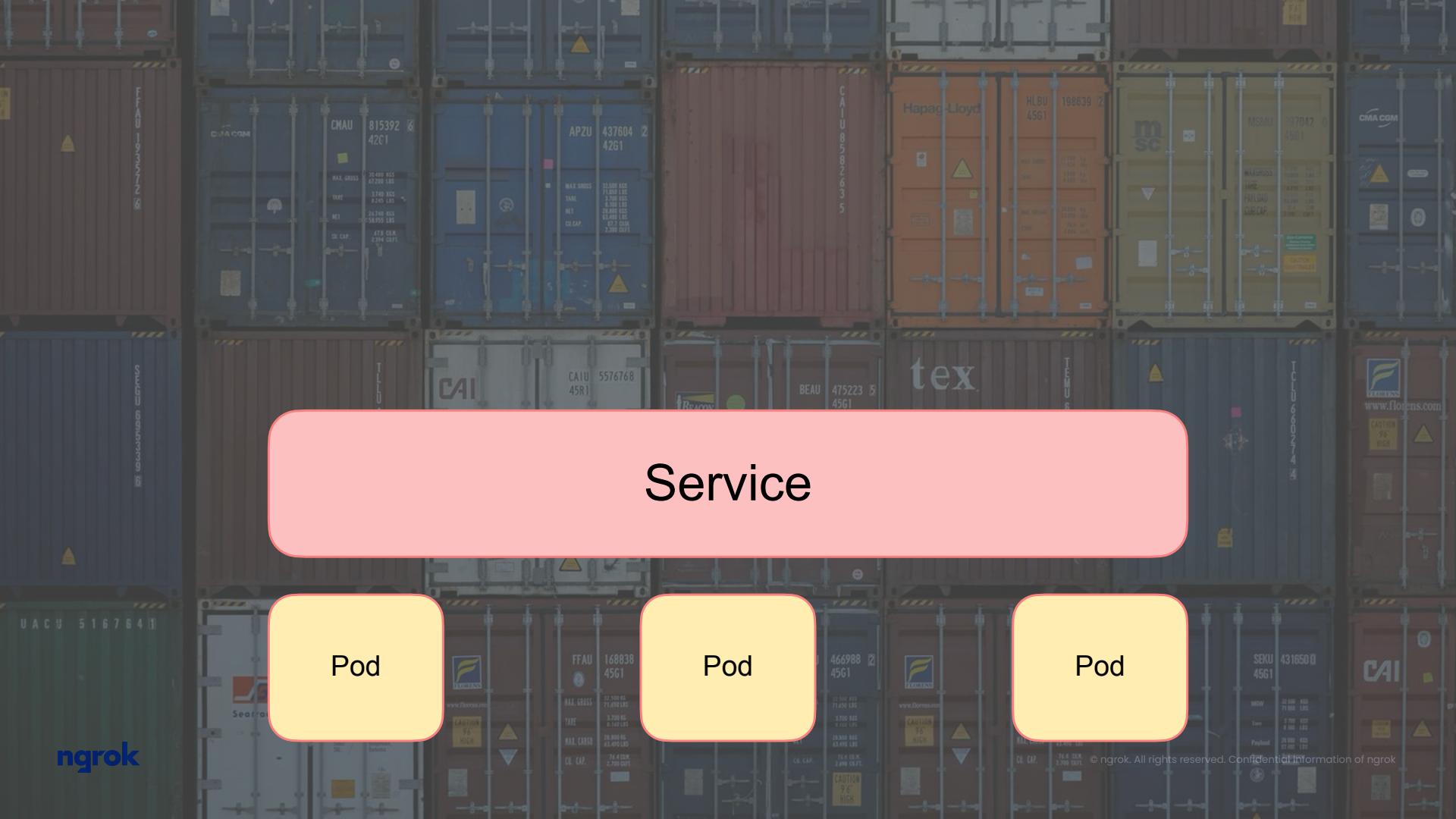
# Pod



Pod

Pod

Pod

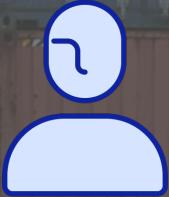


# Service

Pod

Pod

Pod



# Ingress

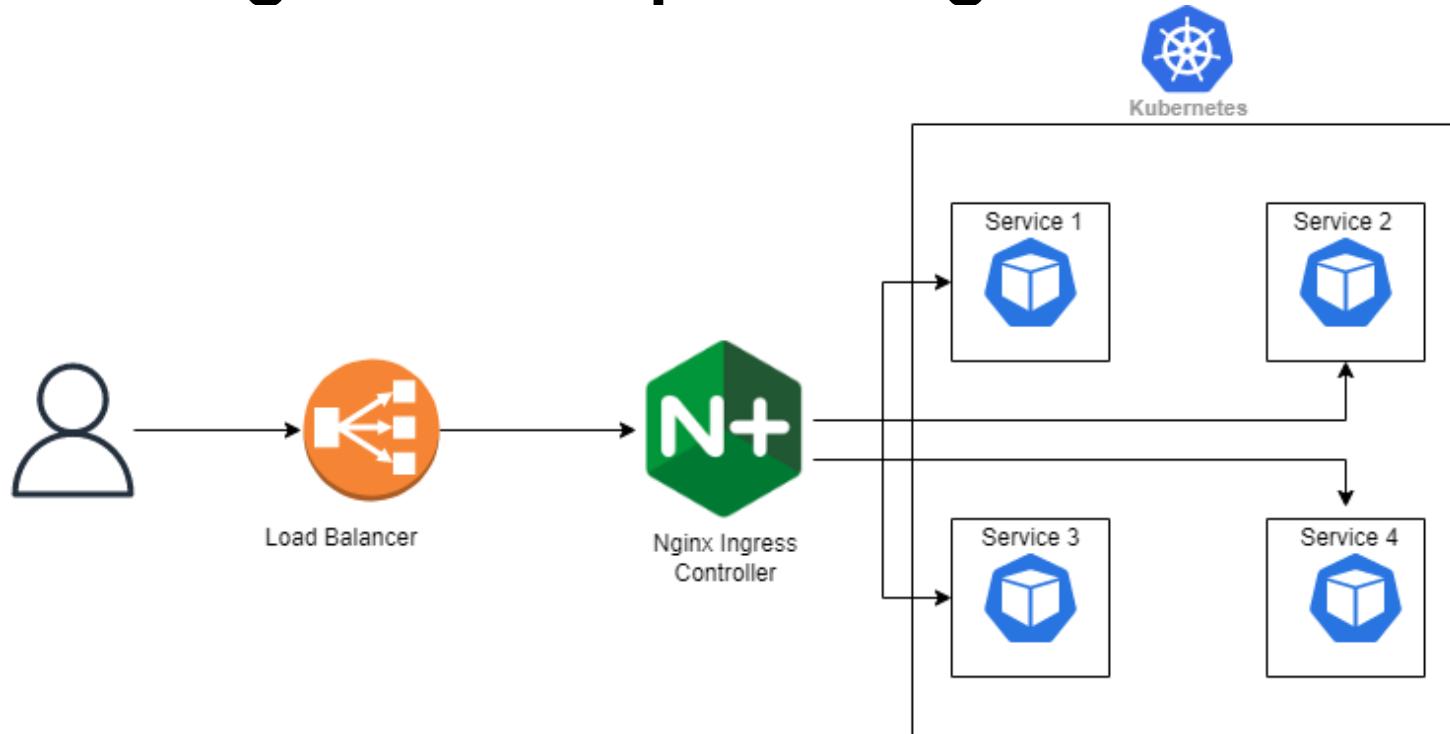
# Service

Pod

Pod

Pod

# Typical Ingress Set Up with Nginx



Source: <https://www.checkmateq.com/blog/ingress-controller/>

A photograph of a person walking away from the camera on a paved path that leads towards a bright sunset over a lake and mountains. The scene is framed by foliage in the foreground.

# ngrok's Journey

ngrok

# Trade-off

Monolith or Microservices



# Lego Monolith

Media

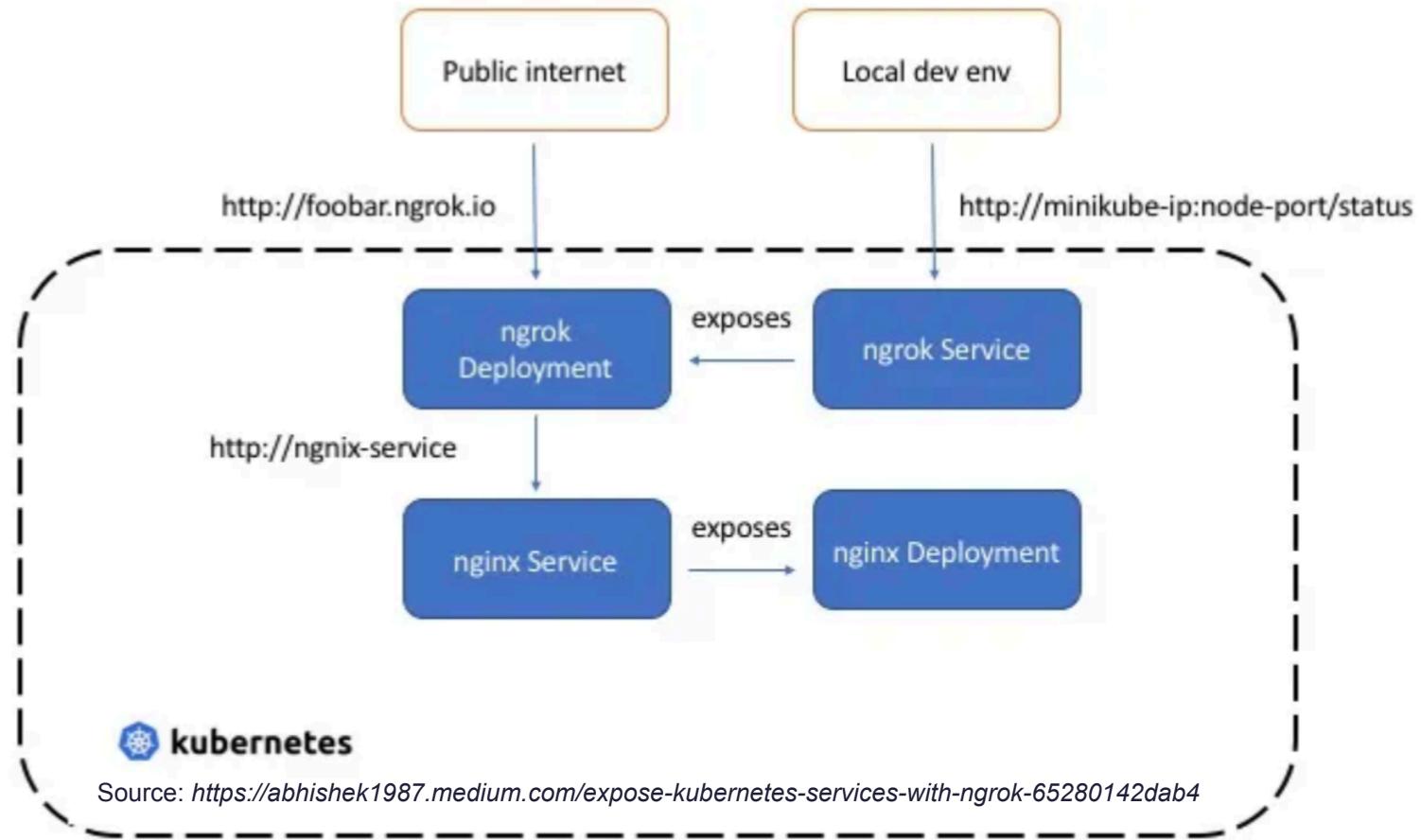
Metrics

Web

Auth

API

# ngrok as a Service in Kubernetes



GOOD  
SPARK  
GARAGE  
.COM



ngrok

## Safety

1 volt → threshold of feeling tingling

5 volts → Maximum current level human can withstand

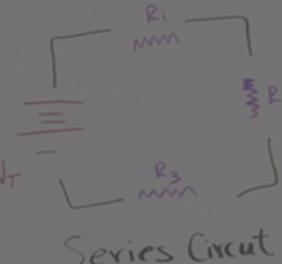
## ② Basic Circuits

Current - equals flow and is measured in amps.

Voltage - is the force and it is labeled as Volts

Resistance - is the opposition and is measured in Ohms ( $\Omega$ )

## ③ Circuit theory



# Architecture

## ④ Digital logic

Or logic

Inverter

XOR

XNOR

NAND

X = A + B

And logic

Y = A · B

NOR

X = A · B

X = A + B

X = A · B

X = A + B

X = A · B

X = A + B

X = A · B

X = A + B

X = A · B

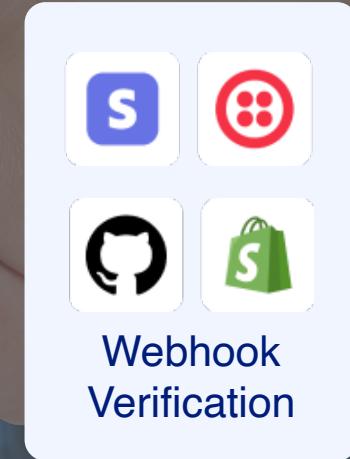
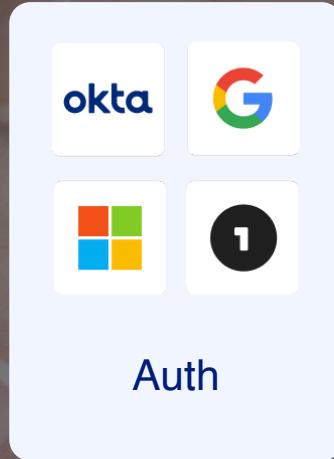
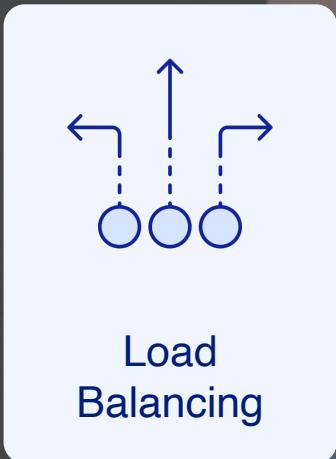
X = A + B

Idiomatic API

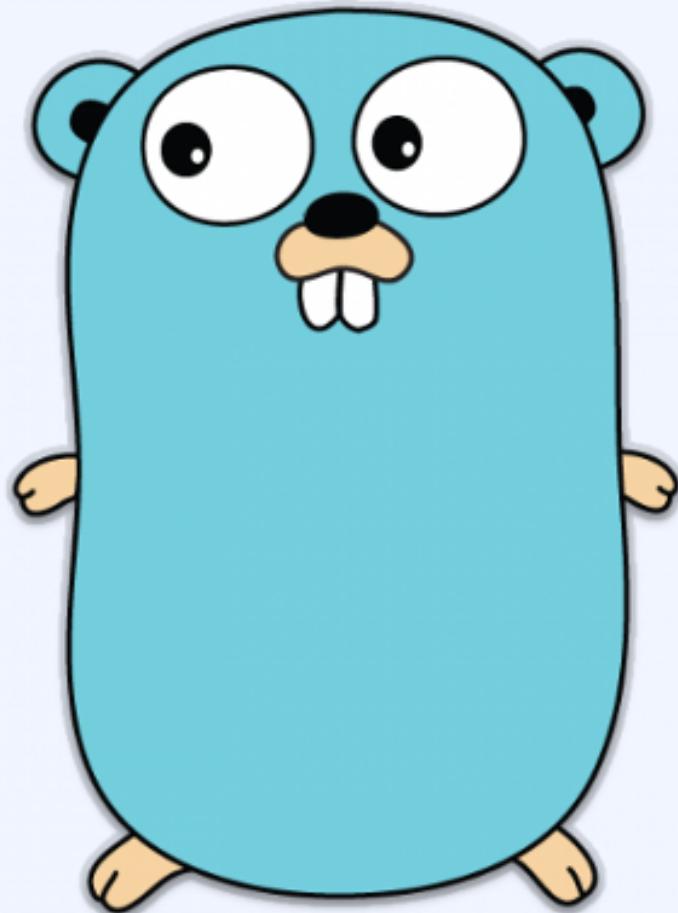
Seamless Kubernetes integration



# Trusted Infrastructure



**ngrok**

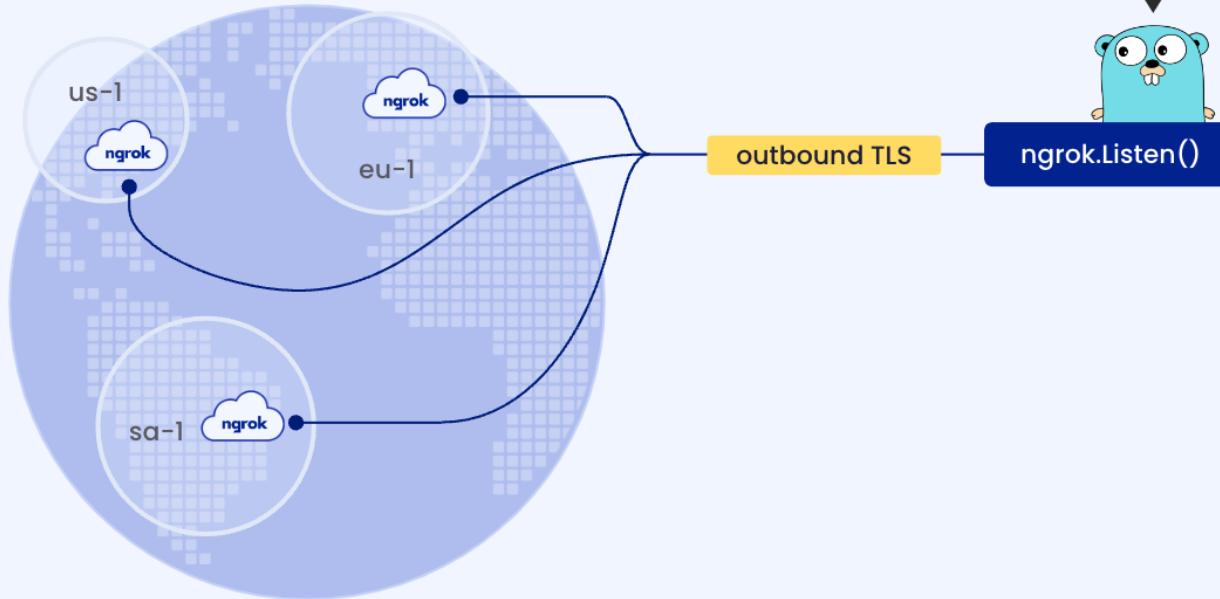


**ngrok**



ngrok

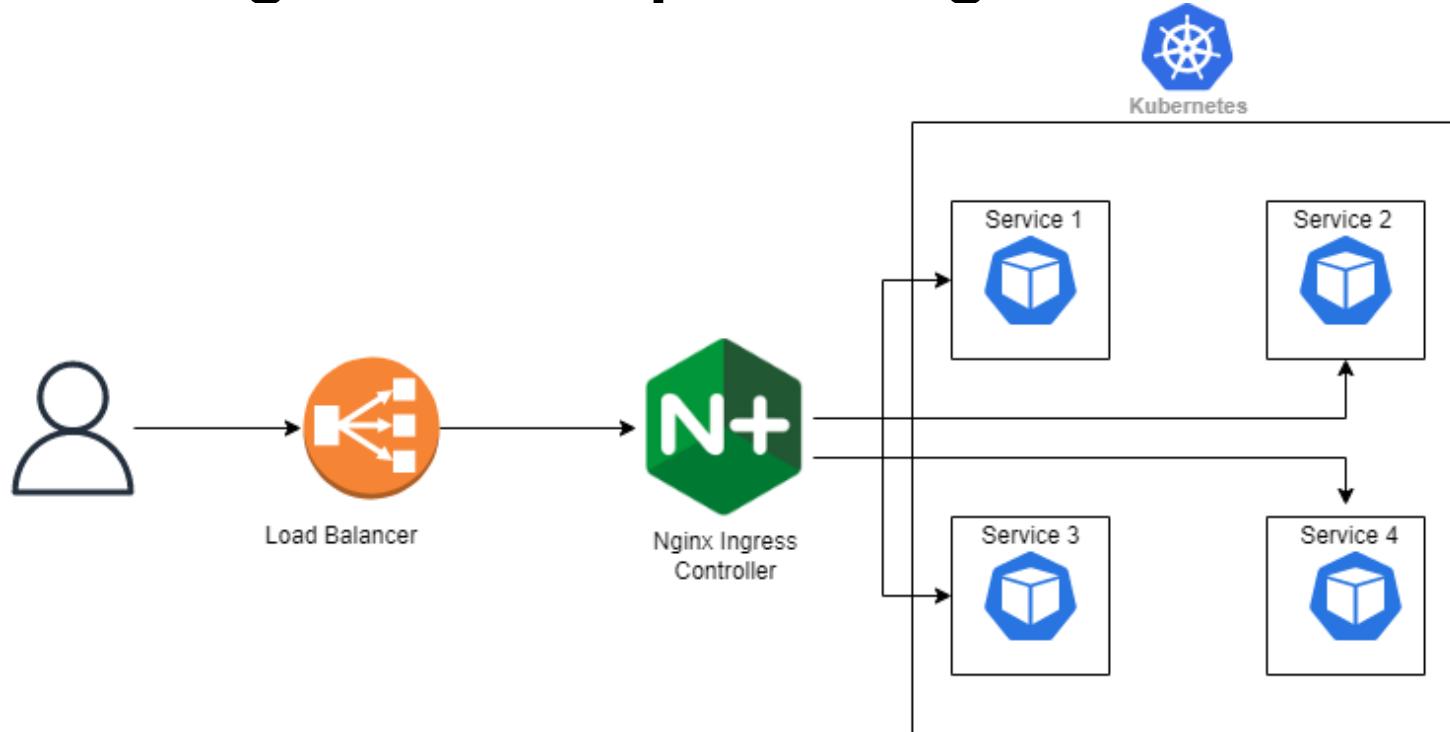
```
ngrok.Listen(ctx, config.HTTPEndpoint(  
    config.WithDomain("my-app.ngrok.io"),  
    config.WithAllowCIDRString("192.30.252.0/22"),  
    config.WithCircuitBreaker(0.8),  
    config.WithOAuth("github"),  
))
```



<https://myapp.ngrok.io>

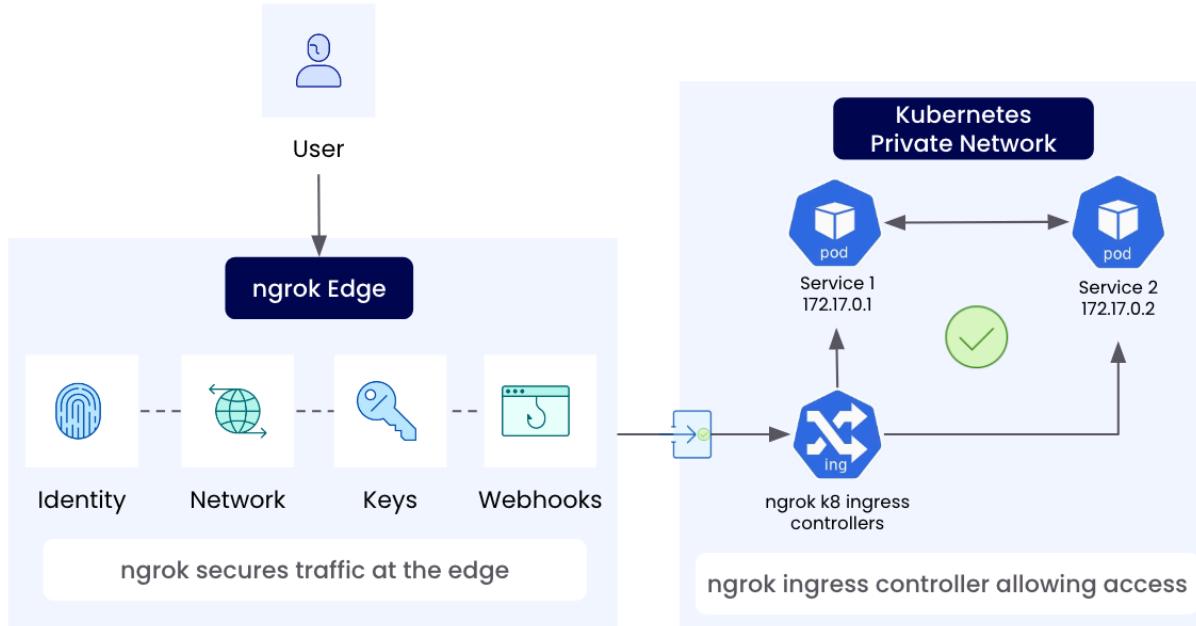
ngrok

# Typical Ingress Set Up with Nginx



Source: <https://www.checkmateq.com/blog/ingress-controller/>

# ngrok Ingress Controller: our journey



# Development

## Controller Runtime

*Set of standard Go libraries for building Kubernetes Controllers*

## Kubebuilder

*Framework for building Kubernetes APIs using custom resource definitions (CRDs)*

# Trade-offs

## Ingress Controller vs Gateway API Spec

Widely used specification

Community already knows how to use

It's what we use internally

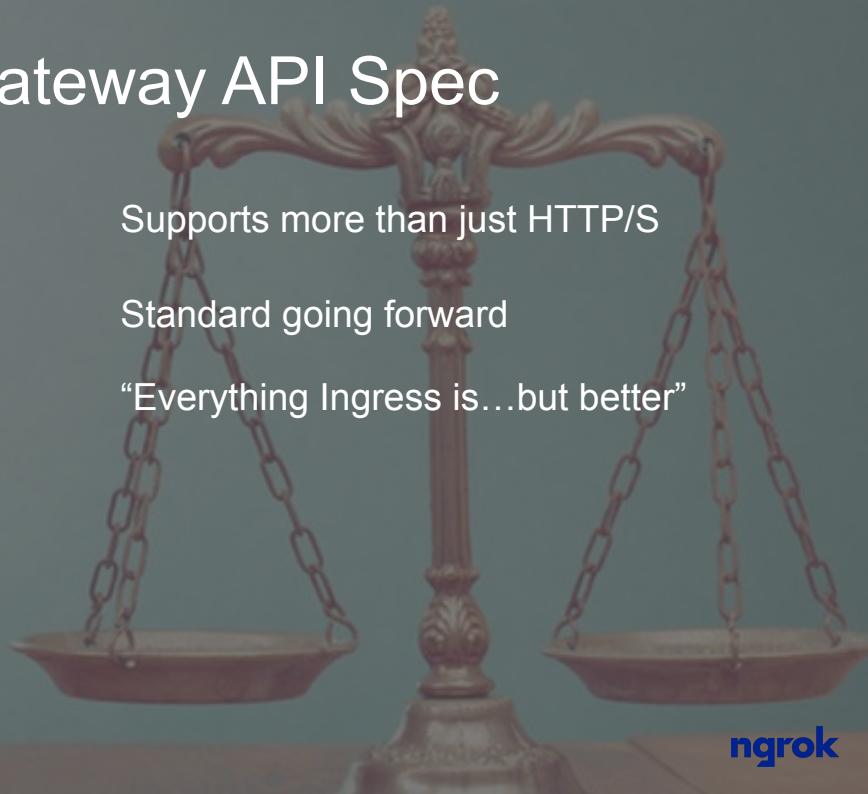
Most Gateway implementations still in Alpha

Gateway specs still in flux

Supports more than just HTTP/S

Standard going forward

“Everything Ingress is...but better”



# Current Status

Project Status: Beta

Using Internally on Infrastructure Cluster  
For CI Processes

# Current Status

Seeking Feedback!



# What's Next

Publicly Release v.1

Support Gateway API Spec

# Resources

## Controller Runtime

<https://github.com/kubernetes-sigs/controller-runtime>

## Kubebuilder

<https://book.kubebuilder.io/>

## ngrok Ingress Controller for Kubernetes

<https://github.com/ngrok/kubernetes-ingress-controller>

## Kubernetes Ingress Controller

<https://kubernetes.io/docs/concepts/services-networking/ingress-controllers/>

## Kubernetes API Gateway

<https://gateway-api.sigs.k8s.io/>

ngrok

# Scott McAllister

Speaker, Writer, Coder

**ngrok**



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# Thank you

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