



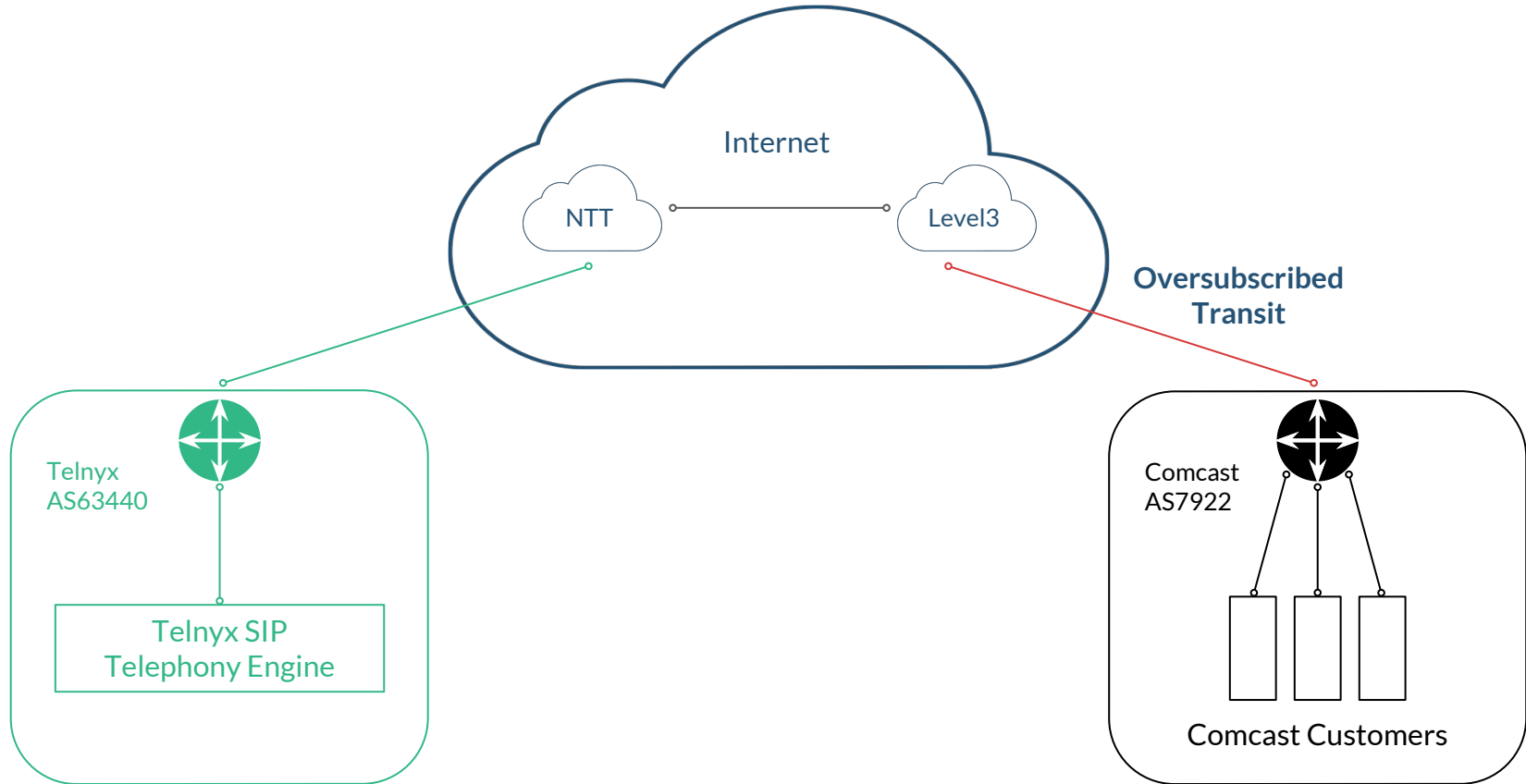
May 2017



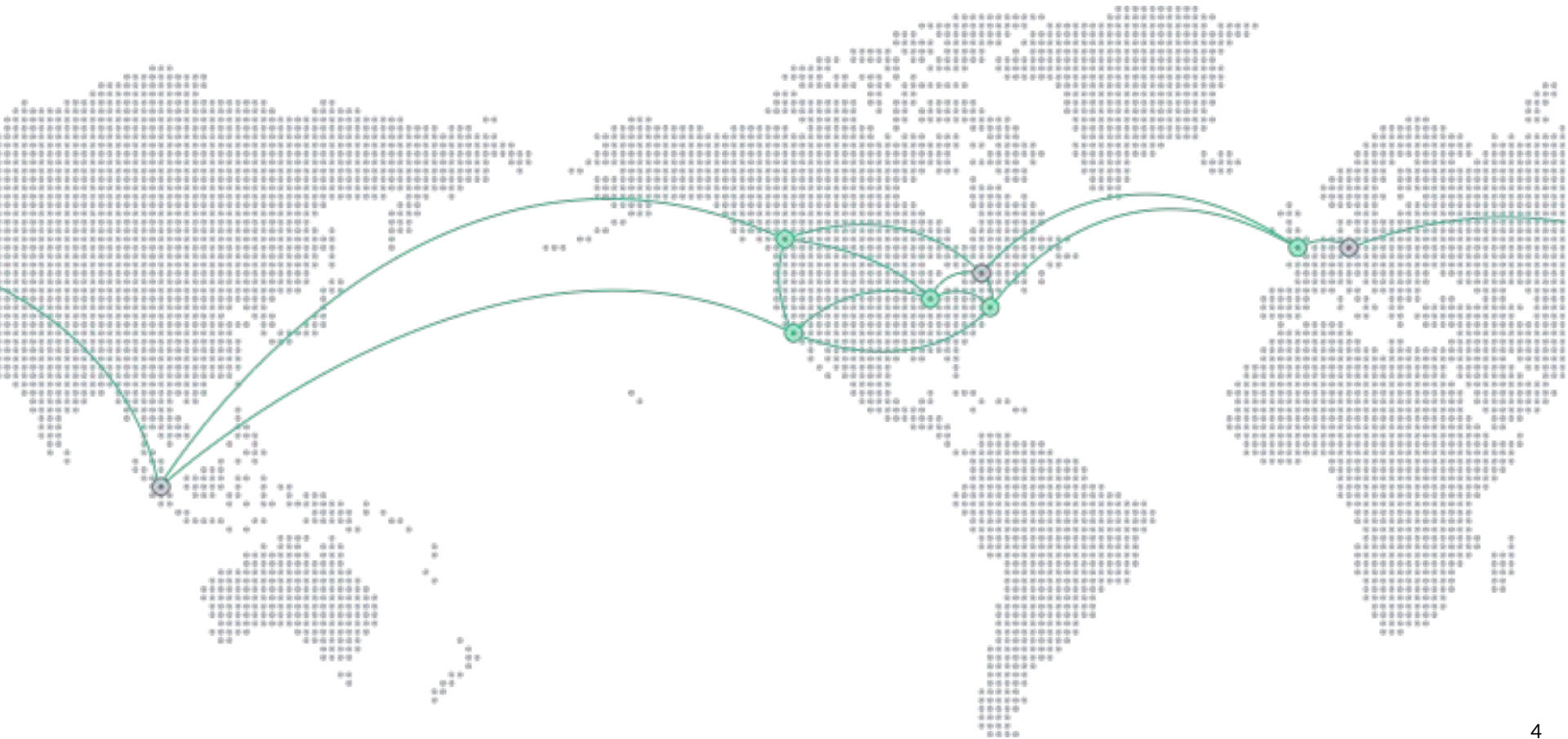
# Real Time Communications over the Internet is not a solved problem



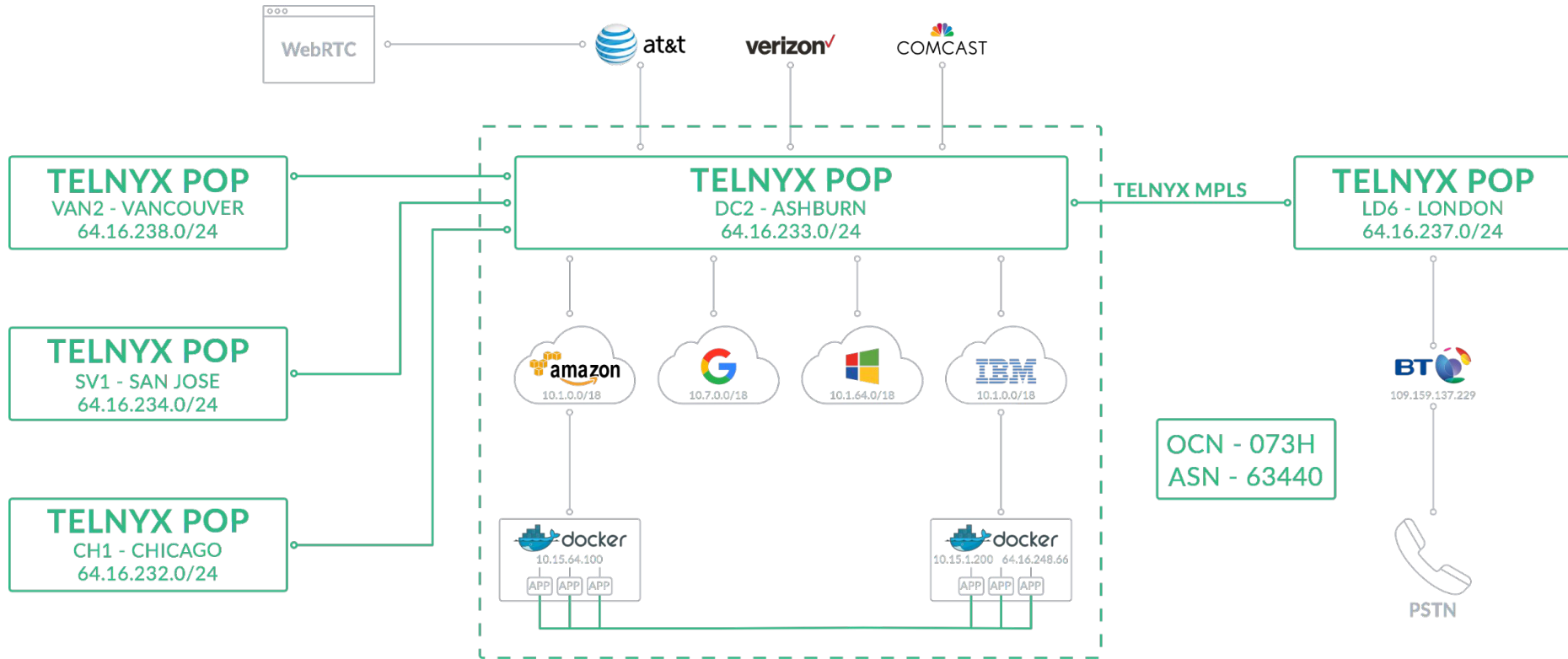
# Access via Transit



# We've built a phone company with the Internet in mind



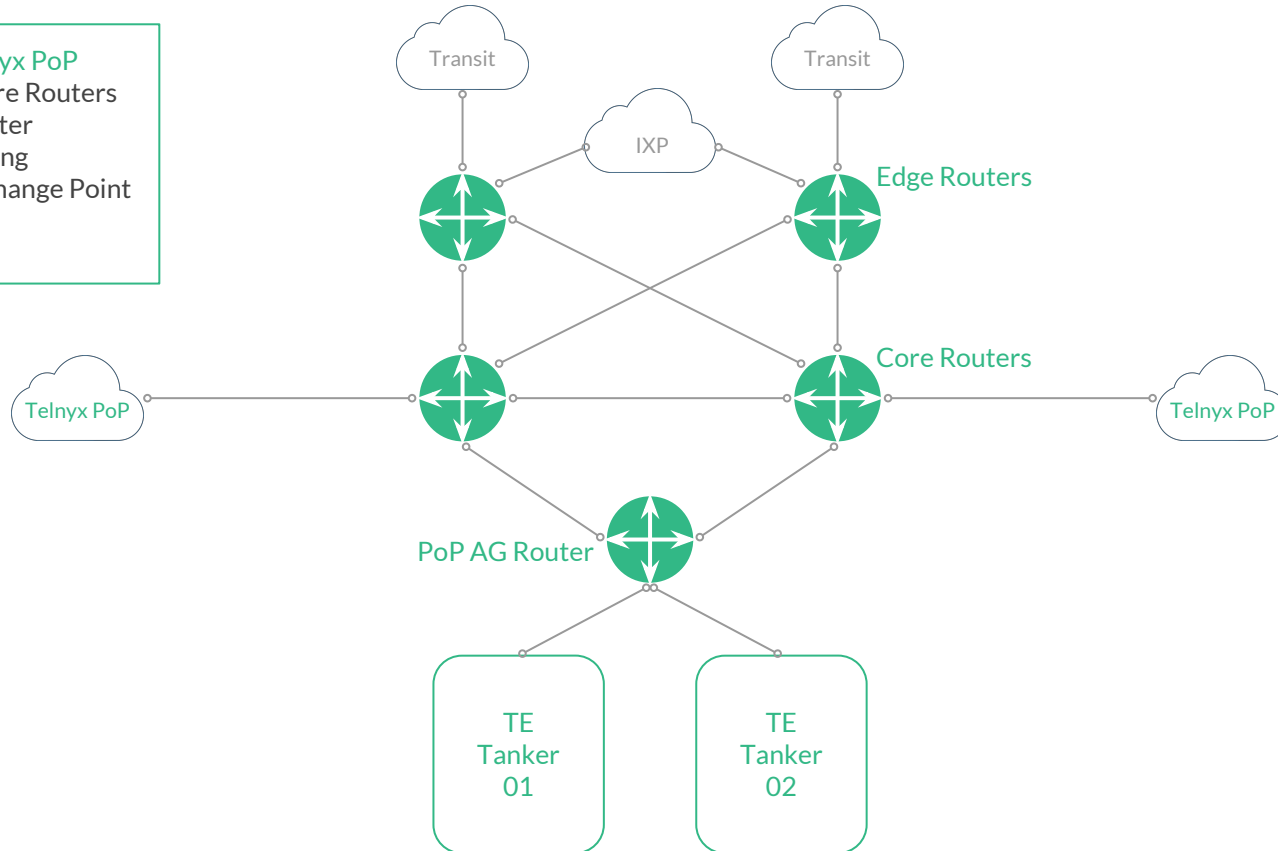
# Our infrastructure is designed to displace the PSTN, not bolt onto it



# Telnyx Point of Presence (PoP)

## Standard Telnyx PoP

- Edge and Core Routers
- POP AG Router
- Transit Peering
- Internet Exchange Point
- Backbone
- TE Tankers



# Telnyx PoP

Standard Telnyx PoP  
- Edge and Core Routers



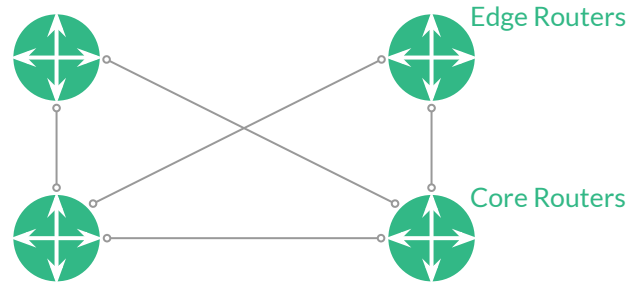
Edge Routers



Core Routers

# Telnyx PoP

Standard Telnyx PoP  
- Edge and Core Routers

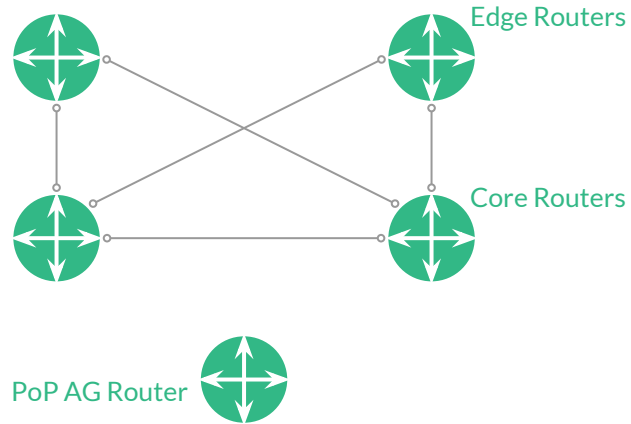




# Telnyx PoP

## Standard Telnyx PoP

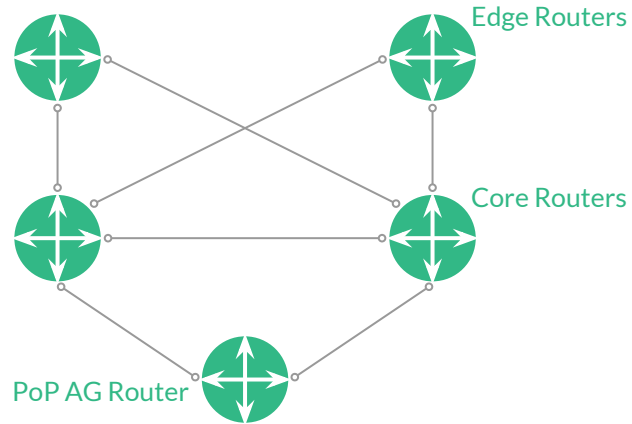
- Edge and Core Routers
- PoP AG Router



# Telnyx PoP

## Standard Telnyx PoP

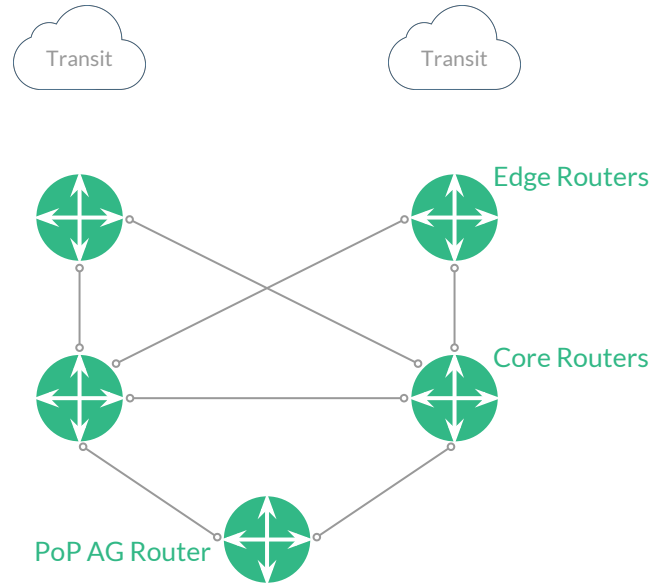
- Edge and Core Routers
- PoP AG Router



# Telnyx PoP

## Standard Telnyx PoP

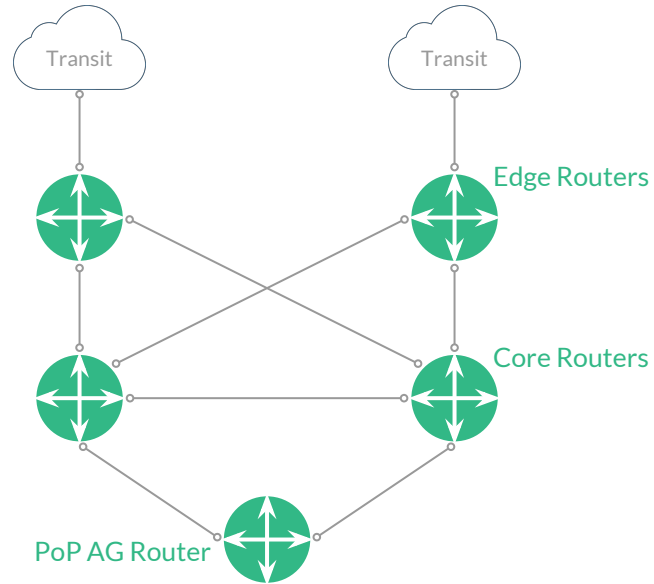
- Edge and Core Routers
- PoP AG Router
- Transit Peering



# Telnyx PoP

## Standard Telnyx PoP

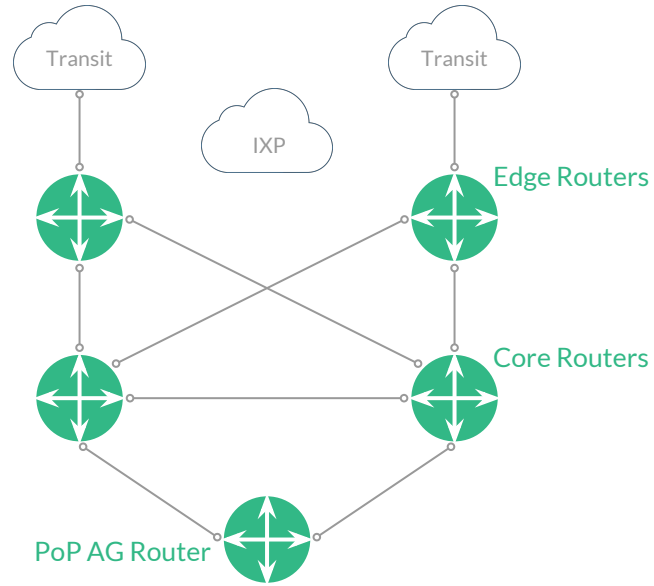
- Edge and Core Routers
- PoP AG Router
- Transit Peering



# Telnyx PoP

## Standard Telnyx POP

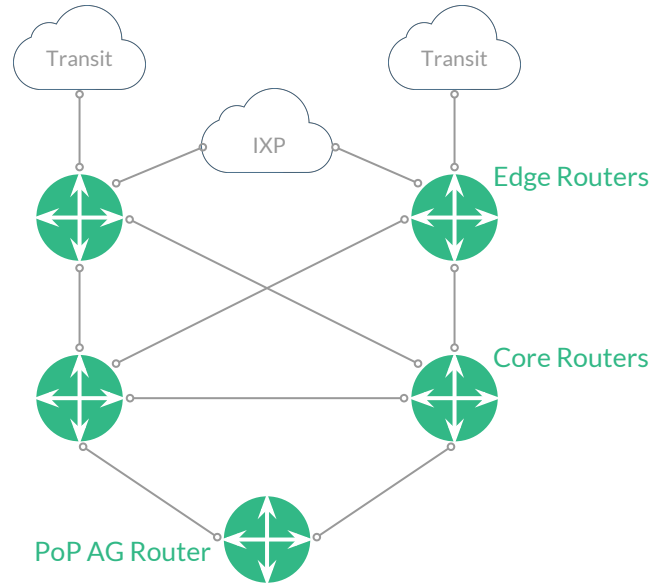
- Edge and Core Routers
- PoP AG Router
- Transit Peering
- Internet Exchange Point



# Telnyx PoP

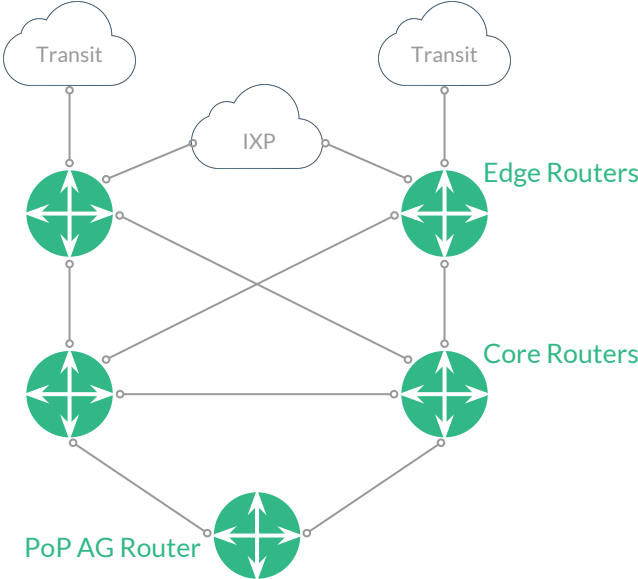
## Standard Telnyx PoP

- Edge and Core Routers
- PoP AG Router
- Transit Peering
- Internet Exchange Point



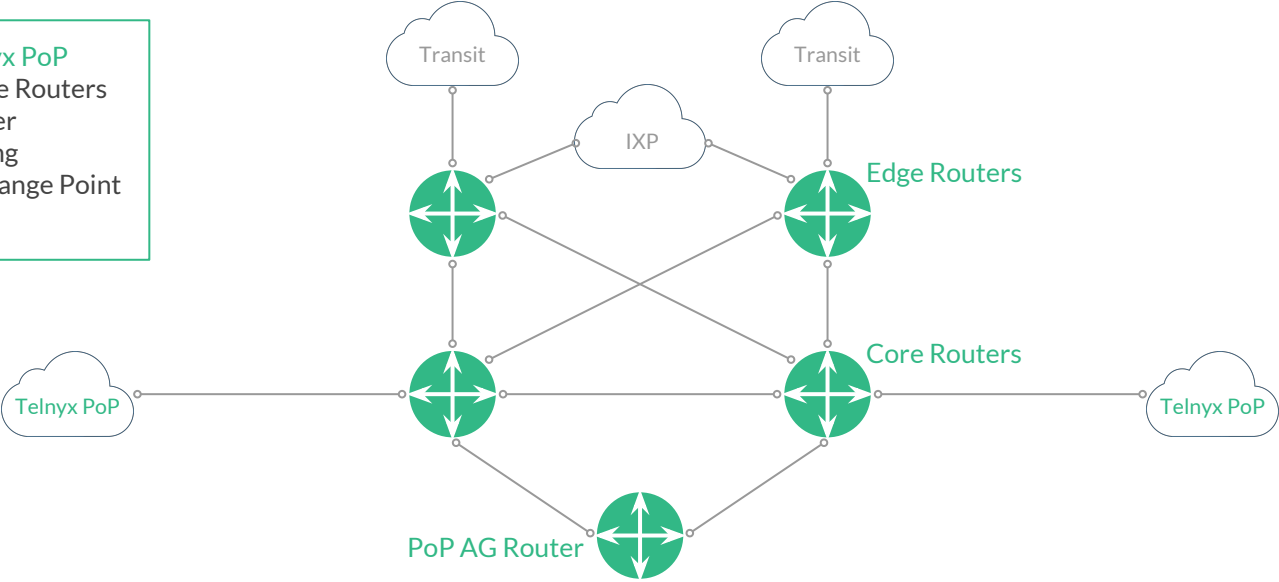
# Telnyx PoP

- Standard Telnyx PoP
- Edge and Core Routers
- PoP AG Router
- Transit Peering
- Internet Exchange Point
- Backbone



# Telnyx PoP

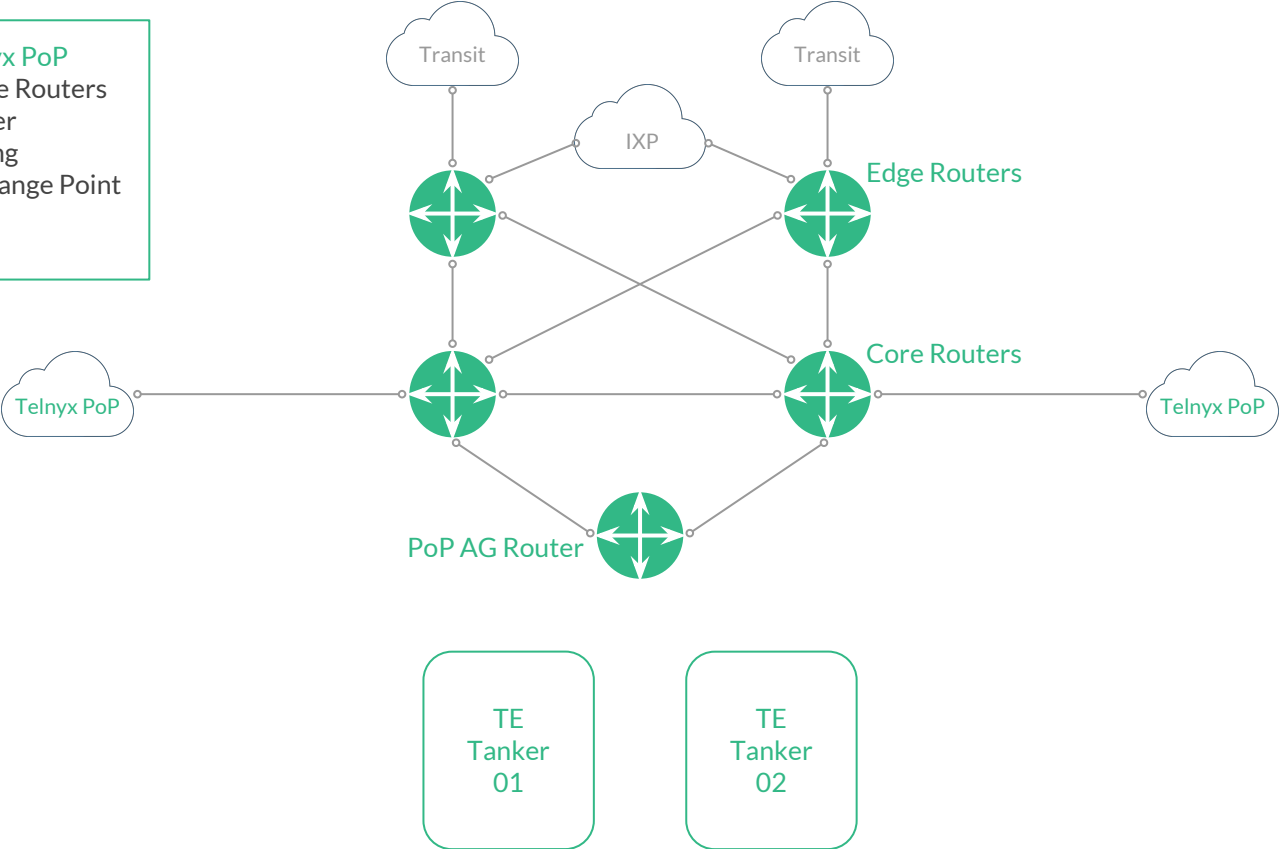
- Standard Telnyx PoP
- Edge and Core Routers
- PoP AG Router
- Transit Peering
- Internet Exchange Point
- Backbone





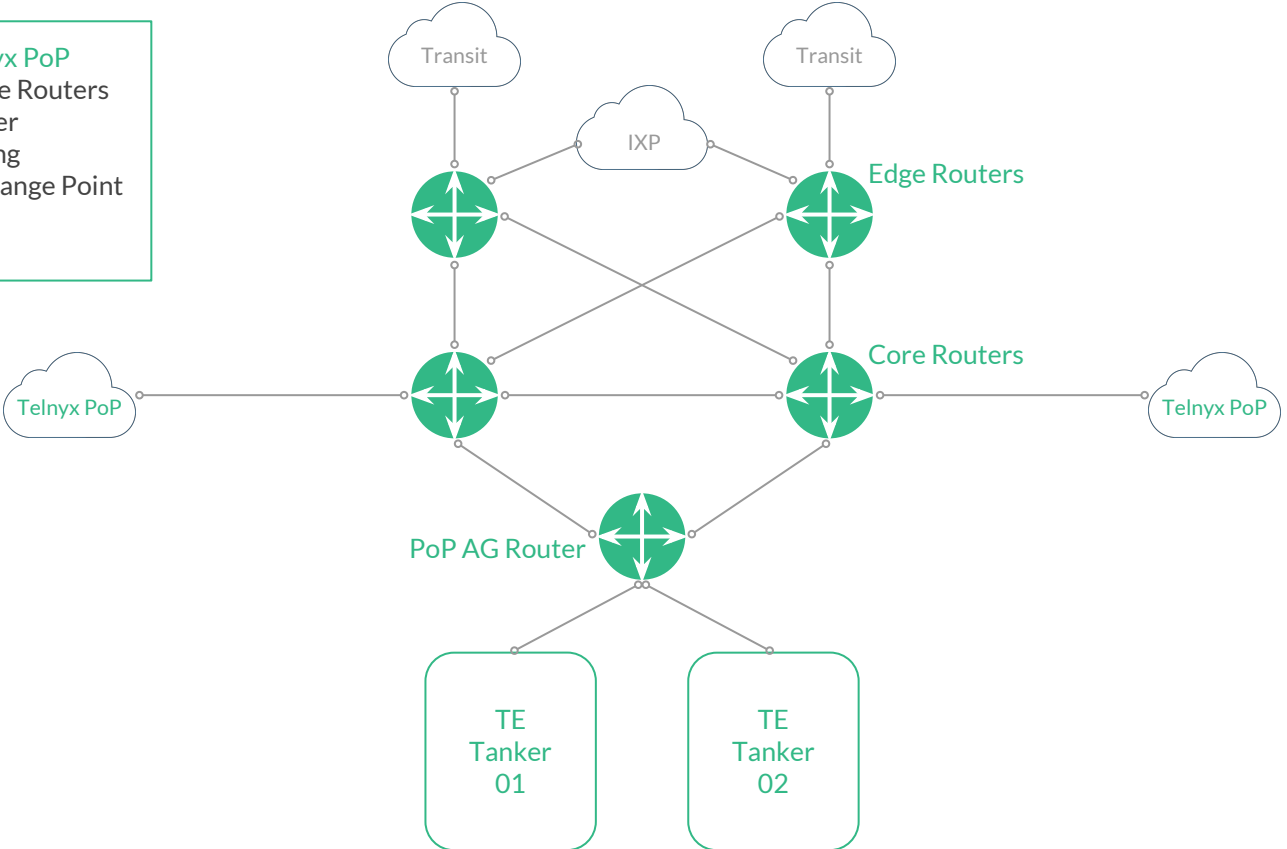
# Telnyx PoP

- Standard Telnyx PoP
- Edge and Core Routers
- PoP AG Router
- Transit Peering
- Internet Exchange Point
- Backbone
- TE Tankers

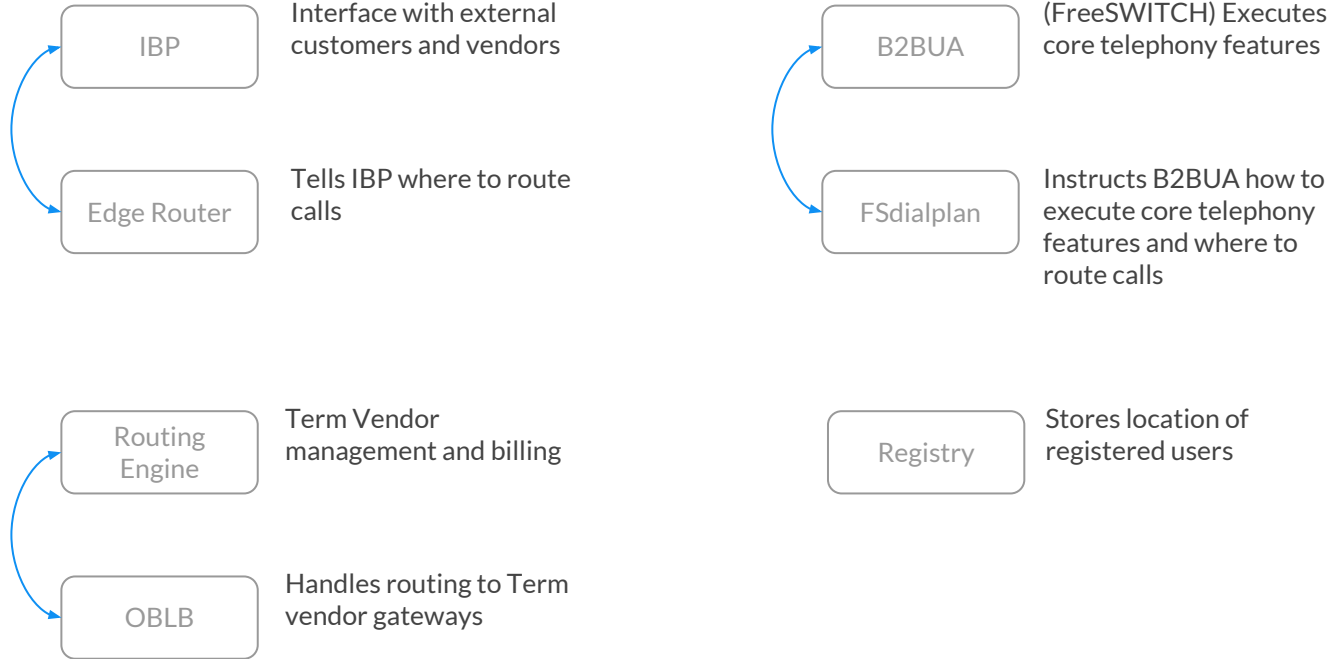


# Telnyx PoP

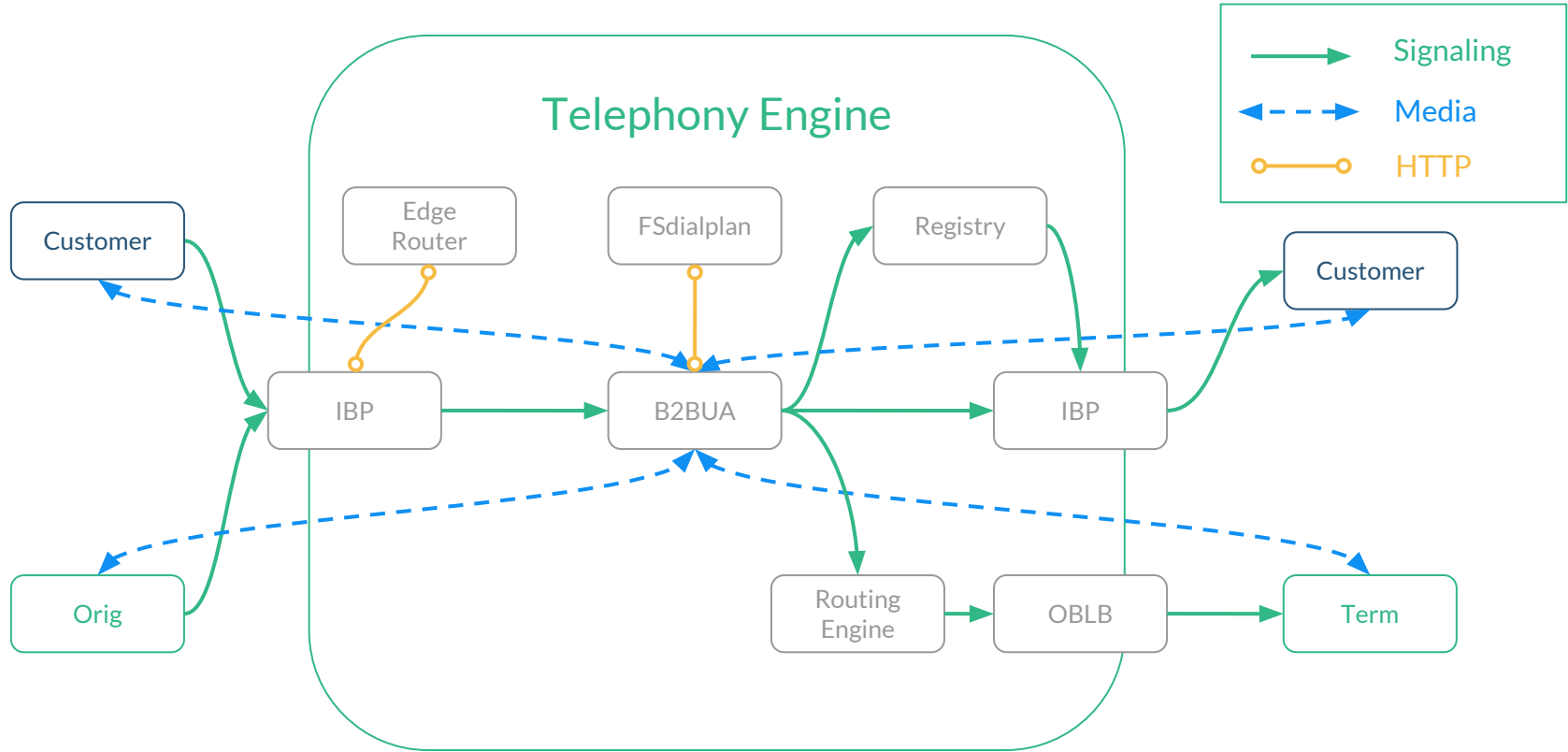
- Standard Telnyx PoP
- Edge and Core Routers
- PoP AG Router
- Transit Peering
- Internet Exchange Point
- Backbone
- TE Tankers



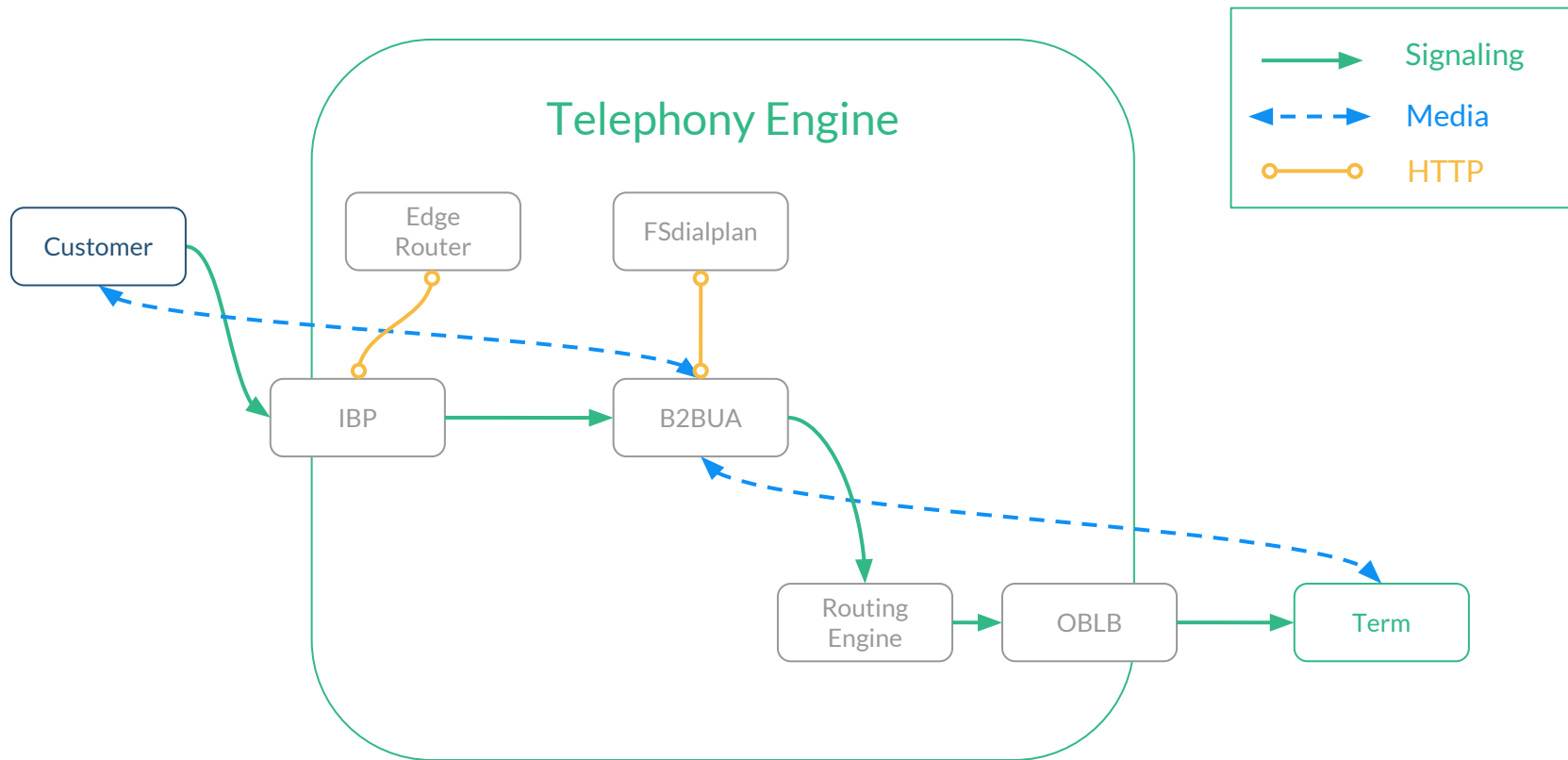
# Telephony Engine Components



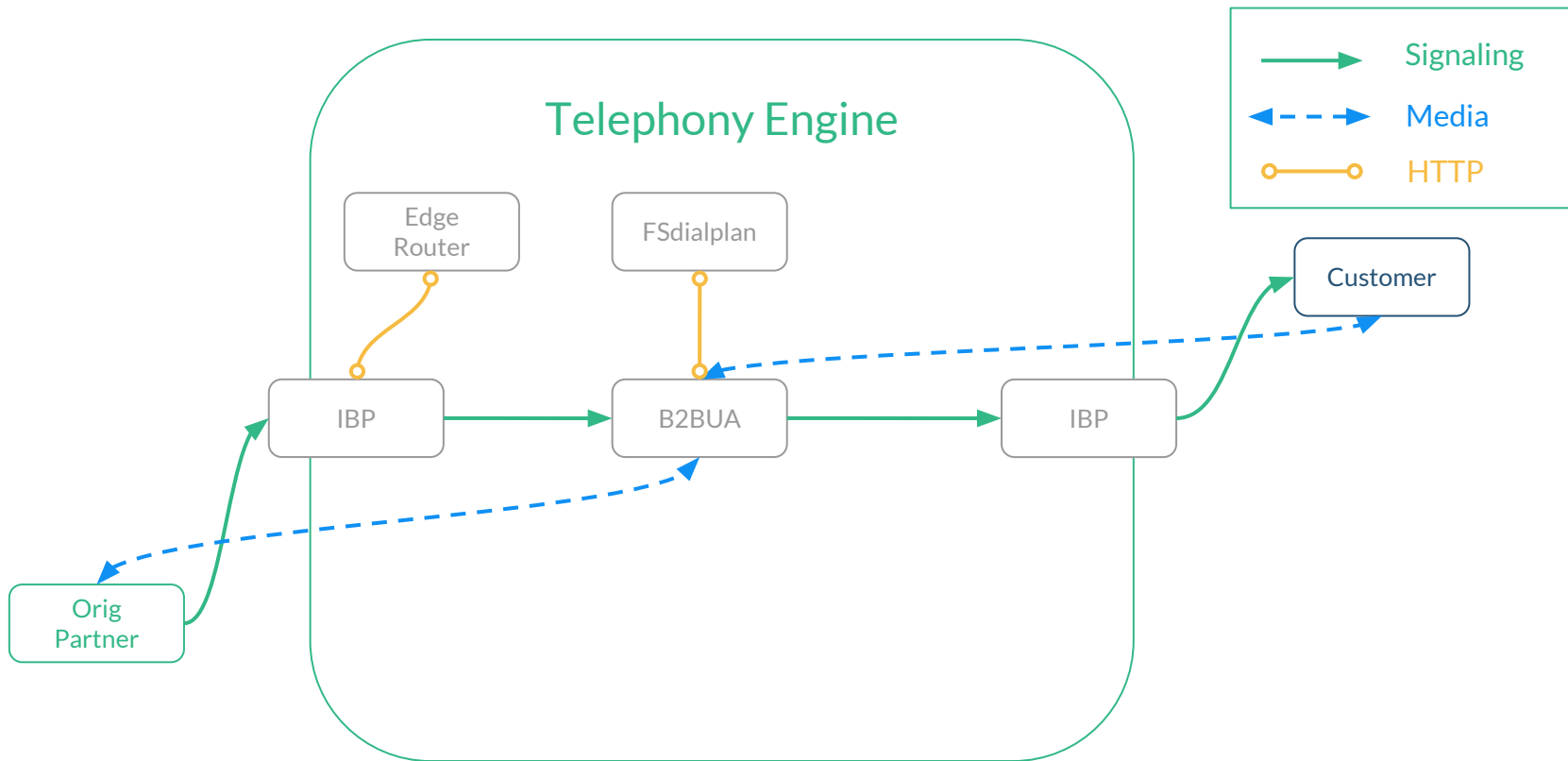
# Telephony Engine Architecture



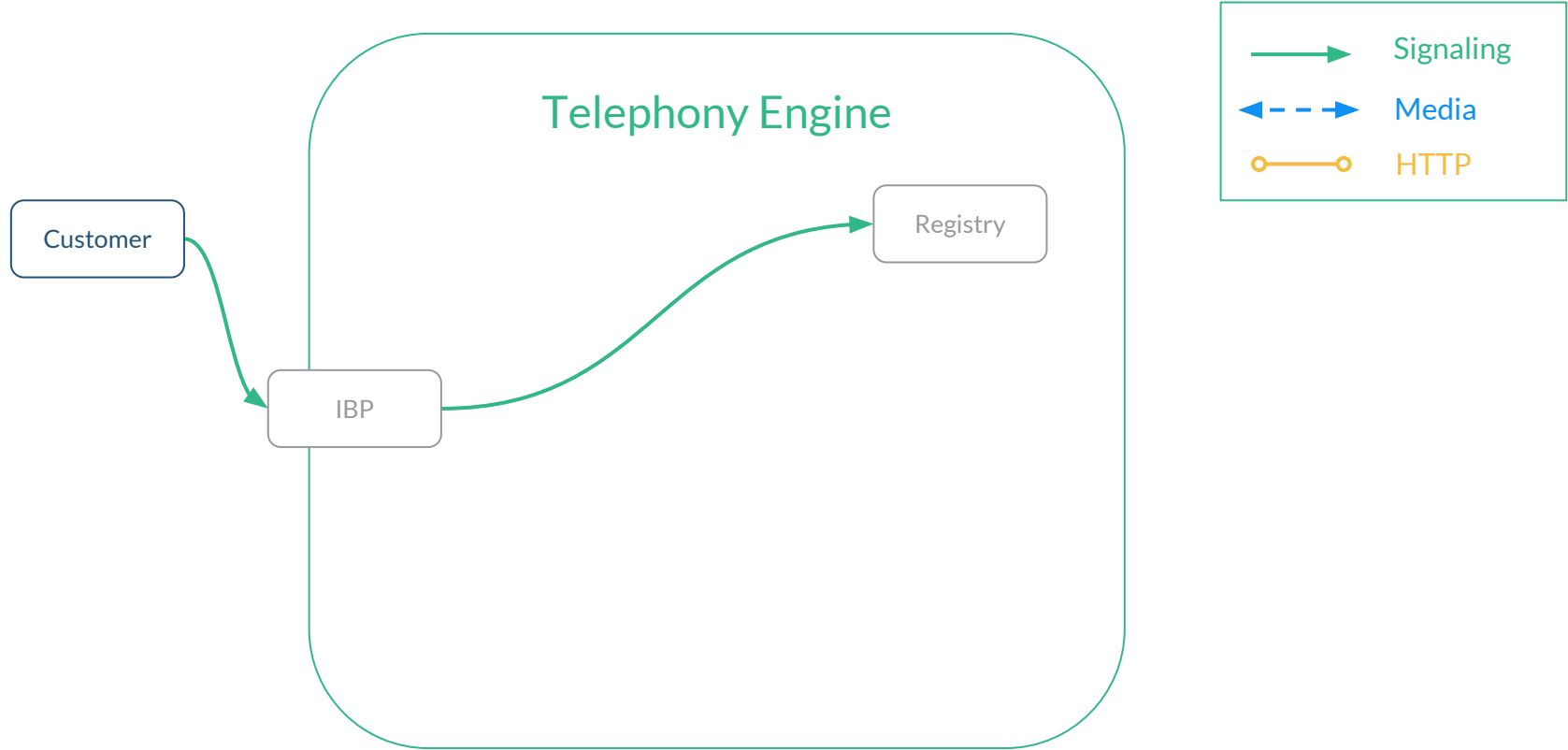
# Telephony Engine TERM Flow



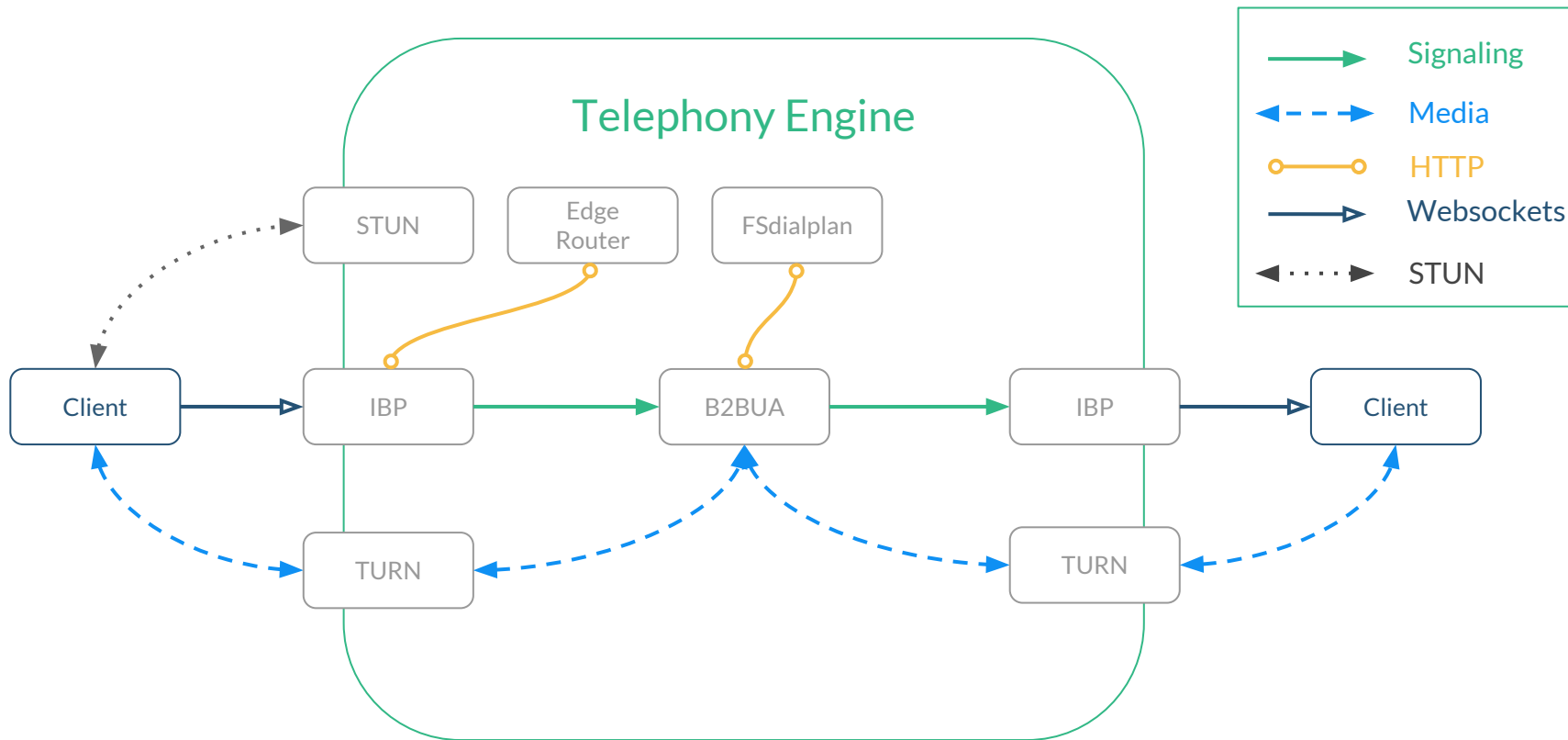
# Telephony Engine ORIG Flow (IP auth)



# Telephony Engine REG Flow

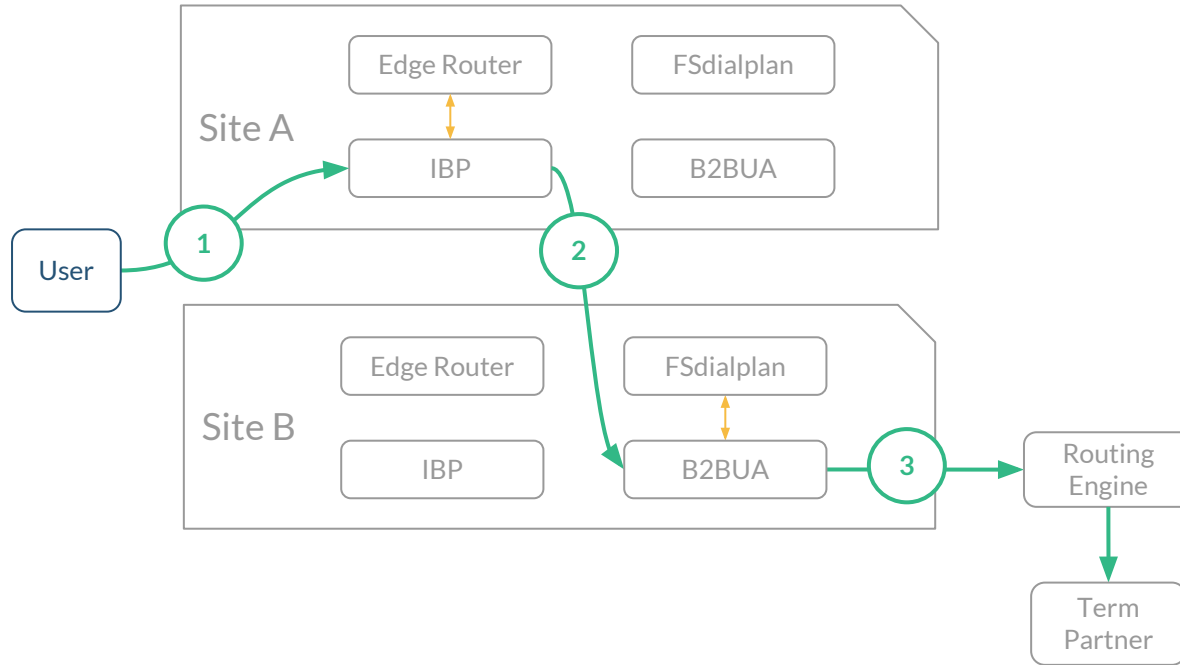


# Telephony Engine WebRTC Flow

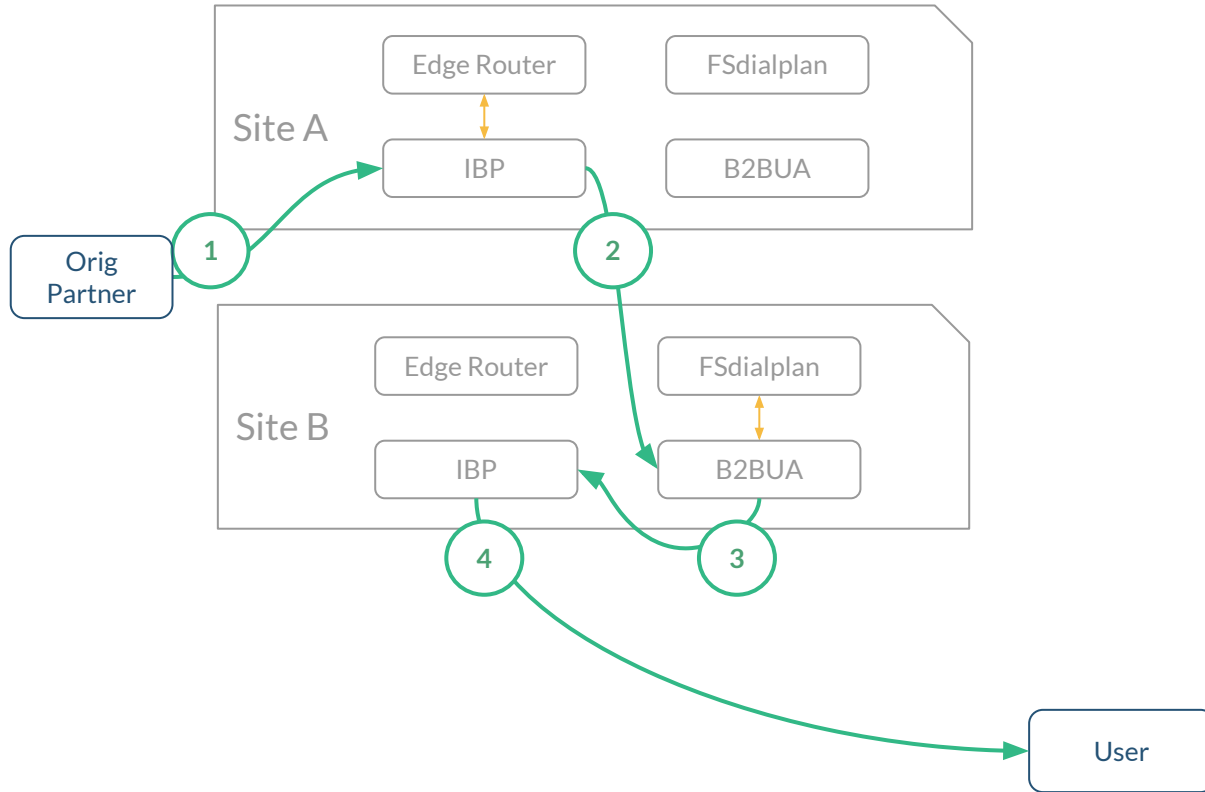




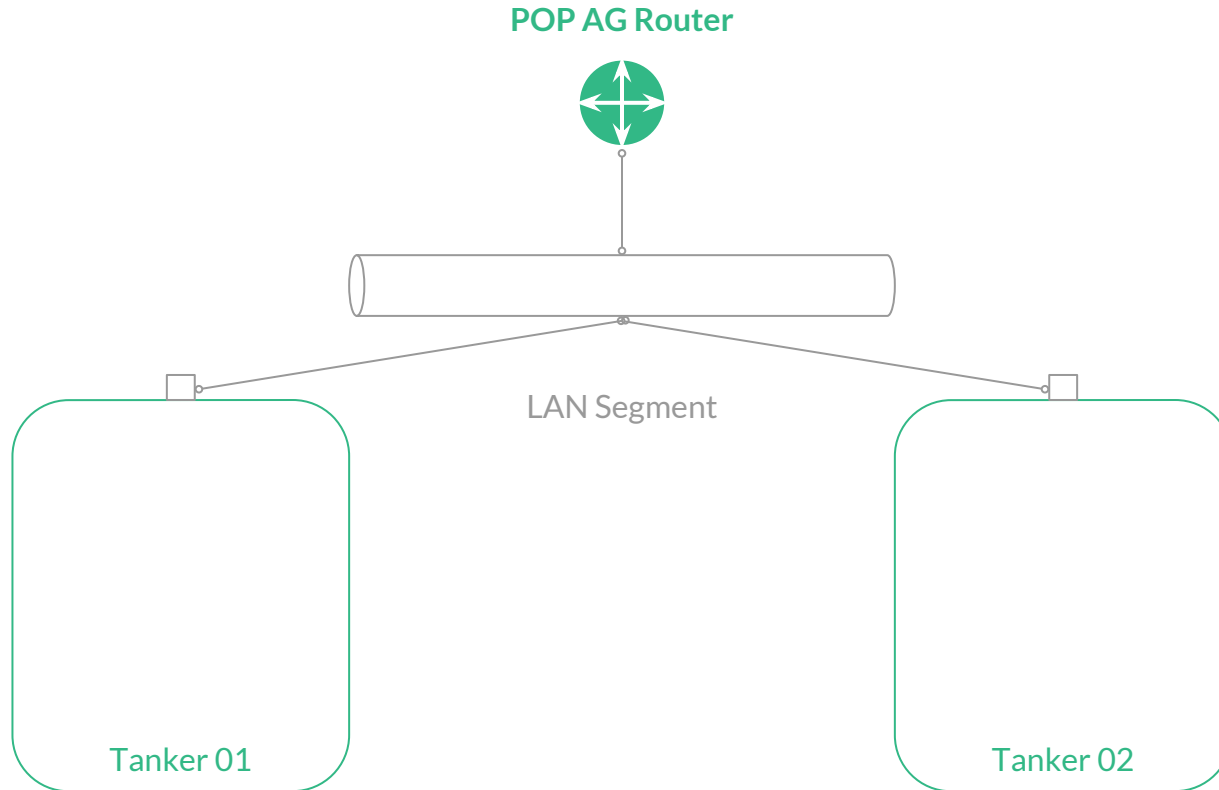
# Telephony Engine **TERM** anycast + multi-site



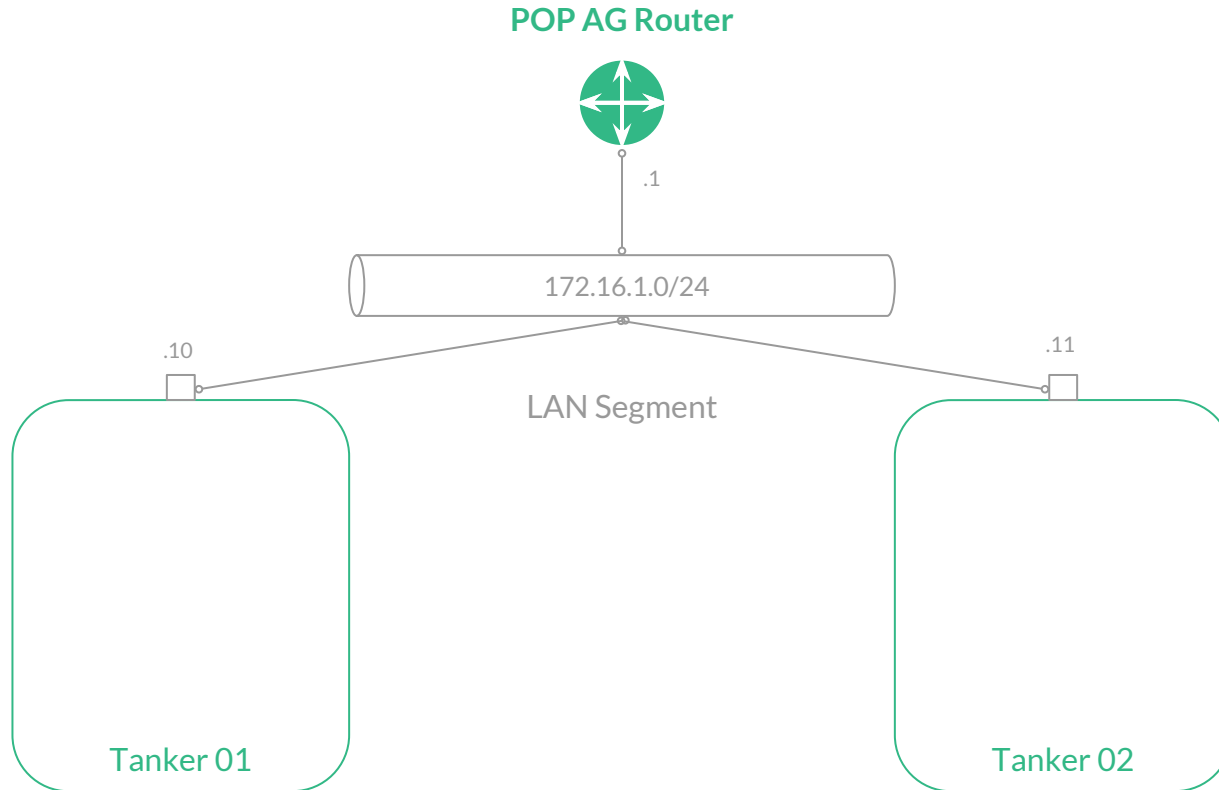
# Telephony Engine **ORIG** anycast + multi-site (IP auth)



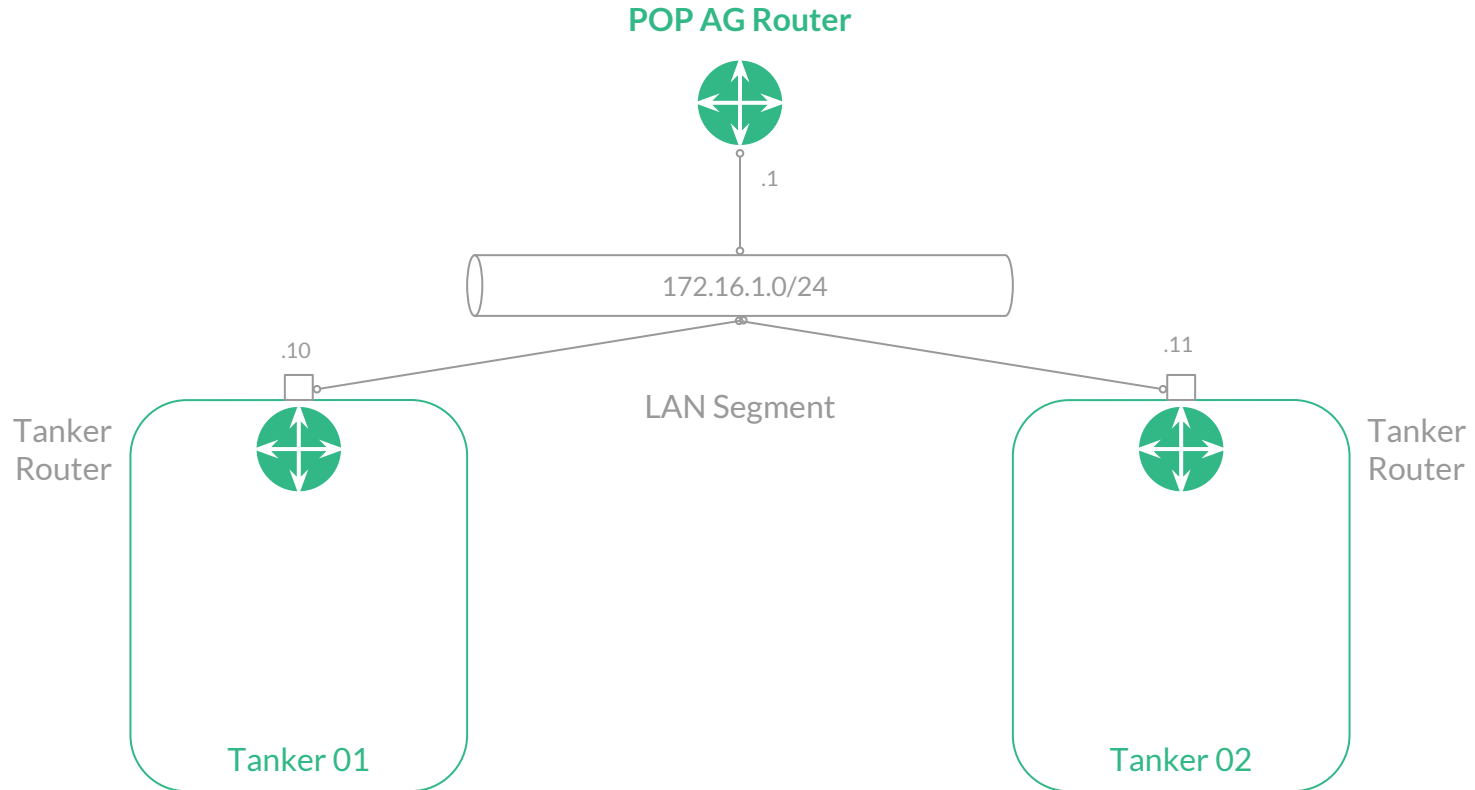
# Telnyx Telephony Engine Deployment



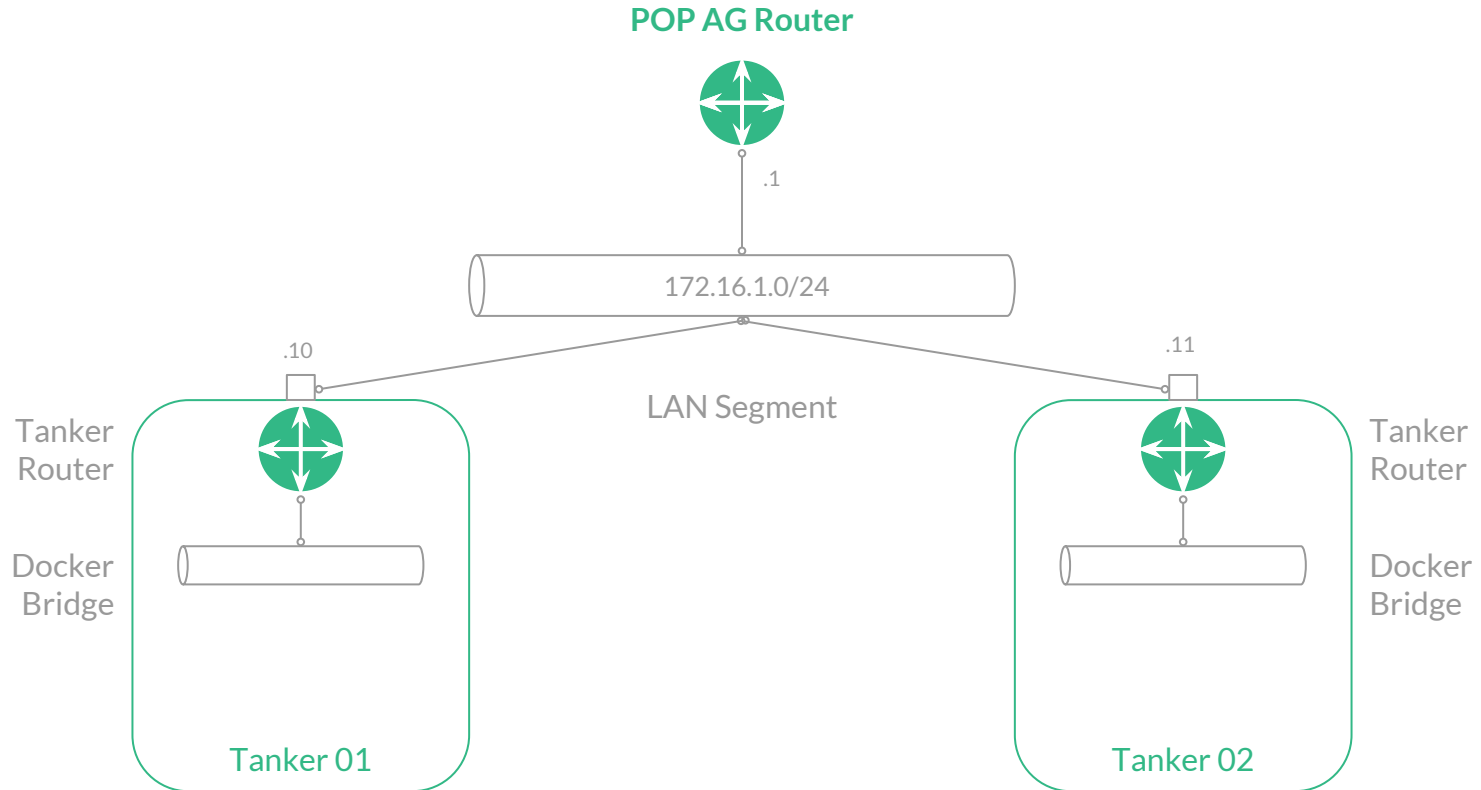
# Telnyx Telephony Engine Deployment



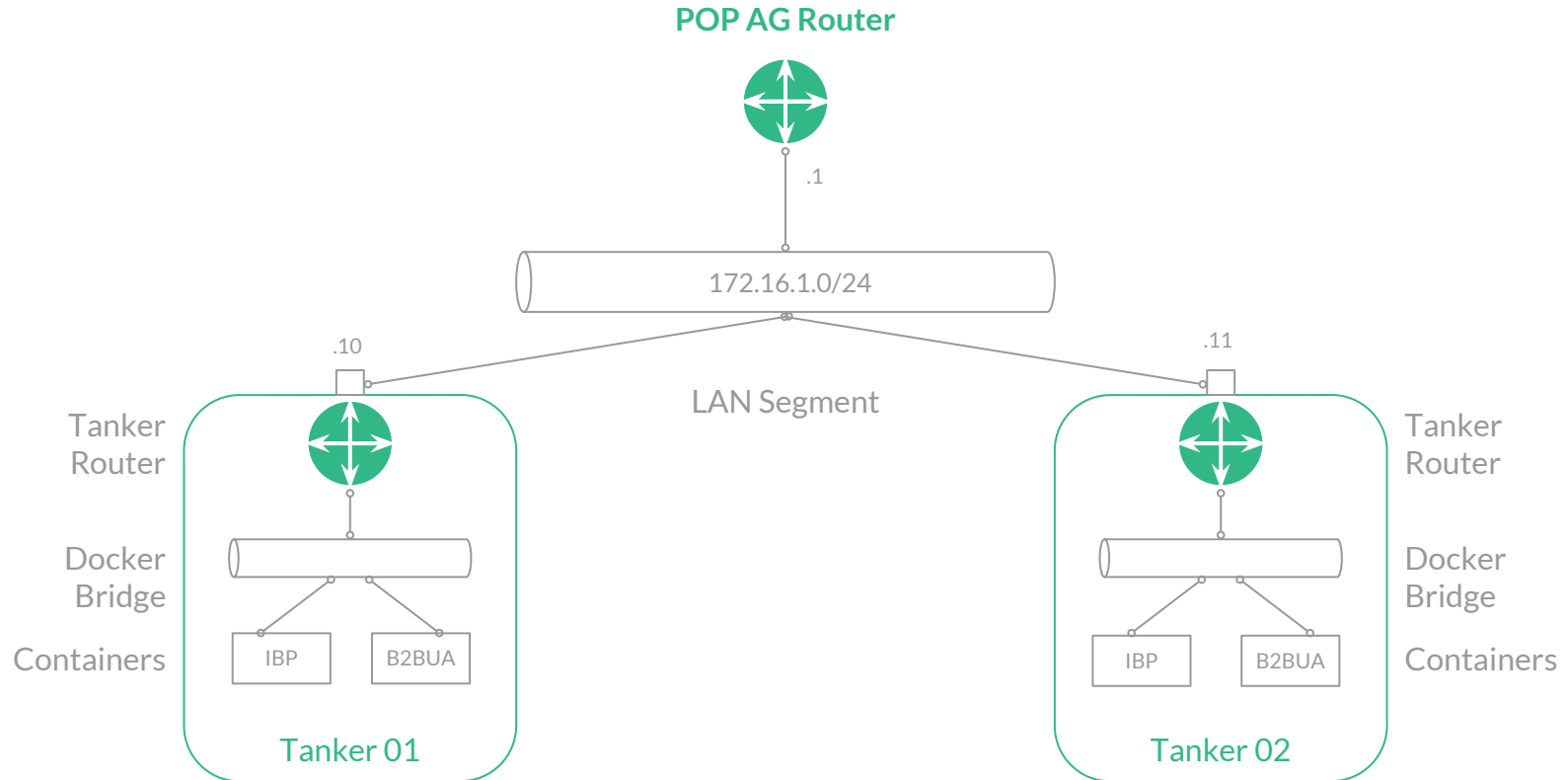
# Telnyx Telephony Engine Deployment



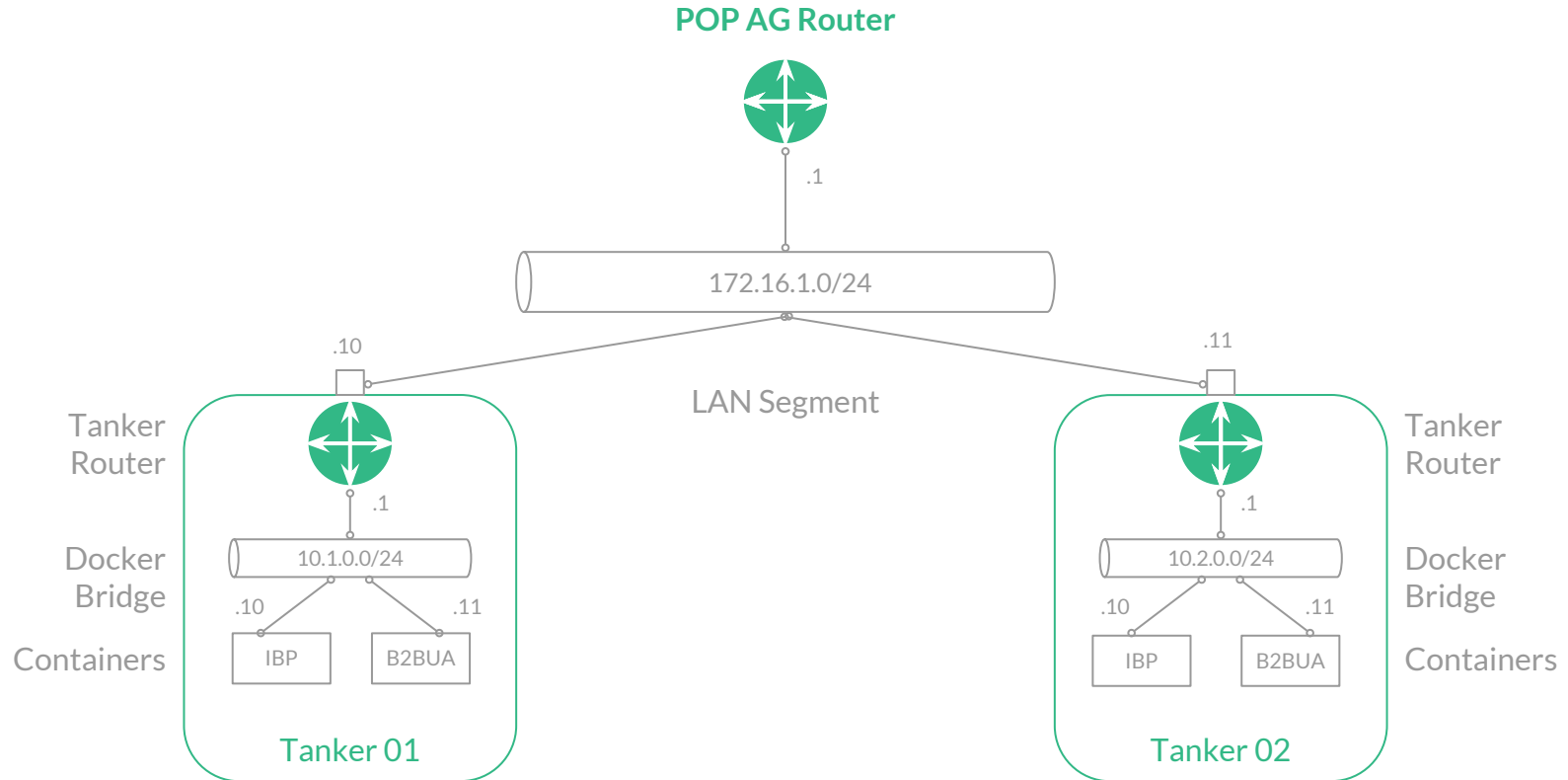
# Telnyx Telephony Engine Deployment



# Telnyx Telephony Engine Deployment



# Telnyx Telephony Engine Deployment







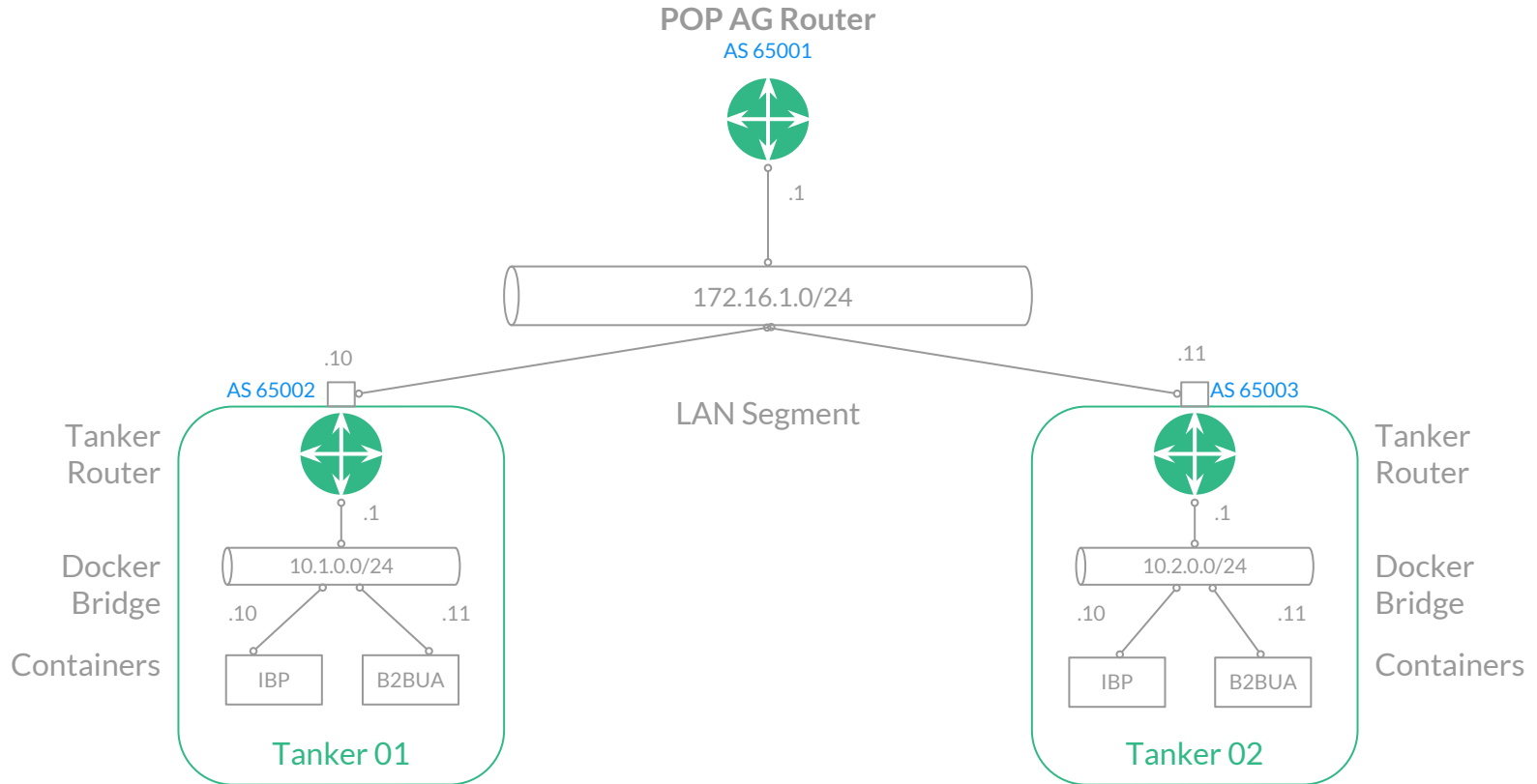
# Building the Tanker-Router



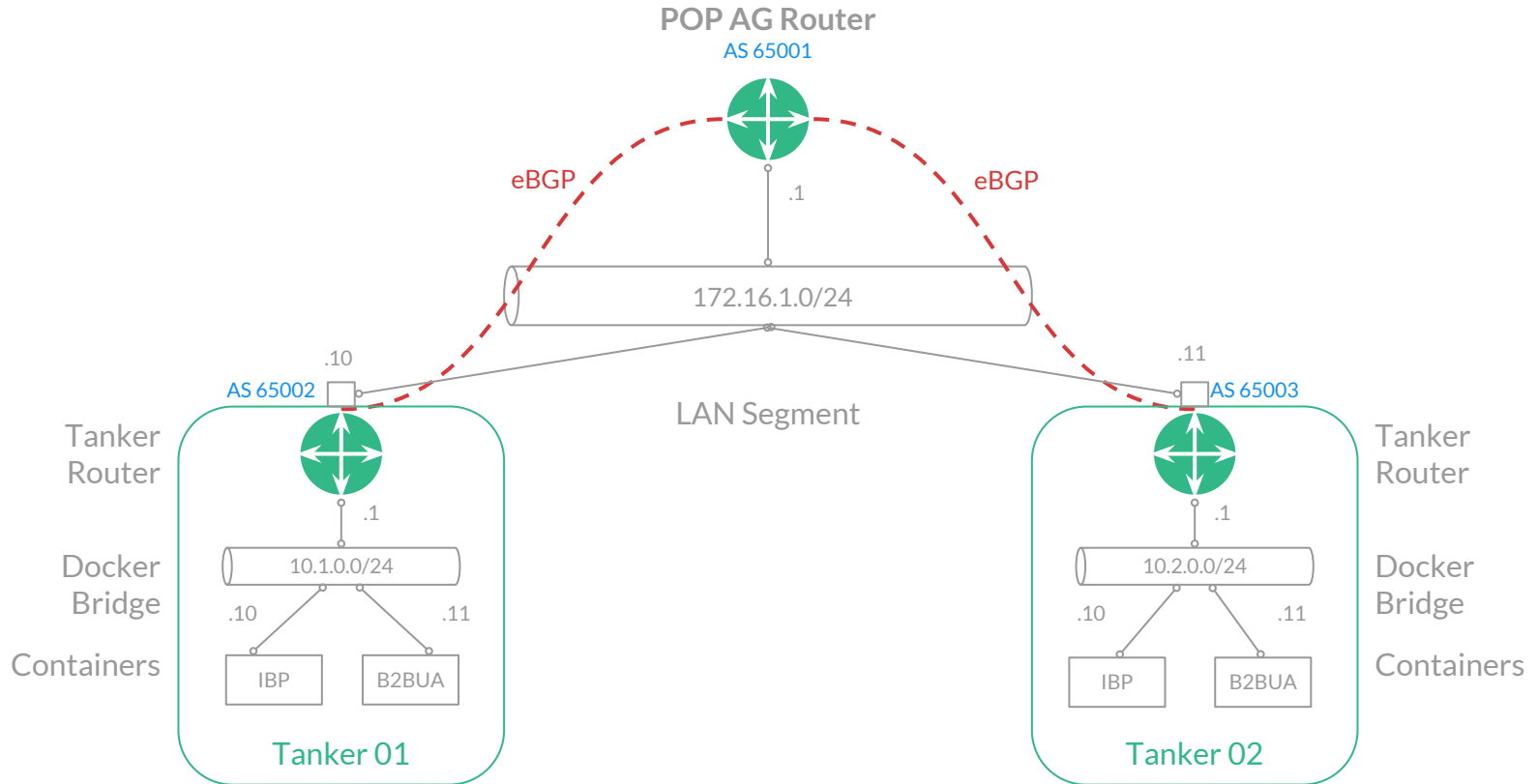
# Building the Tanker-Router

- Routing daemon to turn the tanker into a router
- Peer sessions with upstream nodes
- Announce the docker bridges
- Achieve reachability

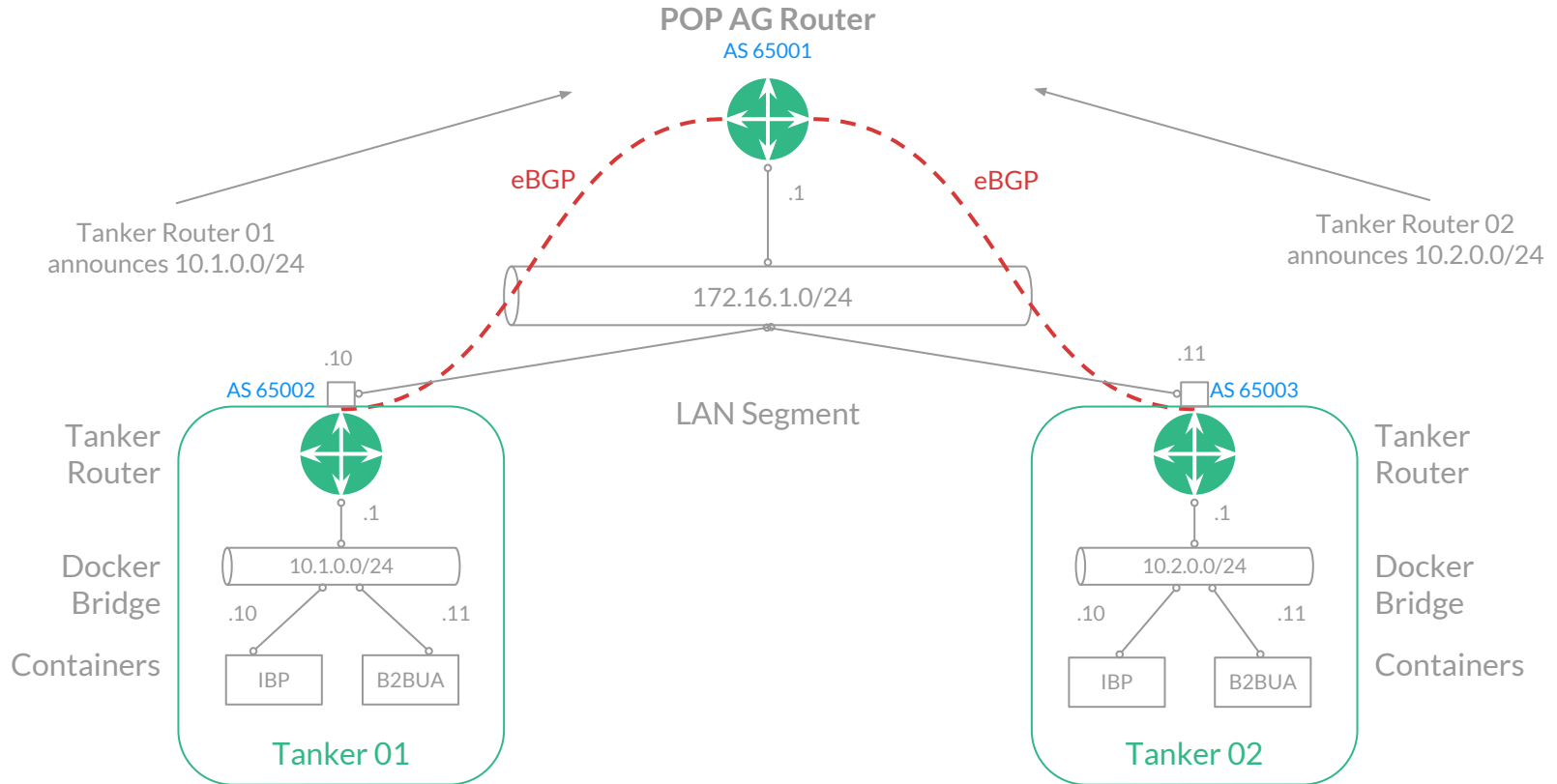
# Tanker-Router



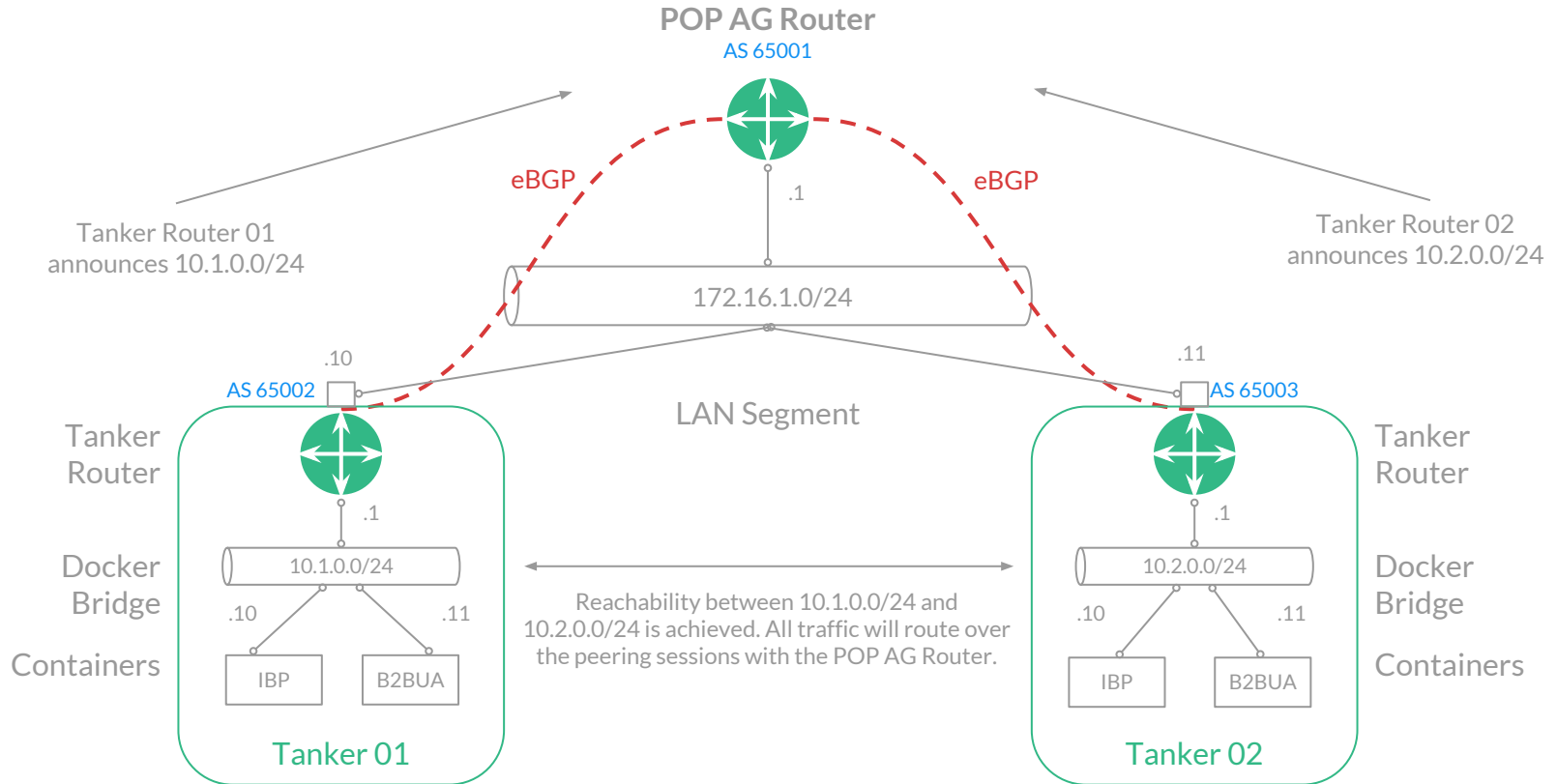
# Tanker-Router



# Tanker-Router



# Tanker-Router





Let's take routing a step further  
and build into the container...

# Container Router

POP AG Router

AS 65001



Tanker Router

AS 65002



10.1.0.1

Docker Bridge

10.1.0.0/24

.10

IBP

.11

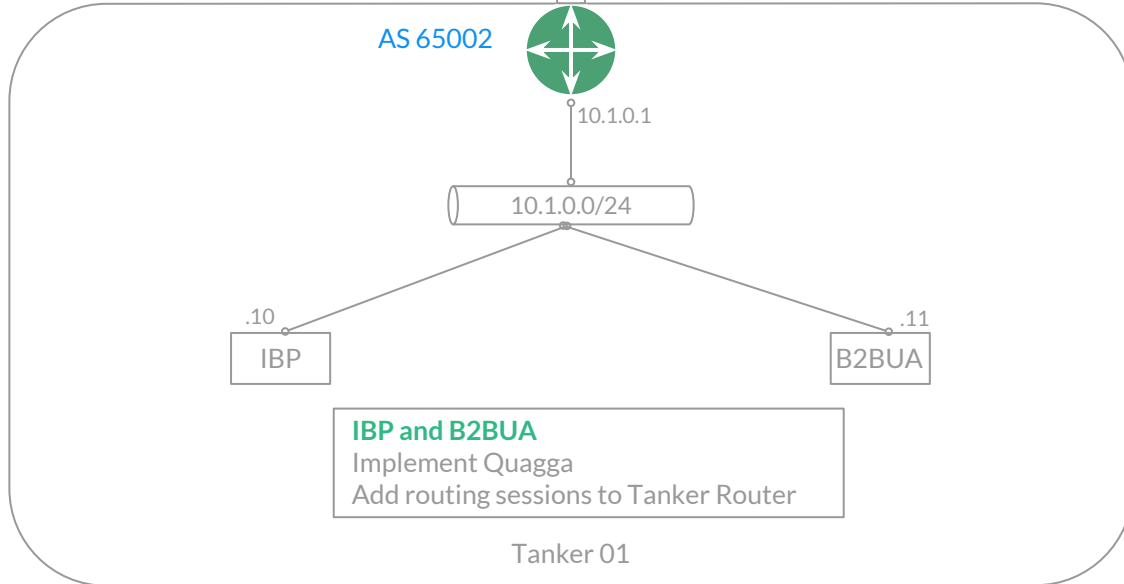
B2BUA

**IBP and B2BUA**

Implement Quagga

Add routing sessions to Tanker Router

Tanker 01





# Container Router

POP AG Router

AS 65001



AS 65002



10.1.0.1

iBGP

iBGP

Tanker Router

Docker Bridge

10.1.0.0/24

.10

IBP

.11

B2BUA

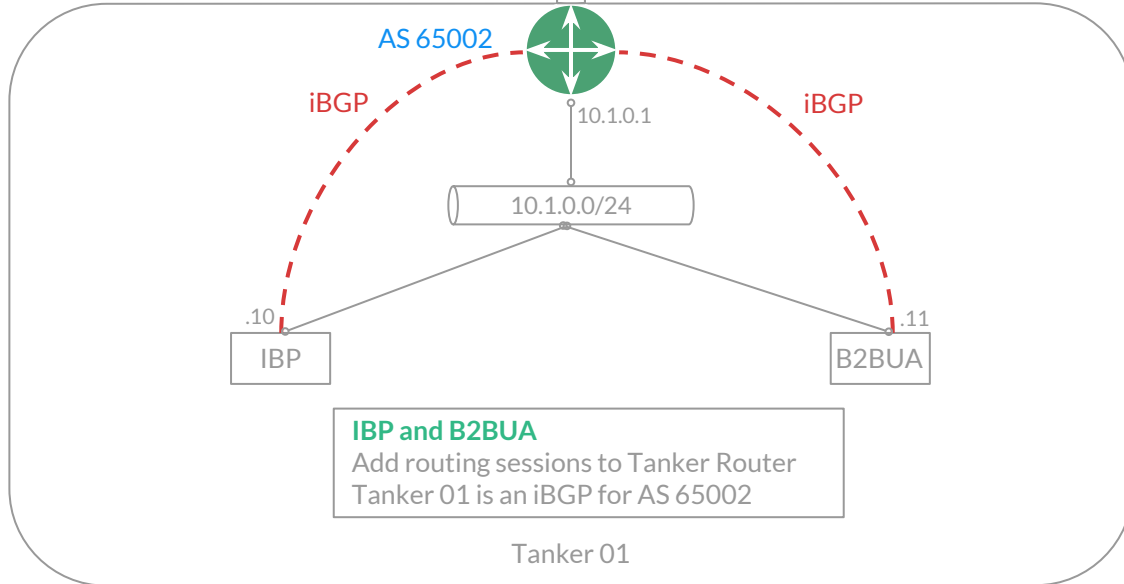
Container Router

**IBP and B2BUA**

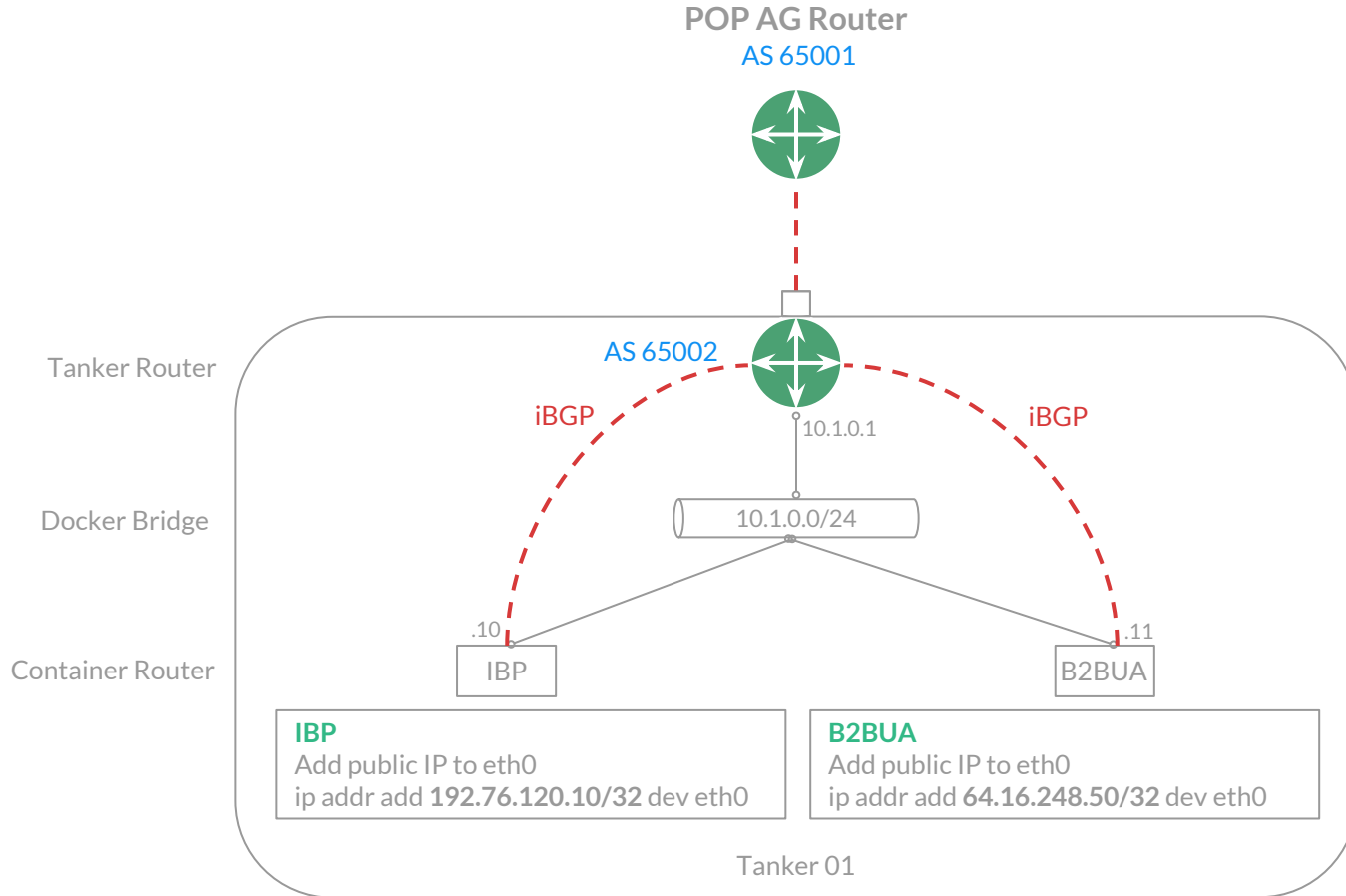
Add routing sessions to Tanker Router

Tanker 01 is an iBGP for AS 65002

Tanker 01



# Container Router



# Container Router

POP AG Router

AS 65001



AS 65002

Tanker Router

iBGP

iBGP

10.1.0.1

Docker Bridge

10.1.0.0/24

.10

.11

Container Router

IBP

B2BUA

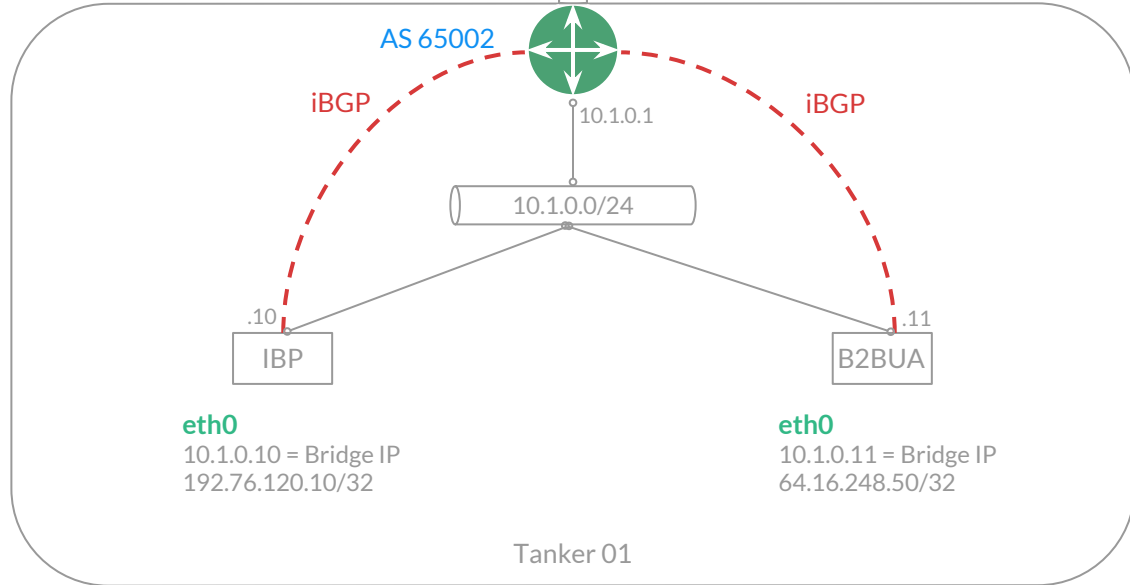
eth0

10.1.0.10 = Bridge IP  
192.76.120.10/32

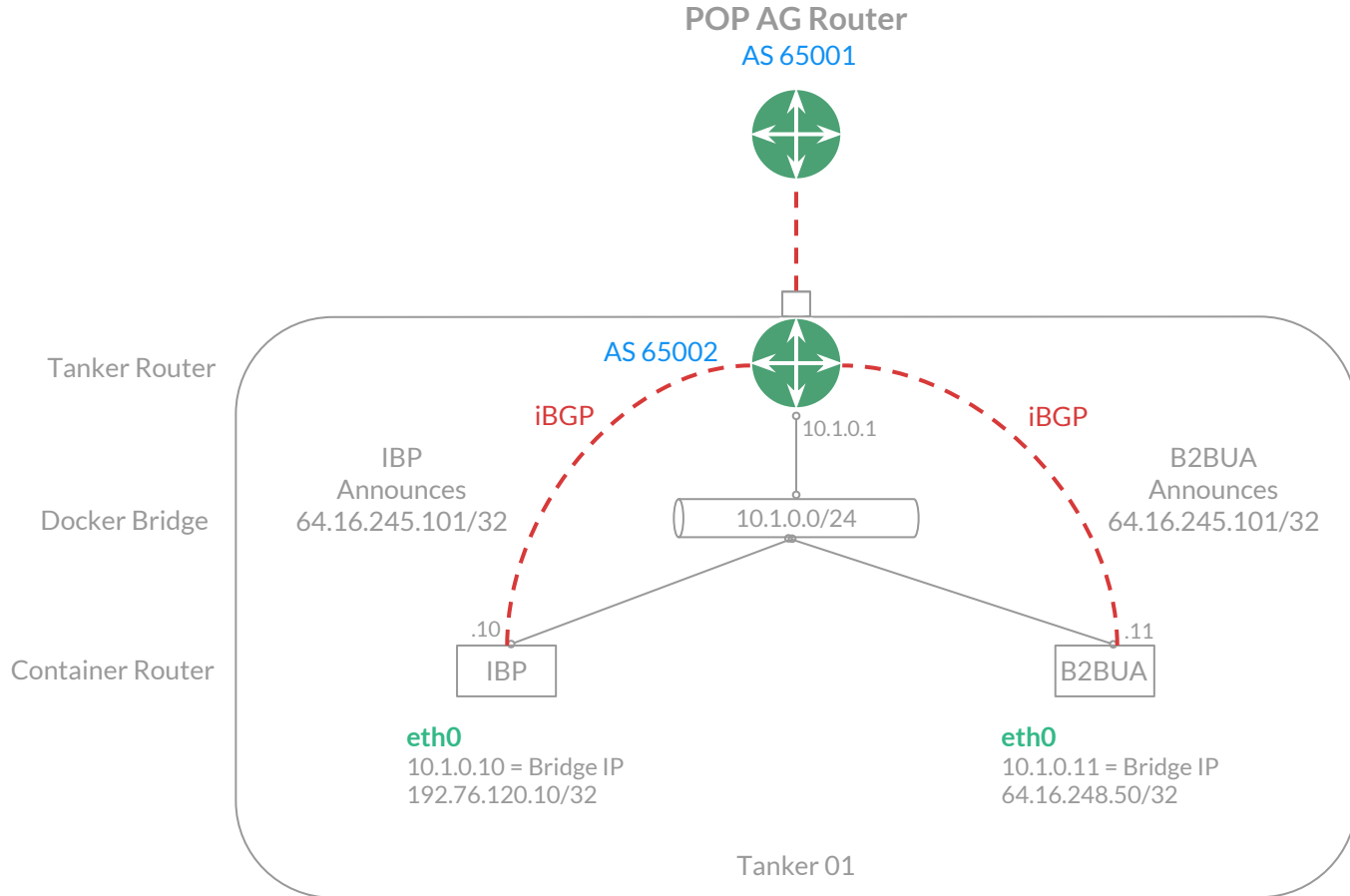
eth0

10.1.0.11 = Bridge IP  
64.16.248.50/32

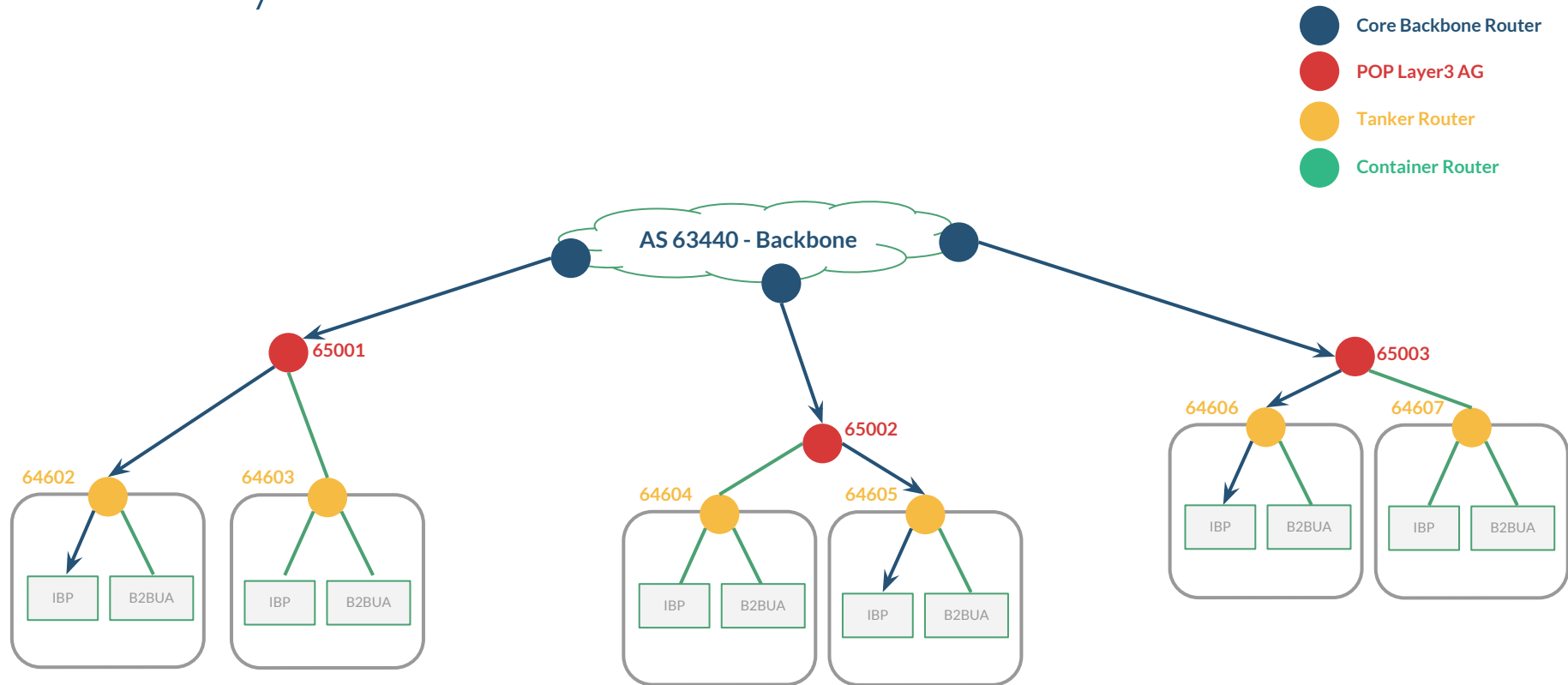
Tanker 01



# Container Router



# Summary





Questions?