

Apache Traffic Control

Up and Running

Dewayne Richardson
dewrich@apache.org

Dan Kirkwood
dangogh@apache.org

<https://bit.ly/atc-up-and-running>

<https://s.apache.org/atc-slack>

#atc-up-and-running

What
is a
CDN?

A **Content Delivery Network (CDN)** is a network of caching proxy servers that are geographically located to optimize content delivery to users for high availability and performance.

What
is a
CDN?

Why
build
a
CDN?

Prediction that a tsunami
of bits were coming to
Comcast platforms and
how do we scale that
problem?

What
is a
CDN?

Why
build
a
CDN?

What
is
Traffic
Control?

Traffic Control is a
caching server control
plane suite of service-
based components which
are used to aggregate
caching servers into a
Content Delivery
Network (CDN).

Traffic Control Story

- 01/2012: Work starts in Comcast
- 10/2012: Comcast Production Deployment
- ...
- 02/2017: 1st Apache Incubator Release

Traffic Control Story

- **May 16, 2018: ATC becomes a TLP!**

Traffic Control Story

- 20 Committers representing 7 different companies

Traffic Control Community

- 12 PMC Members
- 9348 Commits

(as of Sept 5, 2018)

- github.com/apache/trafficcontrol

Traffic
Control
Story

- Latest Stable Release
2.2 - June 18, 2018

Traffic
Control
Community

- Latest Dev Release 3.0

(as of
Sept 5,
2018)

Goals

- Everything in the CDN is Open Source (and appropriately licensed)
- Use COTS hardware and Cloud
- Loosely coupled components, stateless, scalable

Goals

- Client Routing

Key
Features

- Operations
Administration

- Monitoring

Comcast's
CDN
Stats

- Terabits delivered per second
- Petabytes delivered per day
- Billions of transactions at the edge per day
- Petabytes of cache storage

Comcast's
CDN
Stats

- Exabytes total delivered
- 10^{18} or
1,000,000,000,000,000,000

Traffic Control Components

Traffic Operations

Config Management

Administration UI/API(s) for operations
to control the CDN

What
is a
Delivery
Service?

A group of settings and options to optimize content delivery for each customer on the CDN.

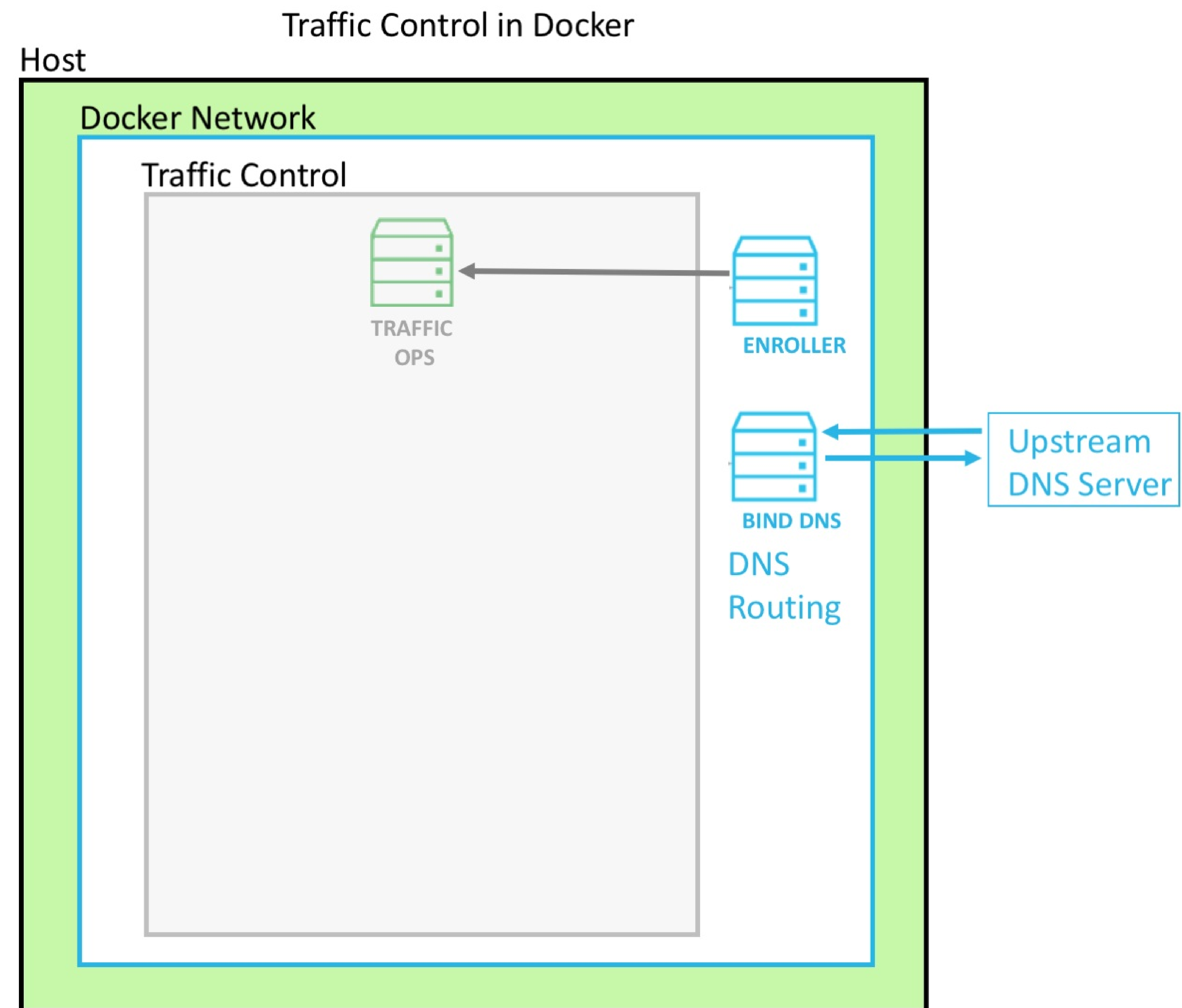
What is a **Delivery Service**? Configuration settings that are applied to any ATC component.

What are **Parameters**?

What is a **Delivery Service**? Parameters that are bundled into groups

What are **Parameters**?

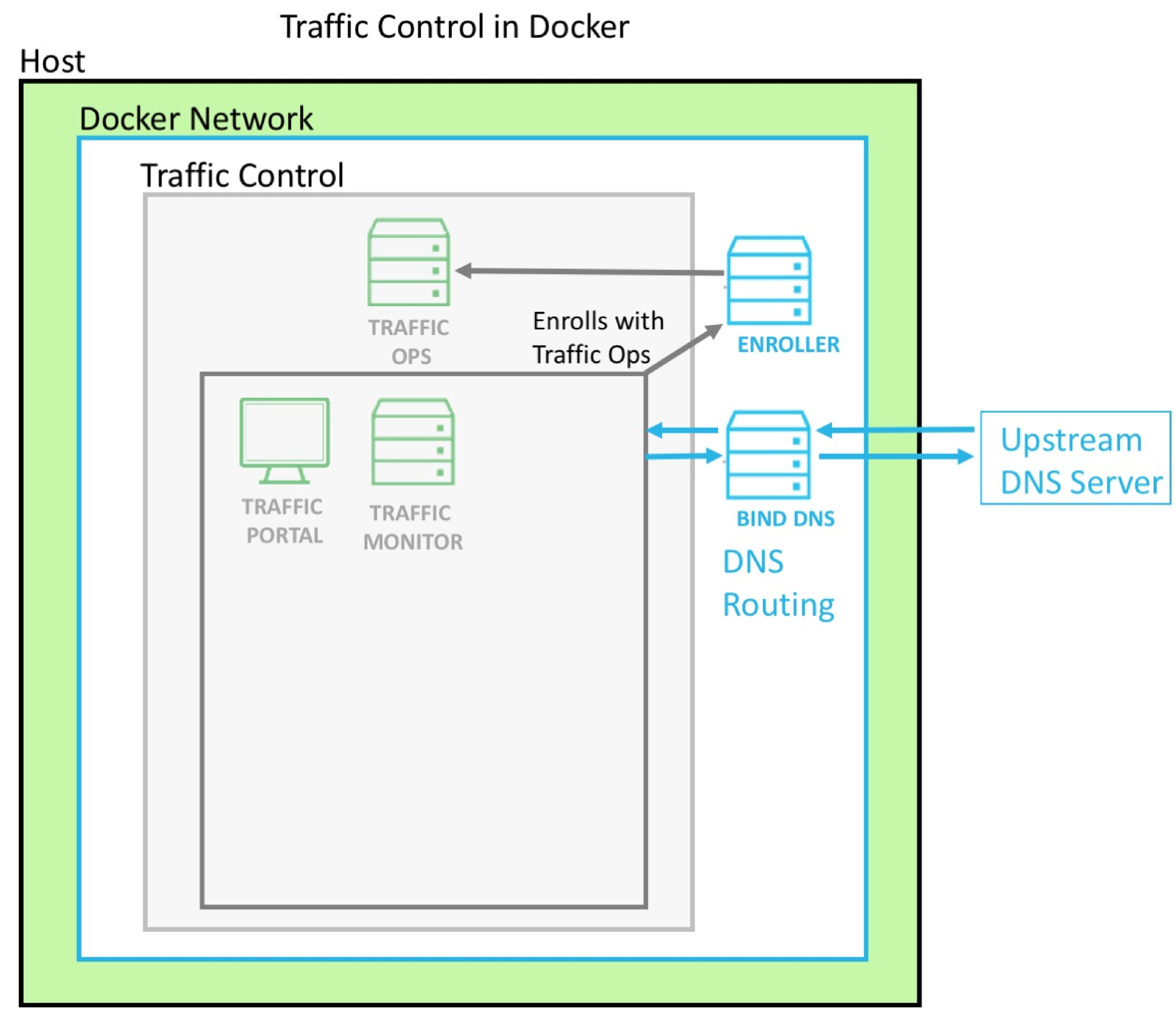
What are **Profiles**?



Demo Traffic Ops

Traffic Portal

Config Management Improved



Demo Traffic Portal

Dan Kirkwood

Operational Readiness Test (ORT)

Config File Delivery

Scheduled script for polling Traffic Ops
APIs

Traffic Monitor

Health Protocol

Decider of health for edge caches and
delivery services

Demo Traffic Monitor

What is a Consistent Hash?

A ring which it then uses to make sure that requests are routed to a target based on the configured weights.

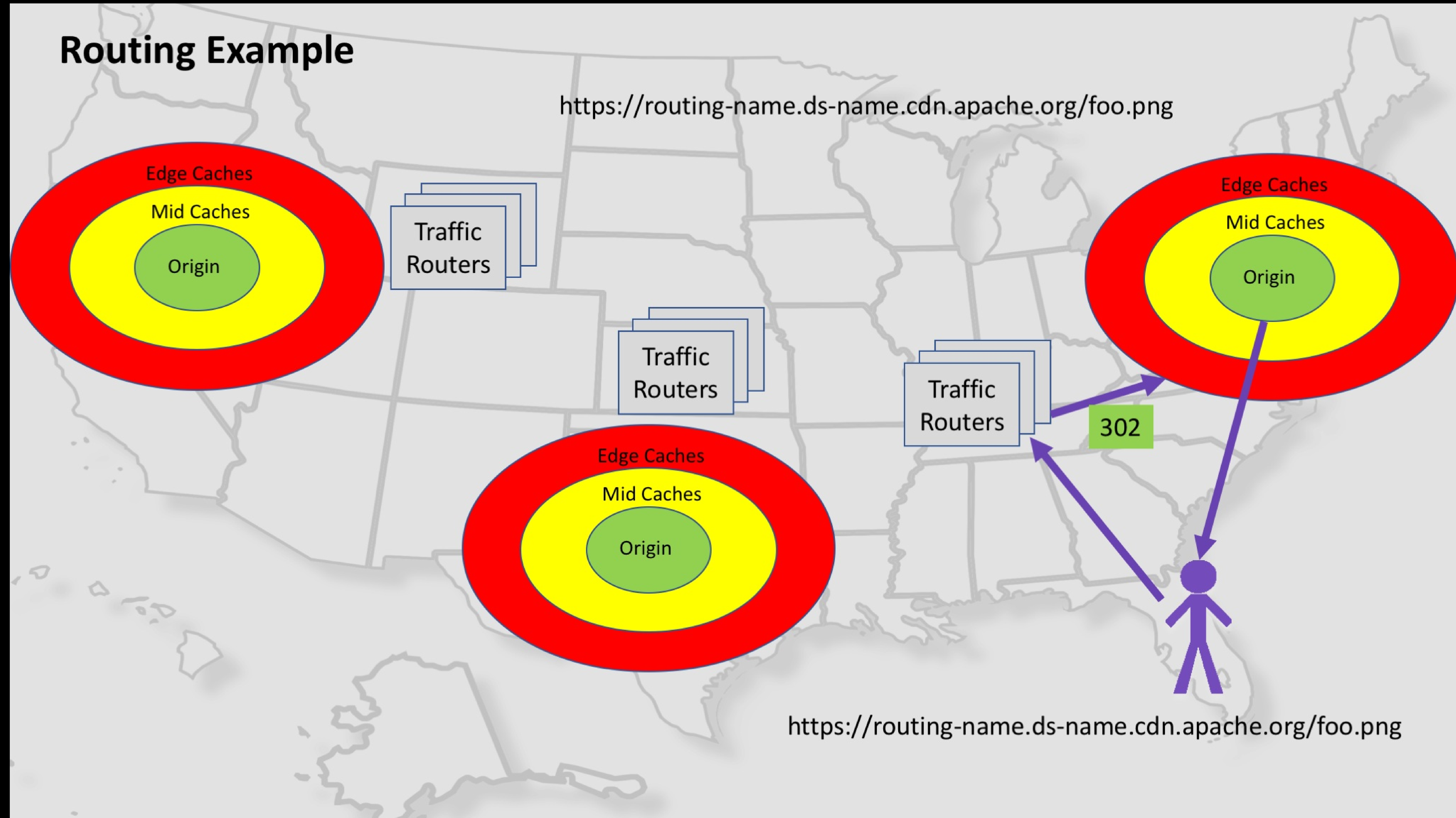
Authors Daniel Lewin
and F. Thomas Leighton

Traffic Router

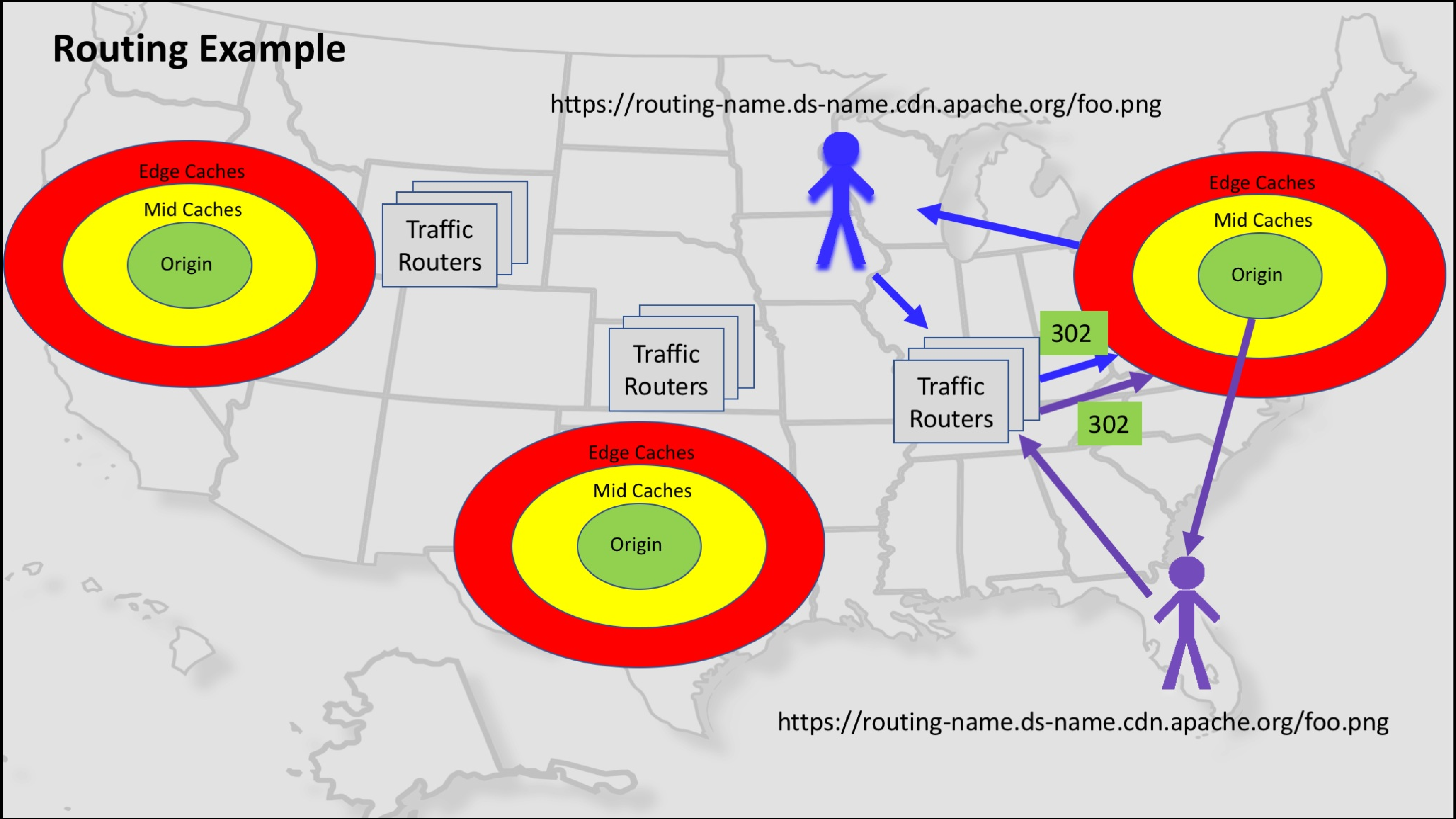
Content Routing

Client requests dispatcher

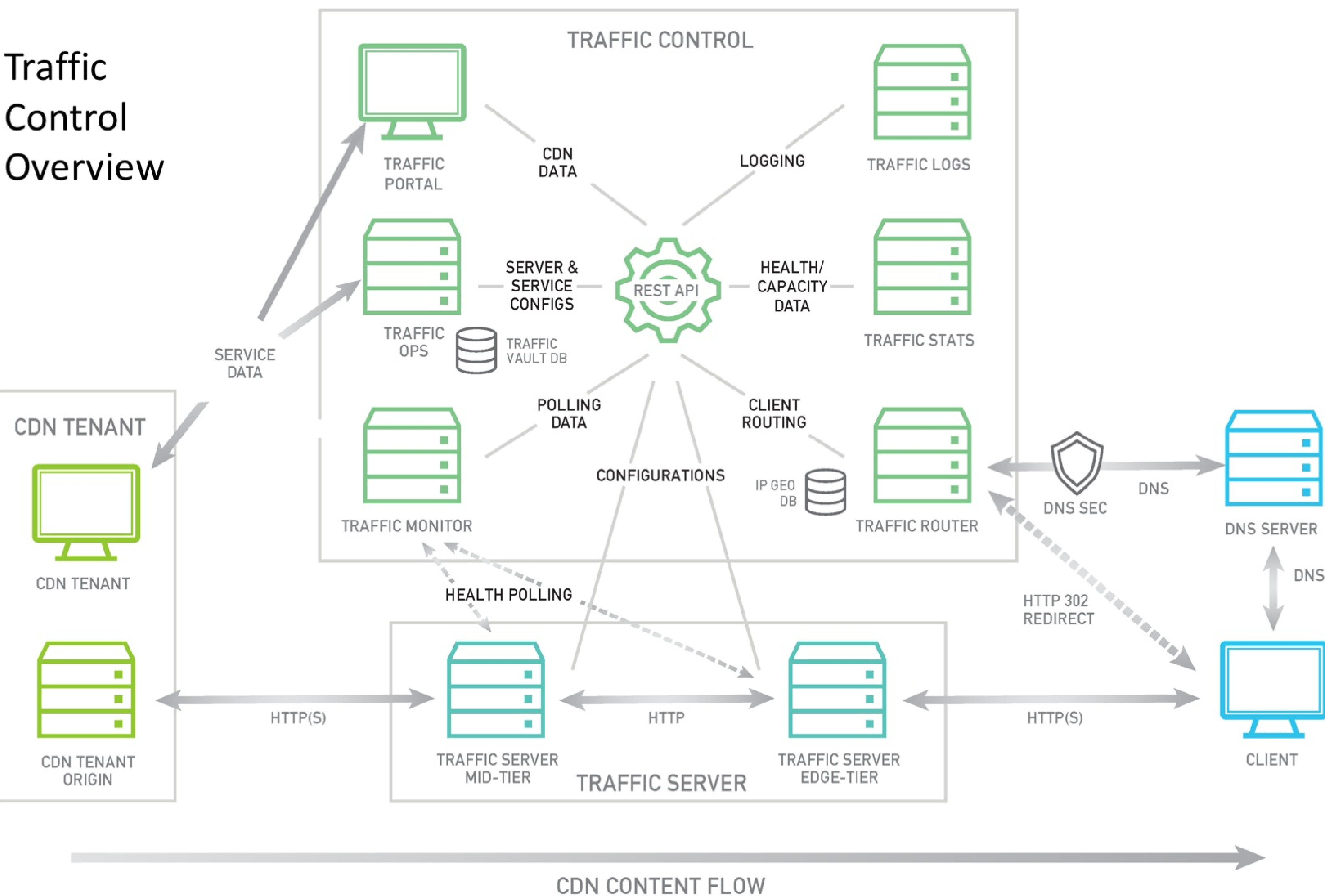
Routing Example



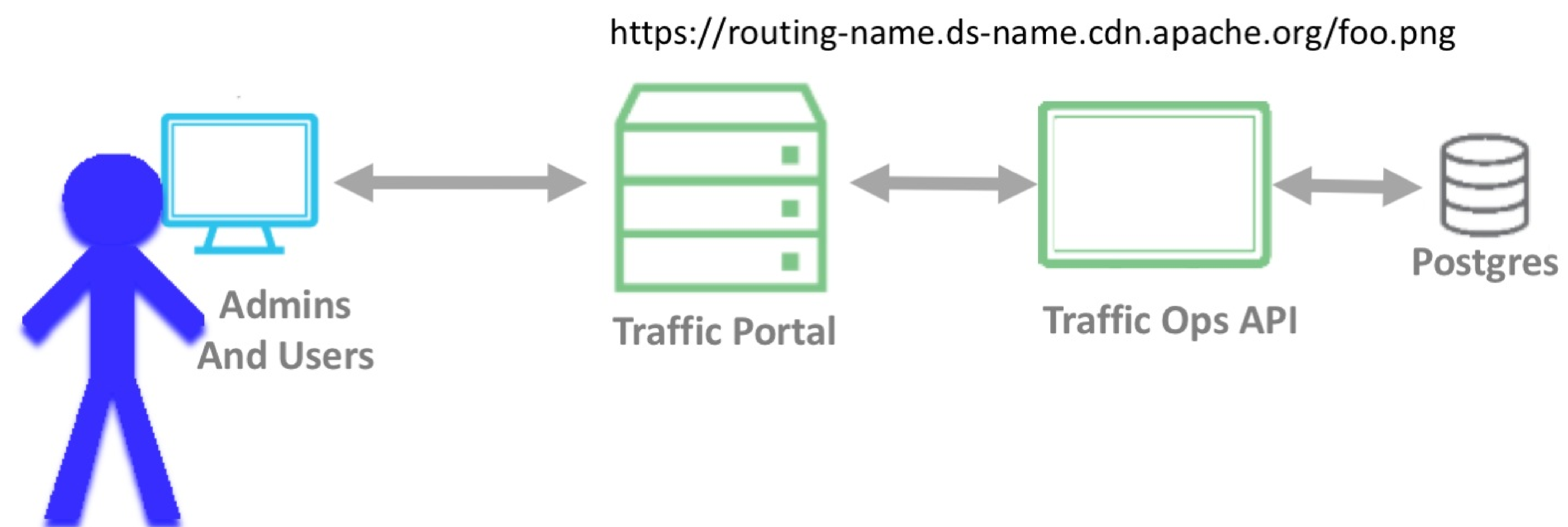
Routing Example



Traffic Control Overview



Traffic Portal User Interaction



Traffic Router Interaction (HTTP)

<https://video.ciab.cdn.local/foo.png>

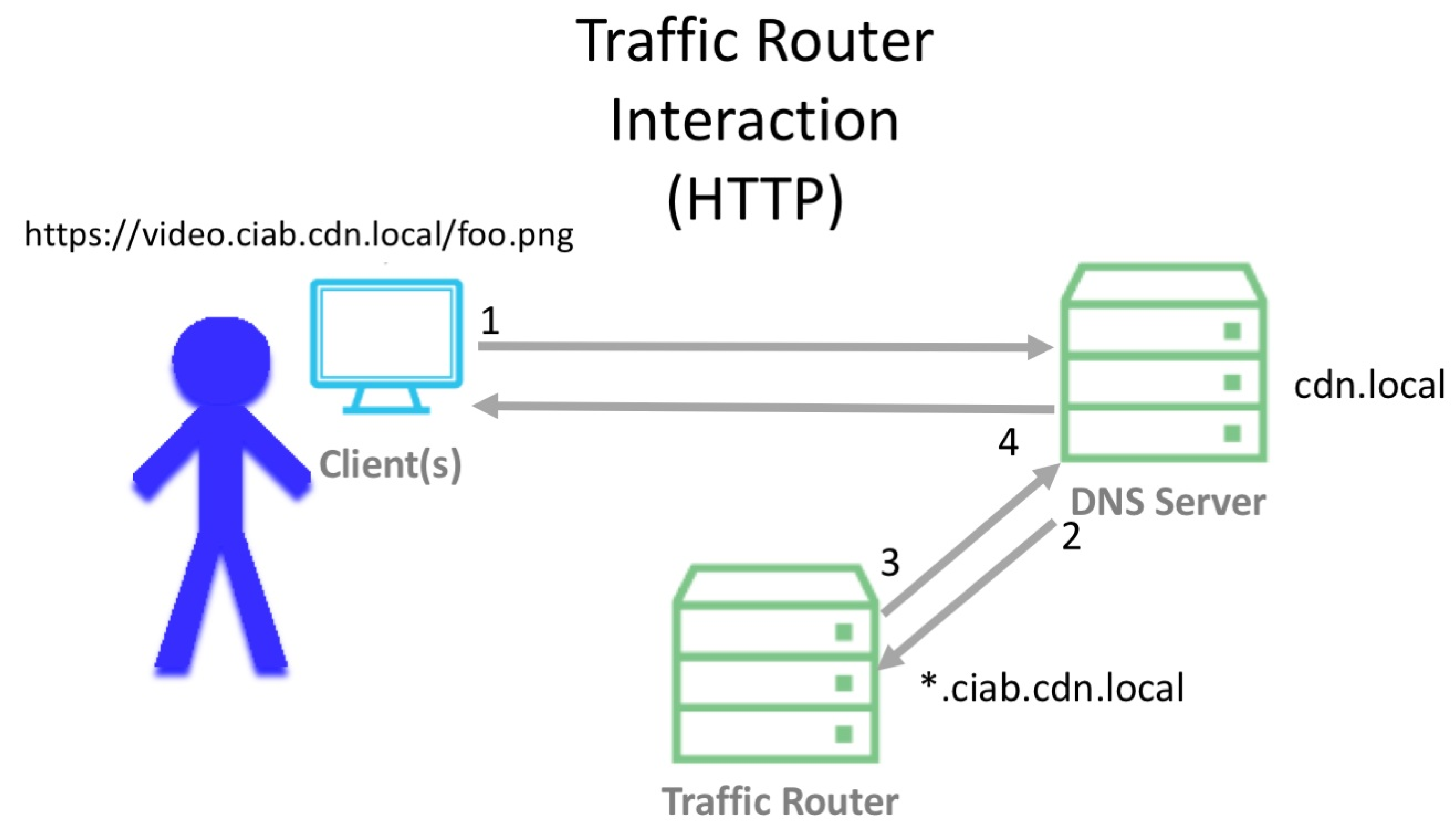


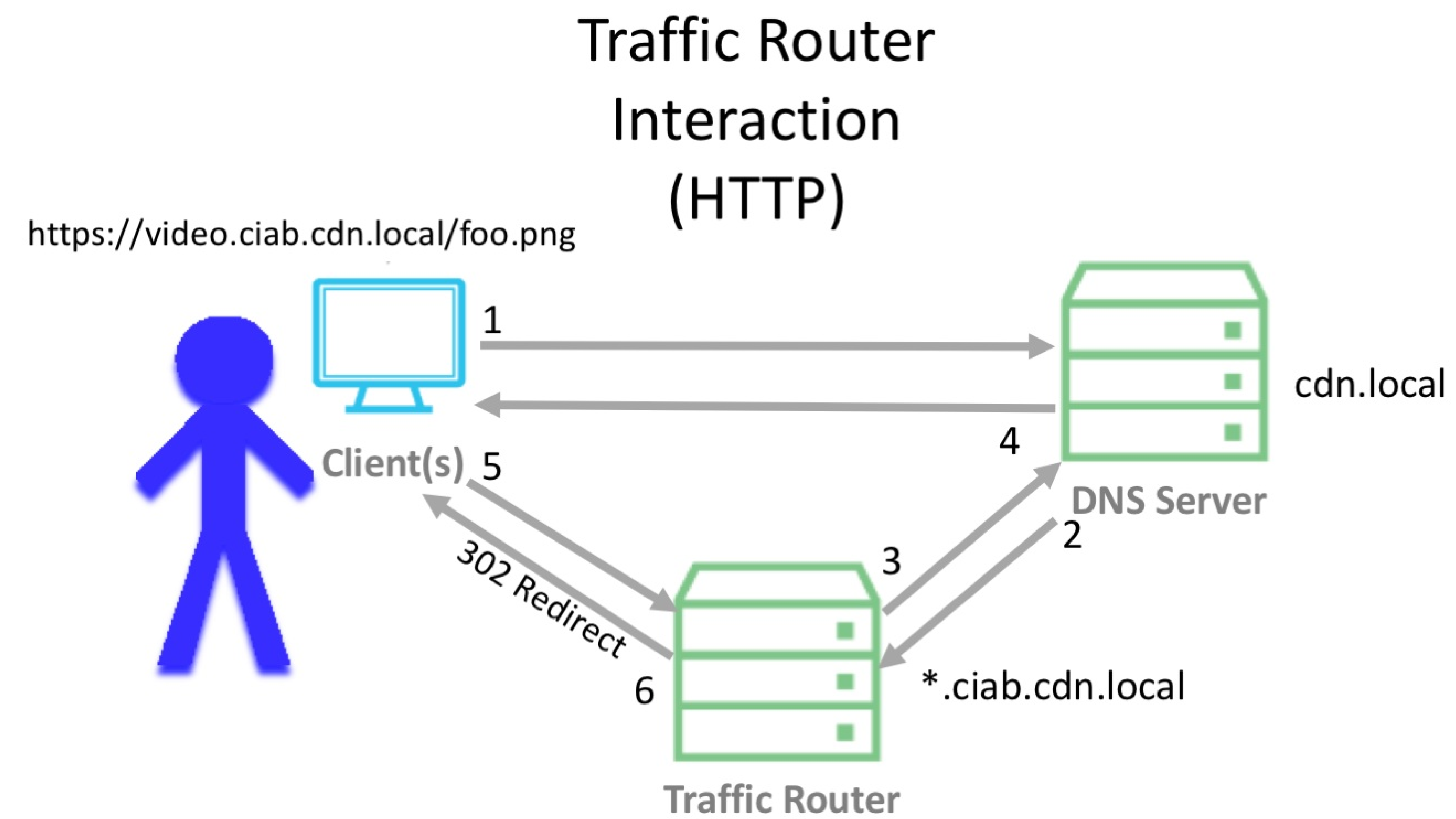
Client(s)

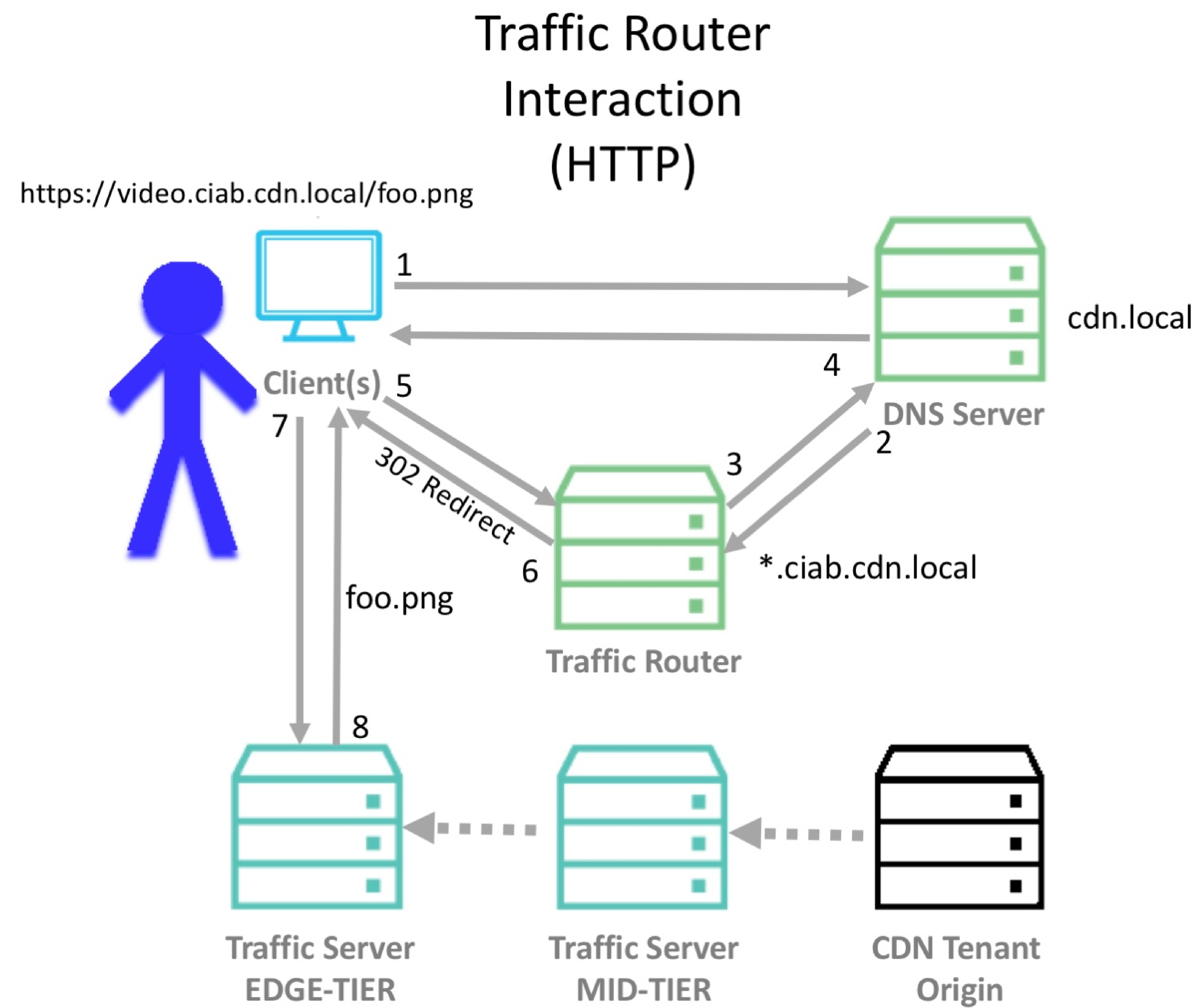


DNS Server

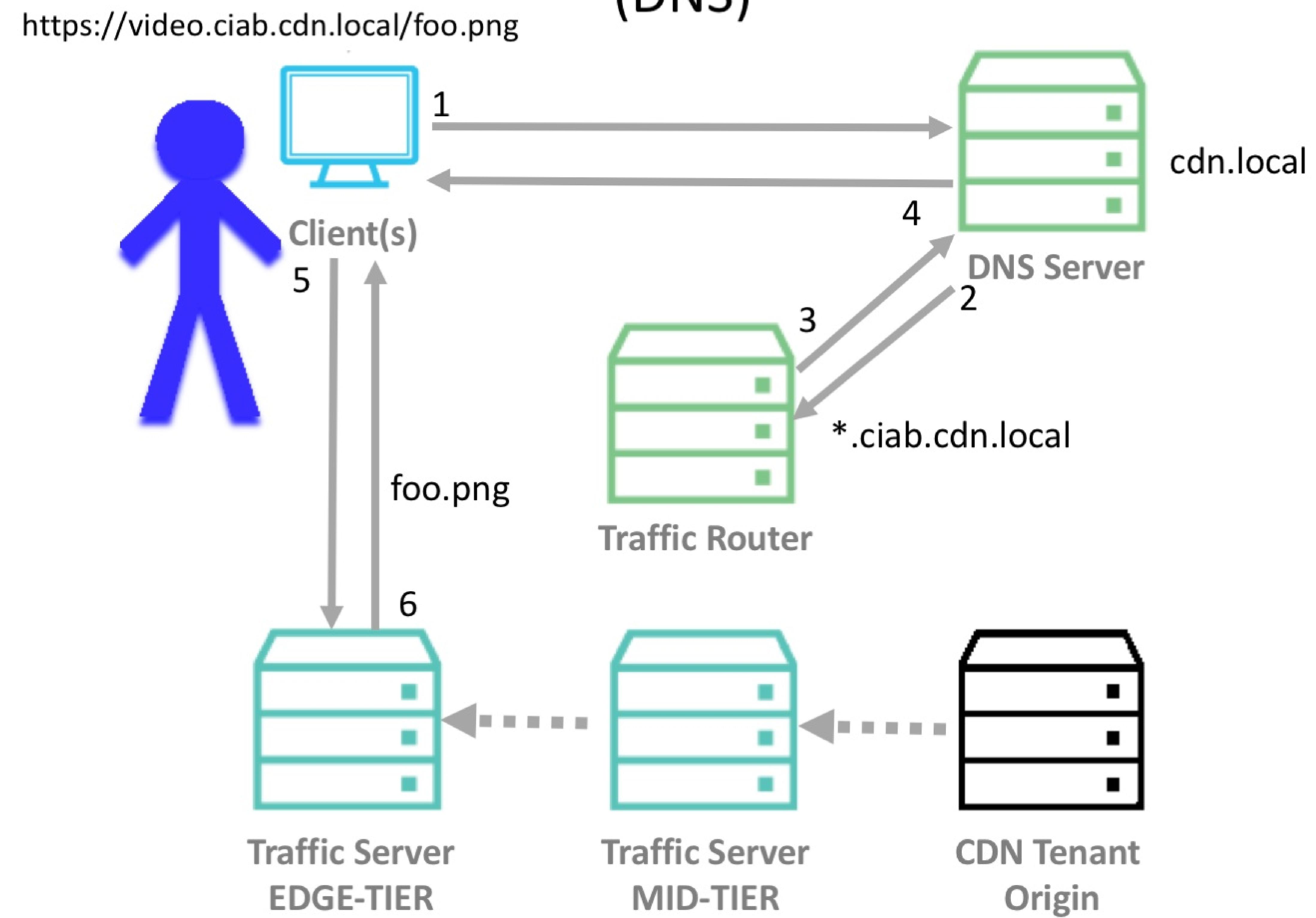
cdn.local

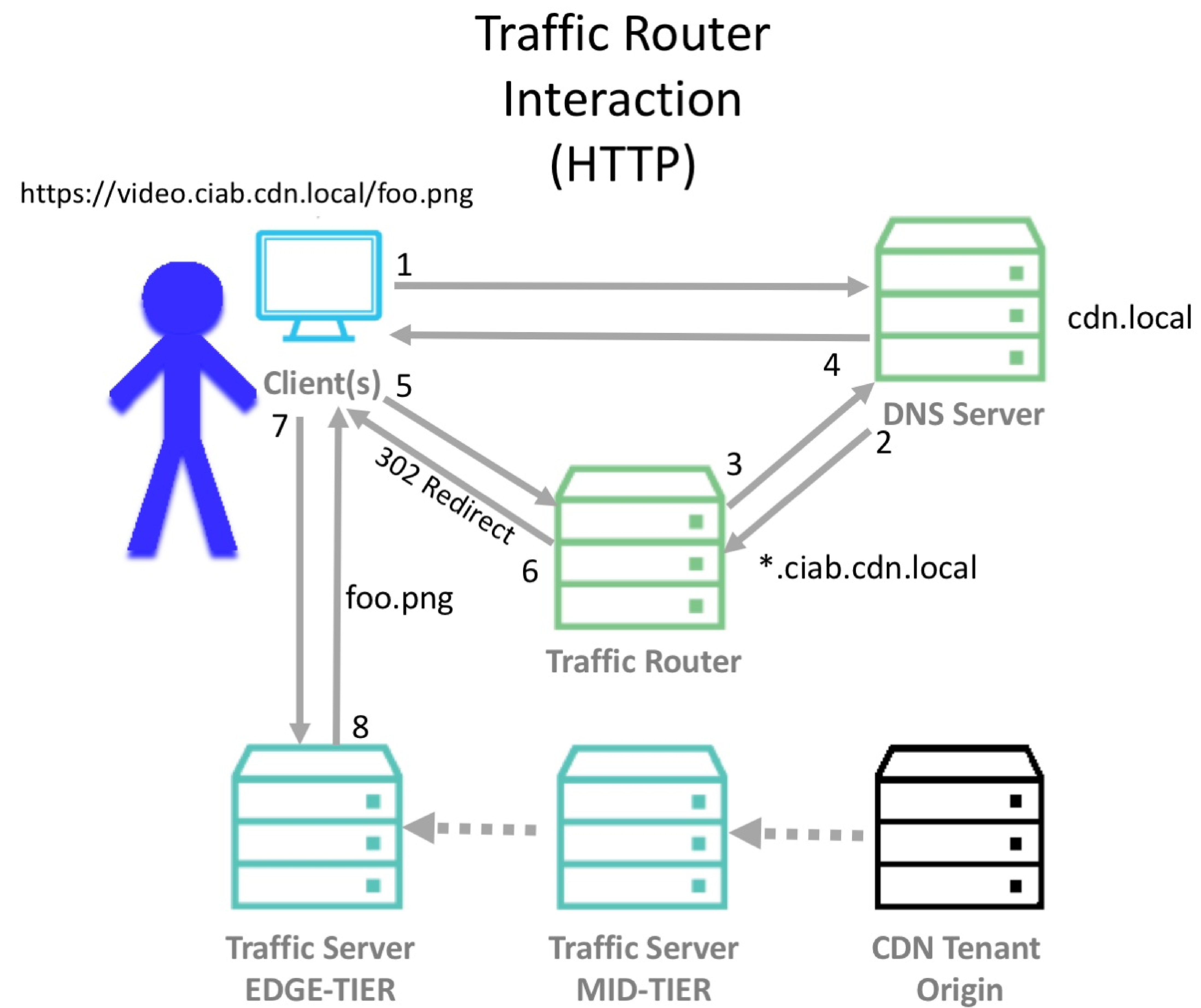




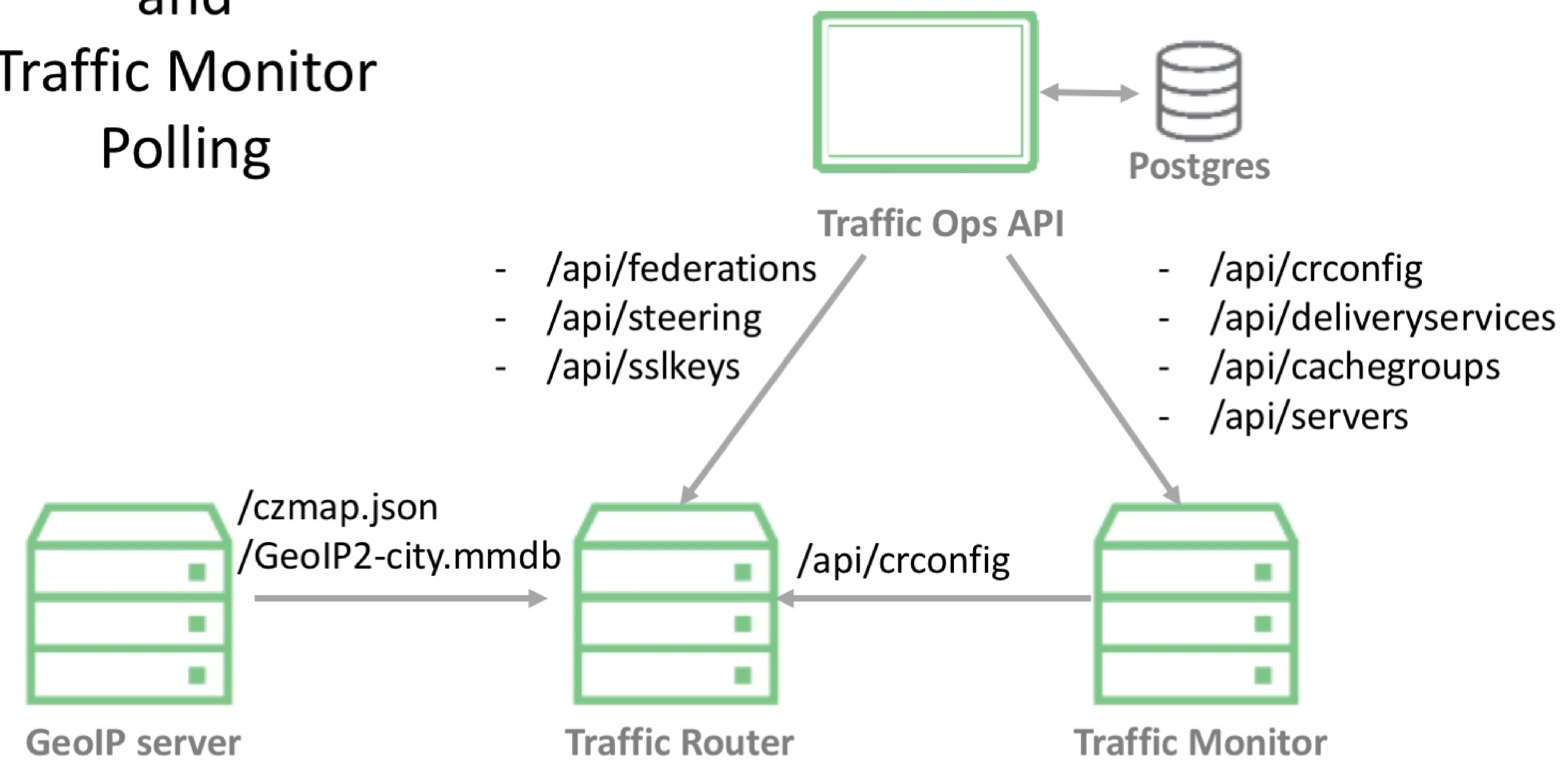


Traffic Router Interaction (DNS)

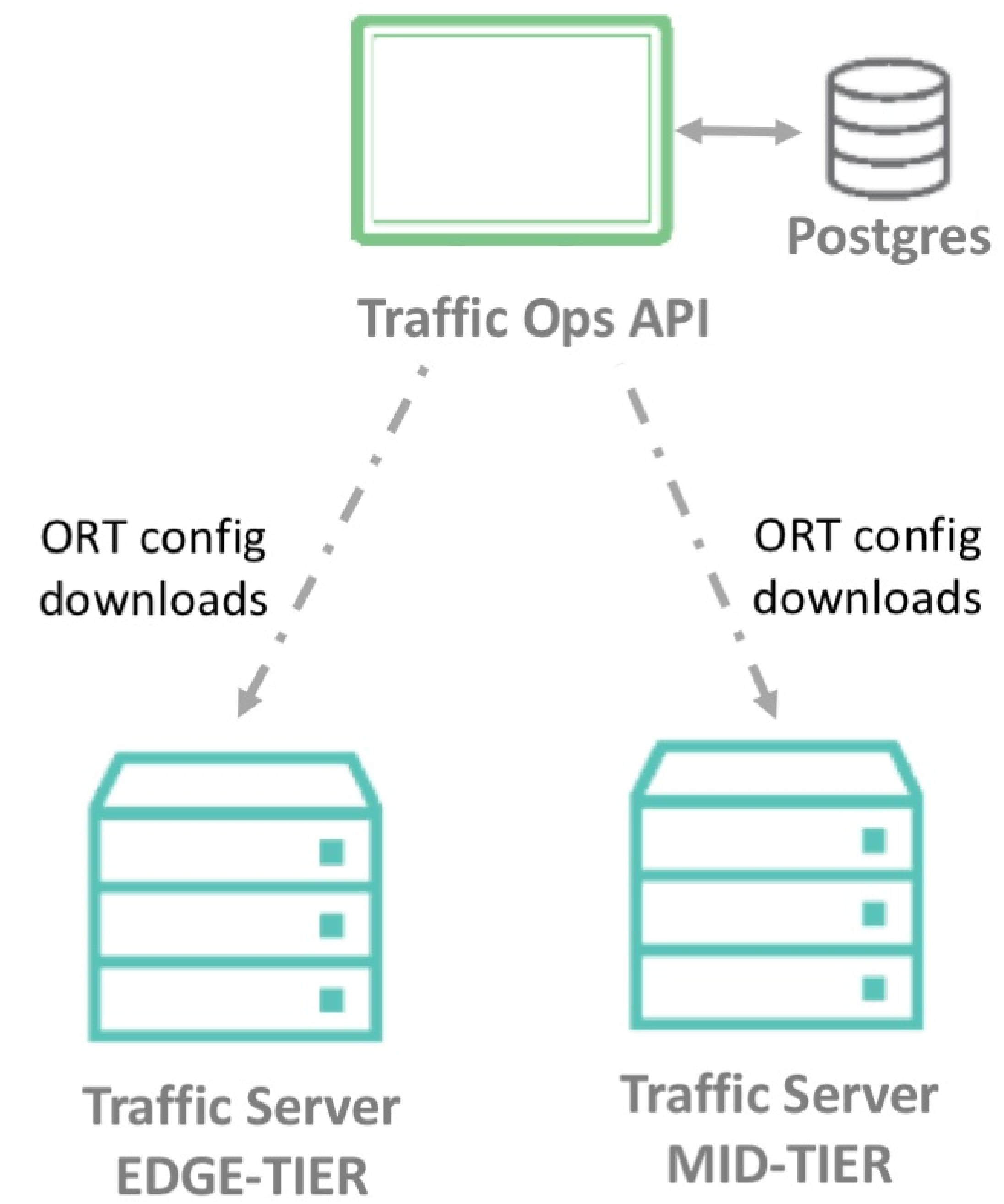


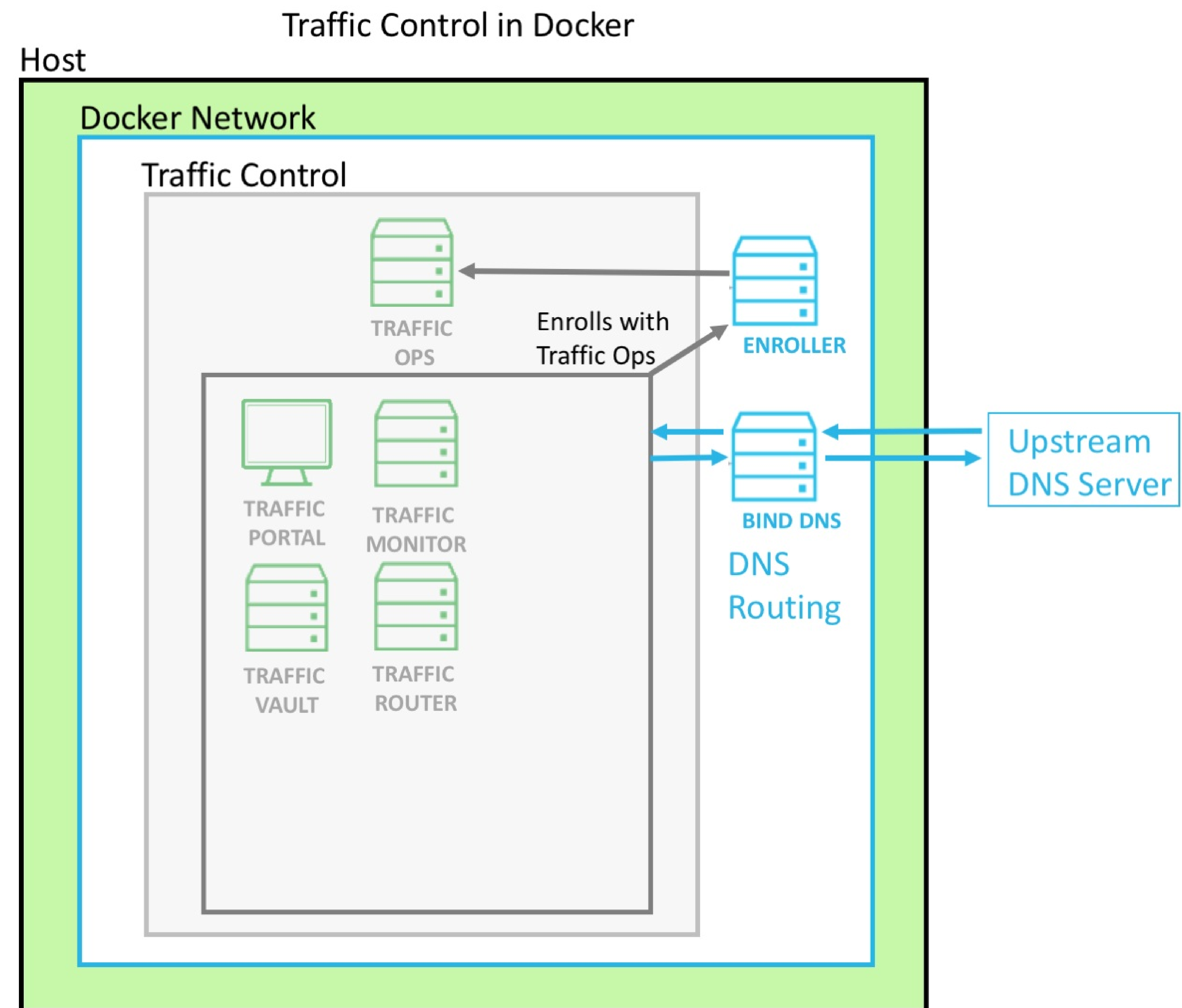


Traffic Router and Traffic Monitor Polling



ORT Config Polling





Demo Traffic Router

Traffic Stats

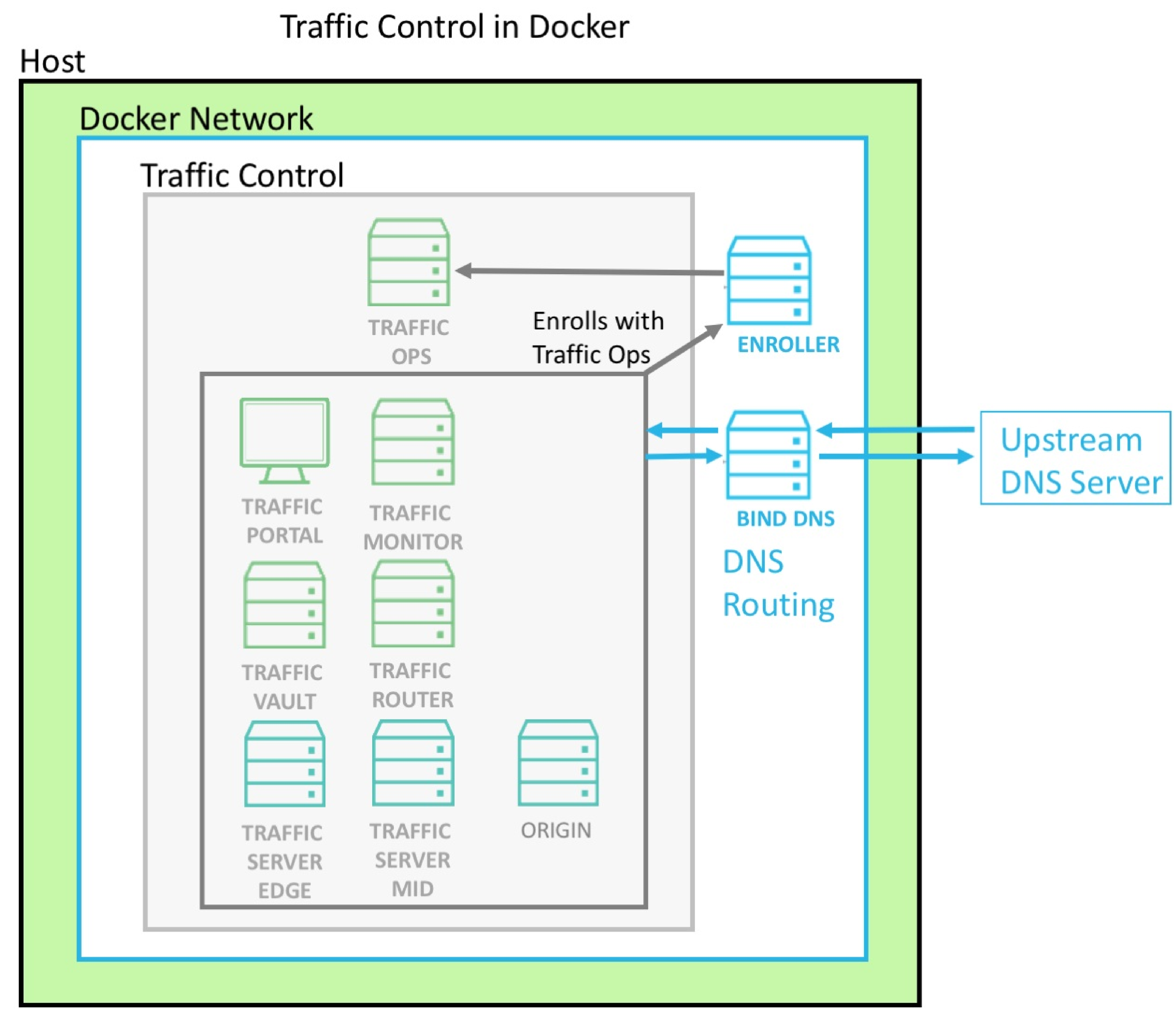
Analytics

Acquires and stores statistics about the
CDNs

Traffic Vault

SSL Keys

**Storage of SSL keys for Traffic Router's
DNSSEC**



- Future
Development
- Self Service for tenants
 - Logging analytics
 - Pattern Based
Consistent Hashing

Future

Development

- URI Signing (RFC draft)
- Additional caching software support (Nginx and others)
- HTTP/2 - push content vs pull

Thank
you

Jeff Bevill

Brennen Fieck

Rob Butts

Slack Questions?

Resources

These slides

<http://bit.ly/atc-up-and-running>

These slides in pdf

<http://bit.ly/atc-up-and-running-pdf>

Resources

Traffic Control Website

<https://trafficcontrol.apache.org>

Traffic Control Releases

<https://trafficcontrol.apache.org/releases>

Apache Traffic Server

<http://trafficserver.apache.org>

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