Deploying Applications on the App Engine Flexible Environment

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Overview

Flexible environment runs app in Docker container

Relatively slow scaling

Can access external libraries and runtimes

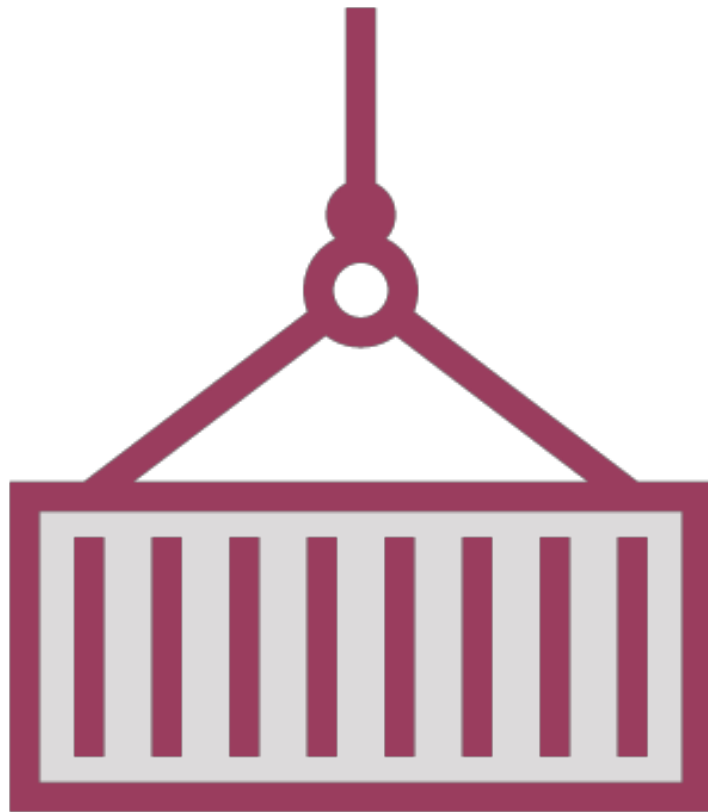Can use customized runtimes

App Engine Flexible Environment

App Engine Environments
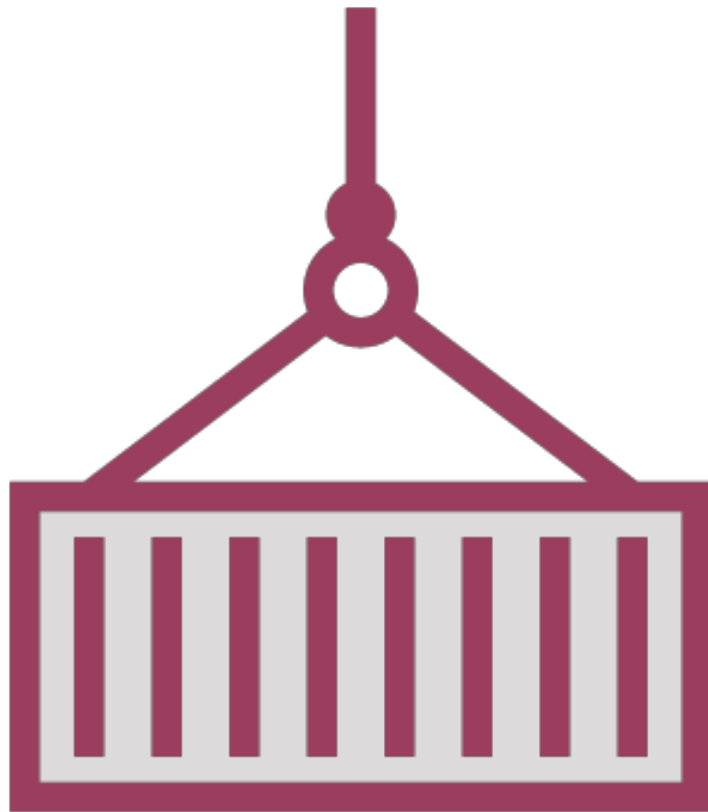
Standard Environment

Flexible Environment

Application Execution

Flexible environment runs apps in Docker container on GCE VMs

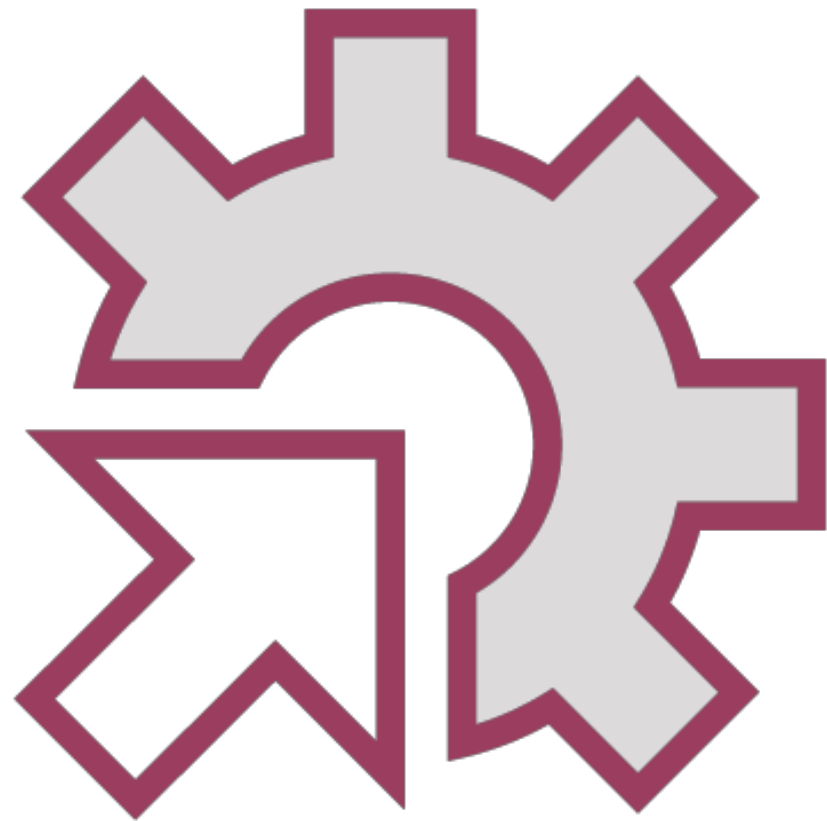Far less restrictive than sandbox of Standard environment

Application Execution

Can use non-whitelisted binaries

Can write to disk

Can run multiple processes

Can choose type of GCE machine type

Accessing External Services

Standard environment uses built-in App Engine APIs

These APIs are not available in Flexible environment
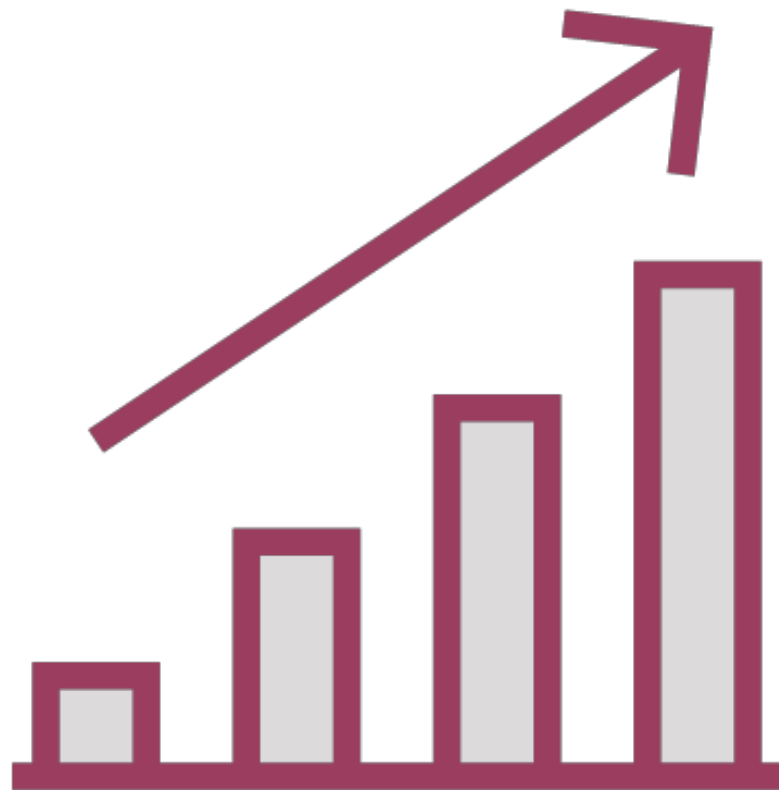
Use client libraries instead

Local Development

Can run application locally

Code should be portable

No App Engine SDK

Scaling

Differs from App Engine Standard

Must have at least one instance running

Scaling happens via GCE Autoscaler

Health Checks

App developers write own health checks

Loaded by platform load balancers

Be careful with third-party library calls inside health checks

- Can cause all health checks to fail

Instance Sizes

App can specify GCE machine type

Higher CPU and memory limits

Demo

**Running a website on a Nginx web
server using a custom Docker container**

Google Cloud Security Scanner

Cloud Security Scanner

Identifies security vulnerabilities in App Engine and Compute Engine web applications

Scanner Vulnerability Classes

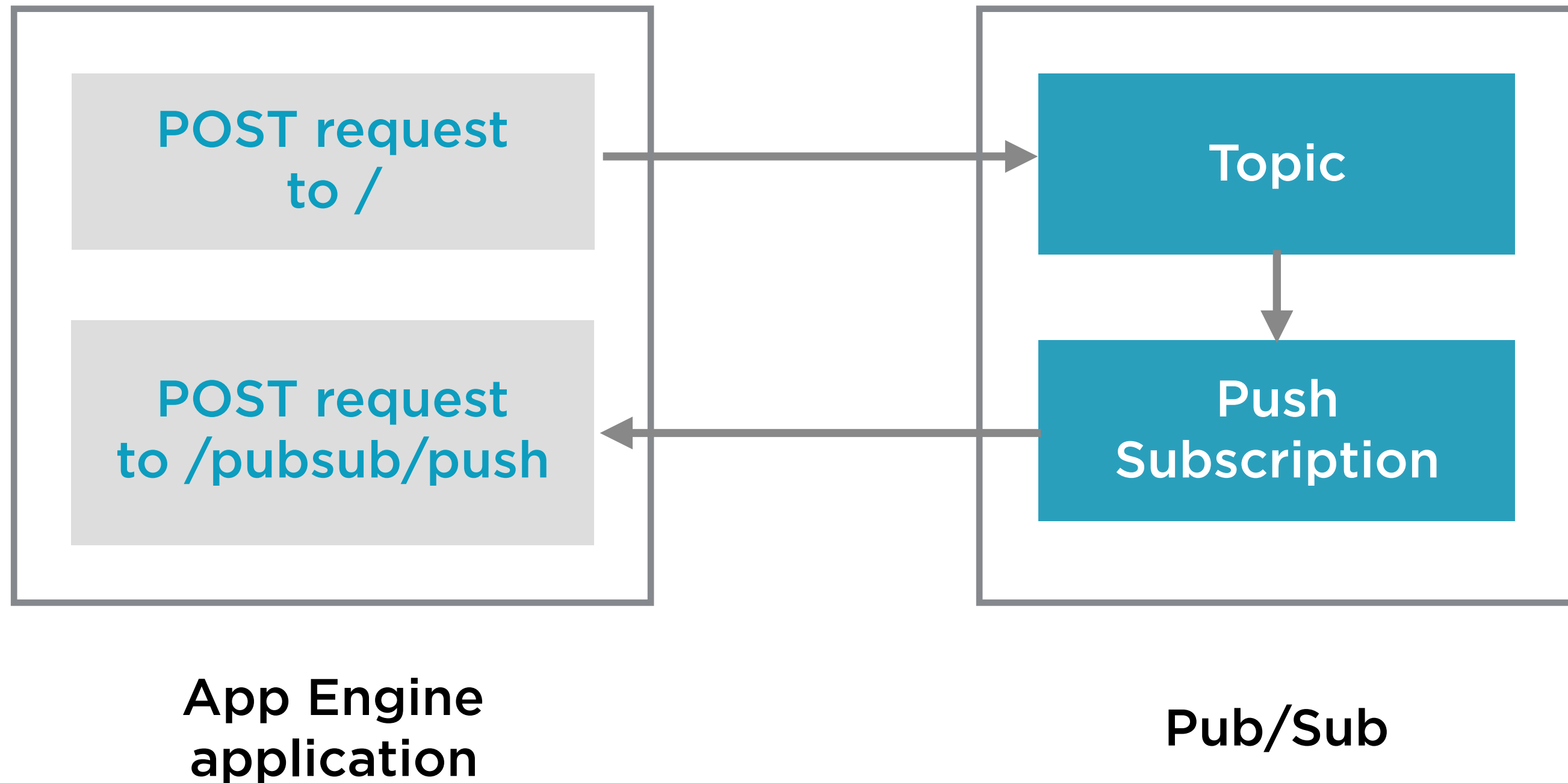|		
Cross-site scripting	Flash injection	Mixed content
Clear-text password	Invalid headers	Outdated libraries

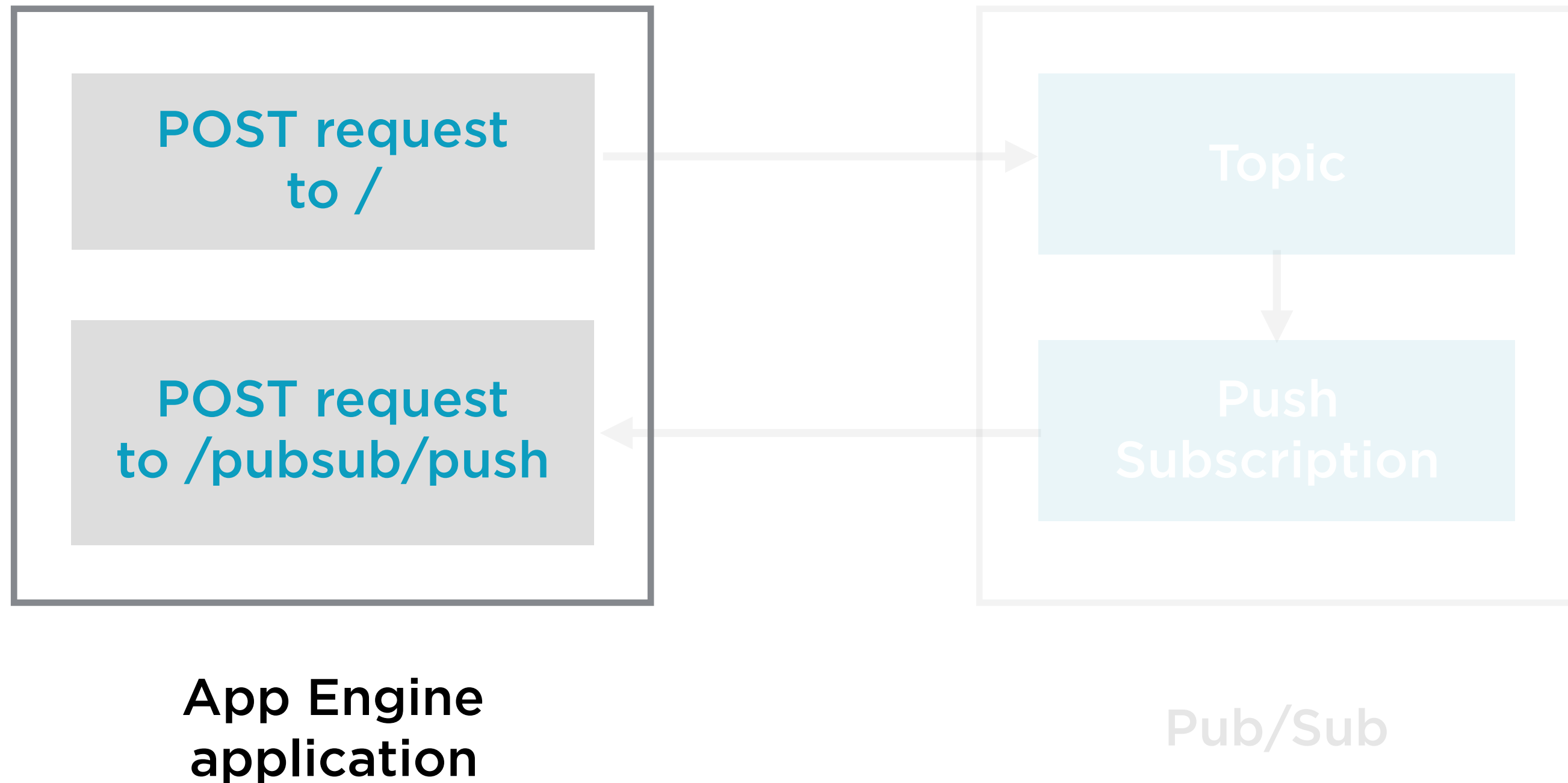**New vulnerability classes constantly being added**

Demo

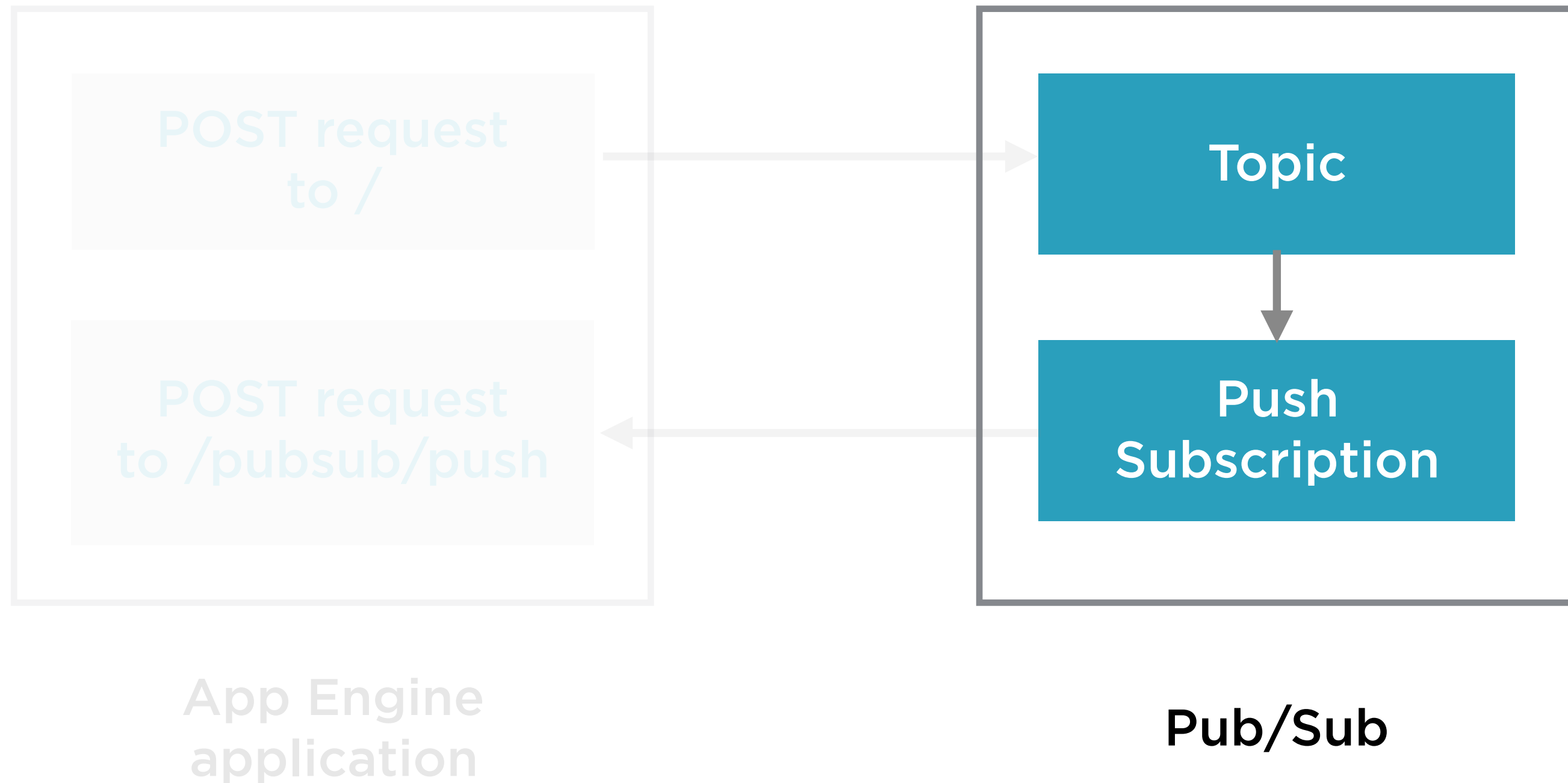**Scanning applications for security vulnerabilities using the Cloud Security Scanner**
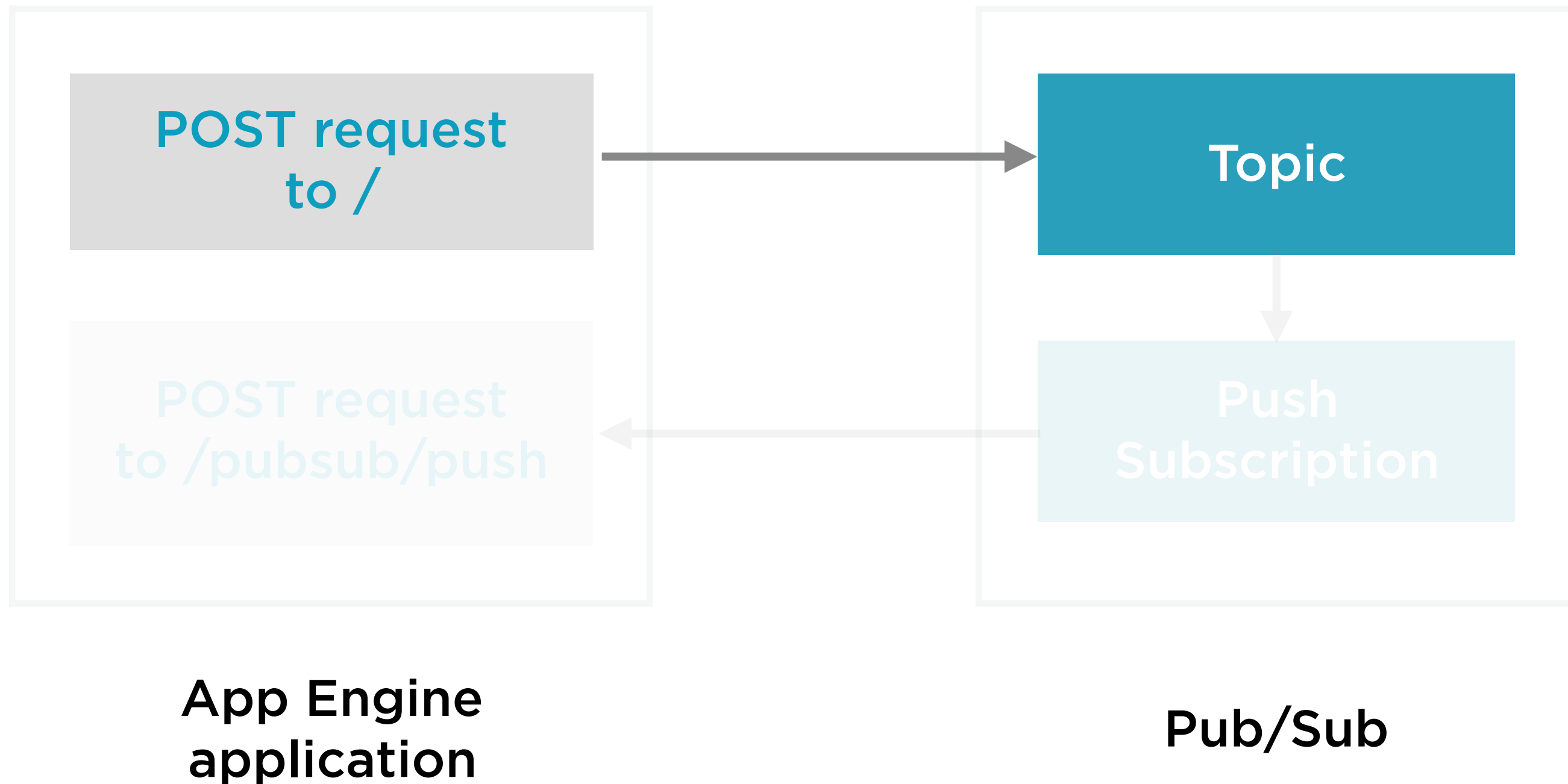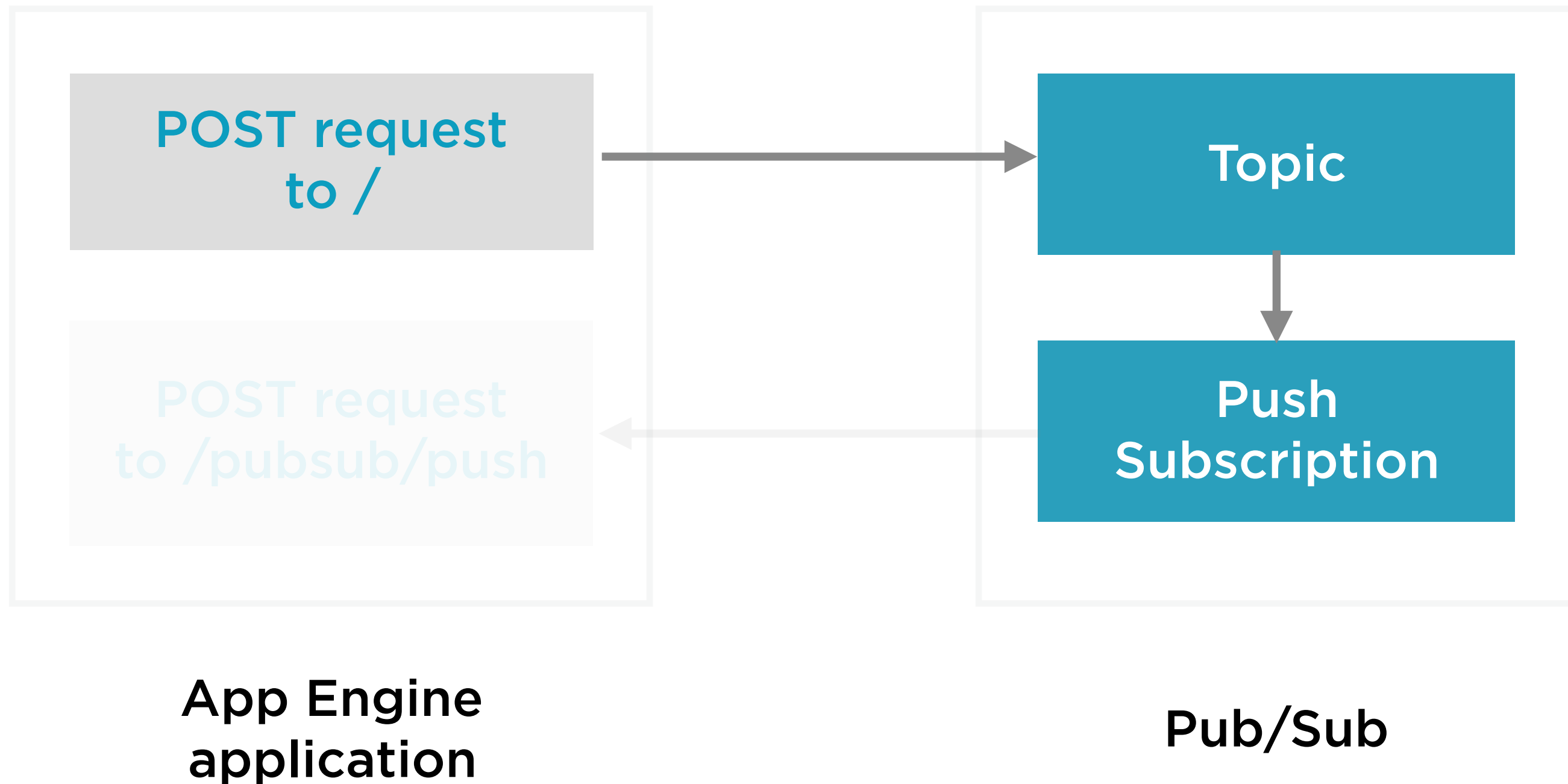
Integrating with Pub/Sub

# App Engine Application

Pub/Sub Topic and Push Subscription

POST request to /

POST request to /pubsub/push

App Engine application

Topic

Push Subscription

Pub/Sub

Posts Message on Topic

POST request to /

Topic

POST request to /pubsub/push

Push Subscription

App Engine application

Pub/Sub

Message Sent to Subscription

POST request
to /

POST request
to /pubsub/push

Topic

Push
Subscription

**App Engine
application**

Pub/Sub

Message Pushed to App Engine URL

Integrating with Pub/Sub

App Engine application
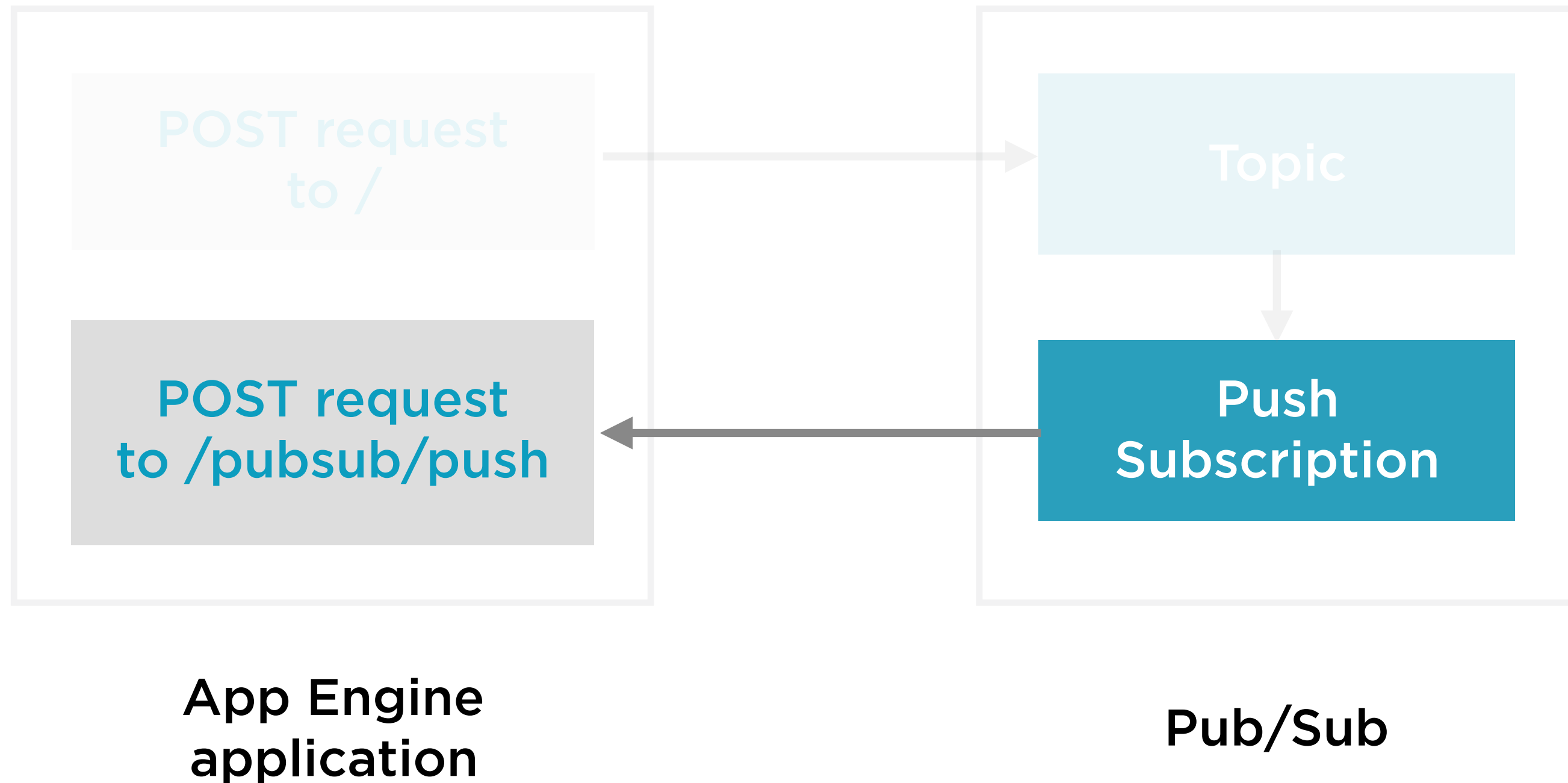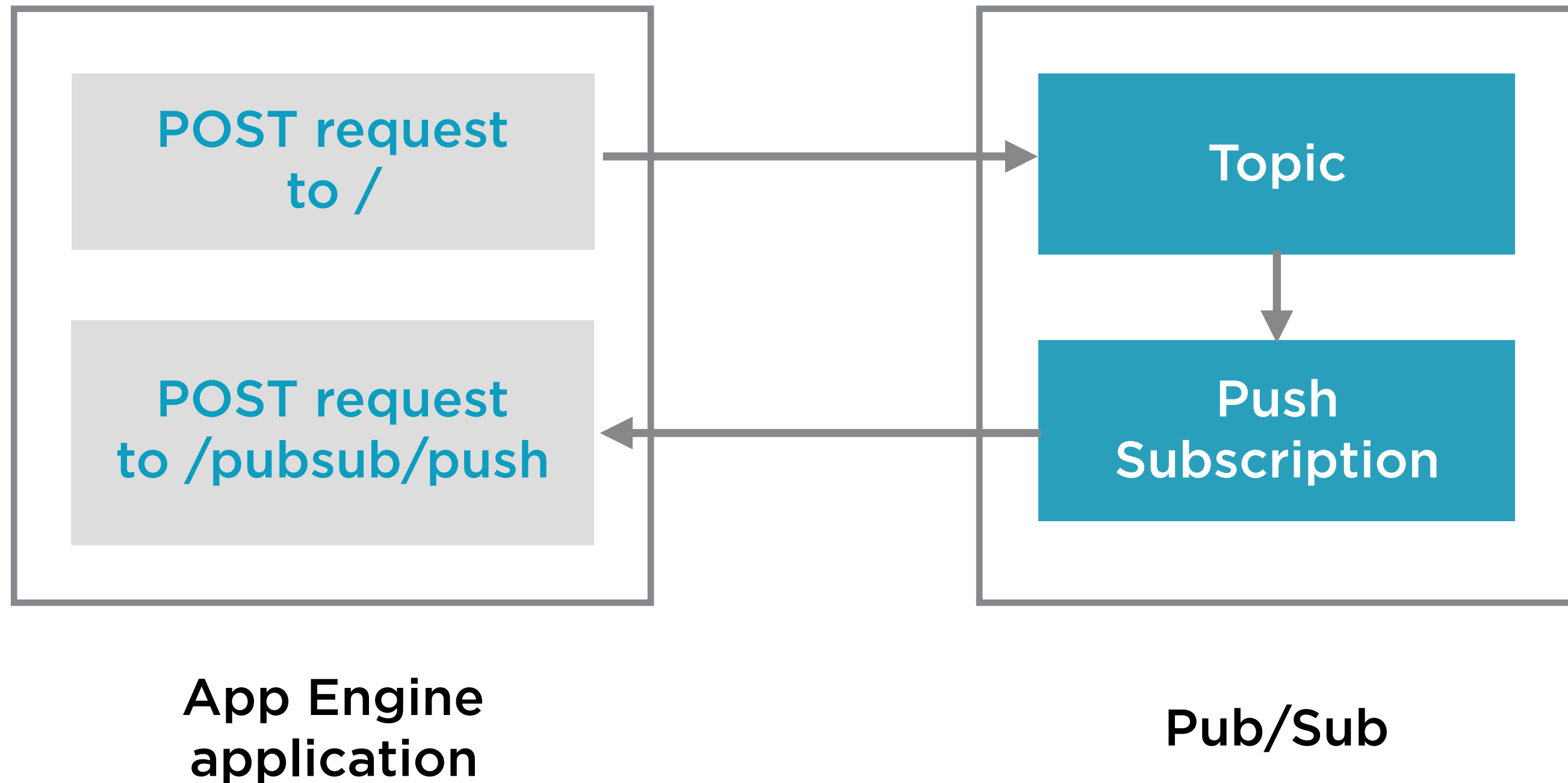
Pub/Sub

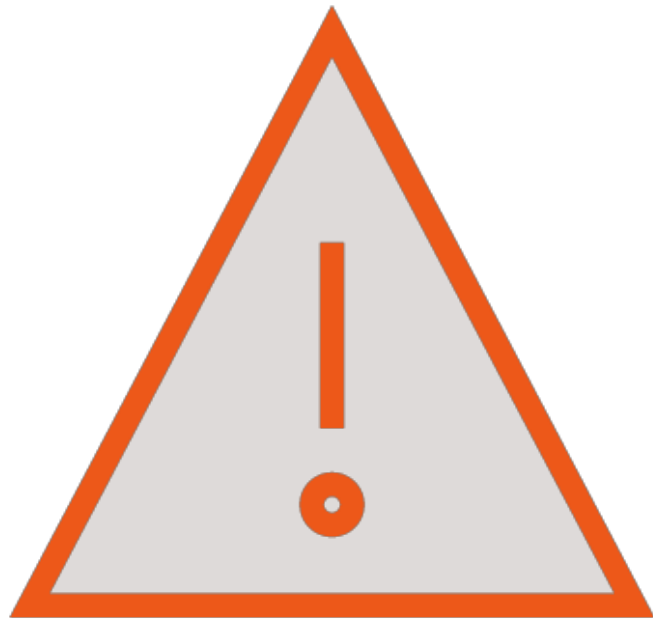# Demo

Integrating with Pub/Sub using client libraries

Summary

Flexible environment runs app in Docker container

Relatively slow scaling

Can access external libraries and runtimes
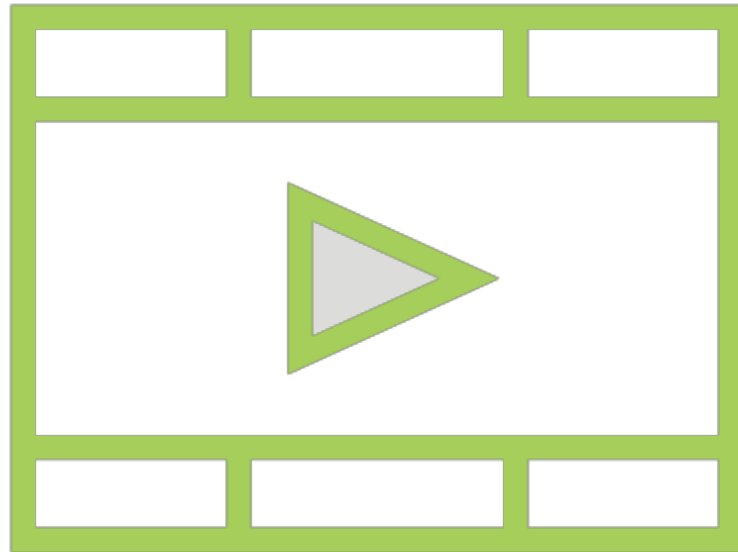
Can use customized runtimes

Delete Resources

App Engine applications

Delete data in Memcache and Cloud Datastore

Cloud storage buckets

Pub/Sub topics and subscriptions

Related Courses

Leveraging Advanced Features of Google App Engine

Leveraging Google Cloud Armor, Security Scanner and the Data Loss Prevention API