

Delivering Content on AWS with Amazon CloudFront

SETTING UP CLOUDFRONT



Andy Dyrucz

CLOUD ARCHITECT

@adyrucz

Video of demo web application we will use for the rest of the course.

Summary

Summary

Summary

Overview of a CDN

Summary

Overview of a CDN

Introduction to CloudFront

Summary

Overview of a CDN

Introduction to CloudFront

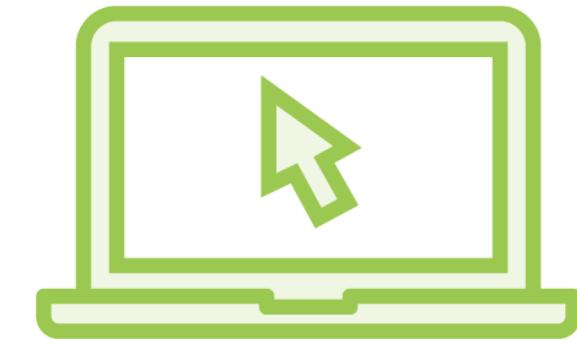
Prepare Demo

What is a CDN?



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@adyracz

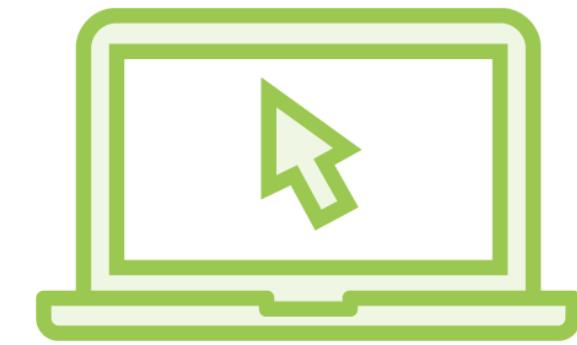
Web Server



Web Server



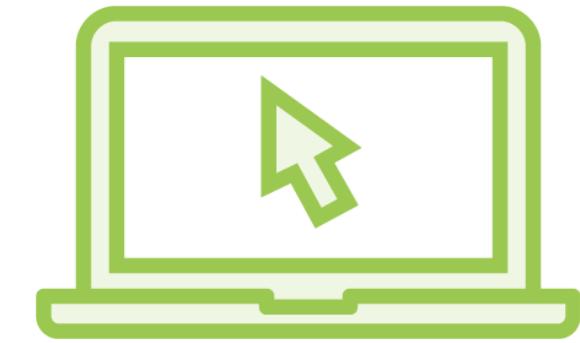
ORIGIN





ORIGIN

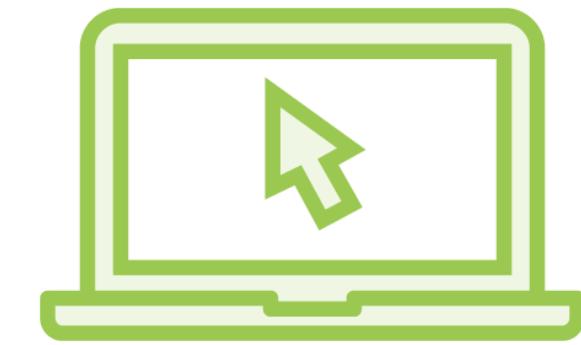
Web Server



Web Server



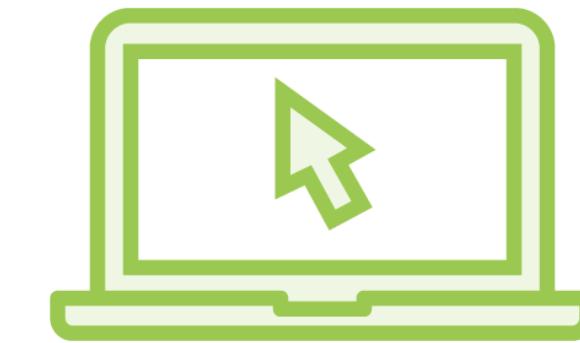
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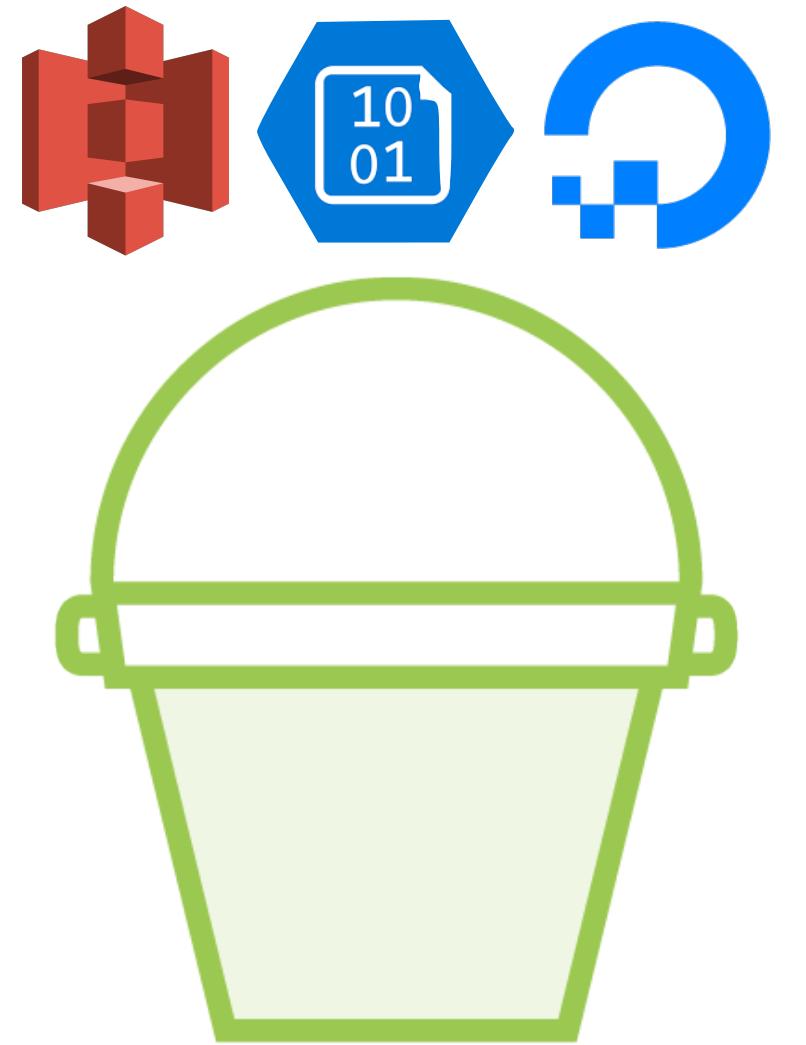


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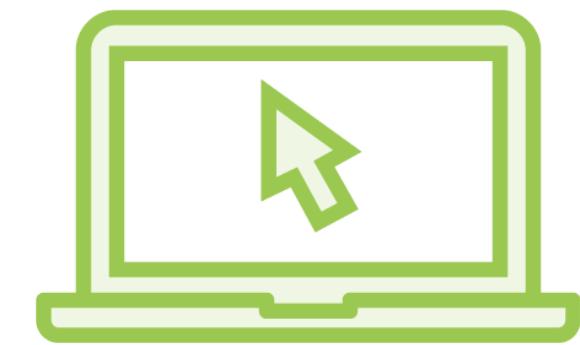


ORIGIN





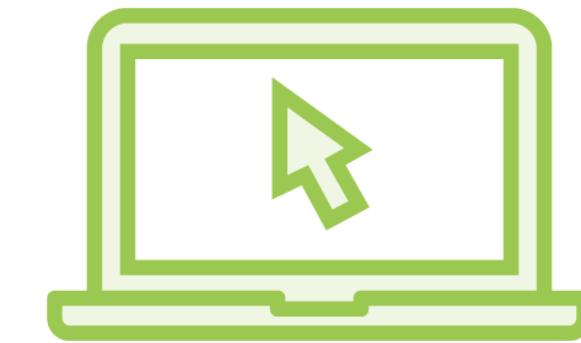
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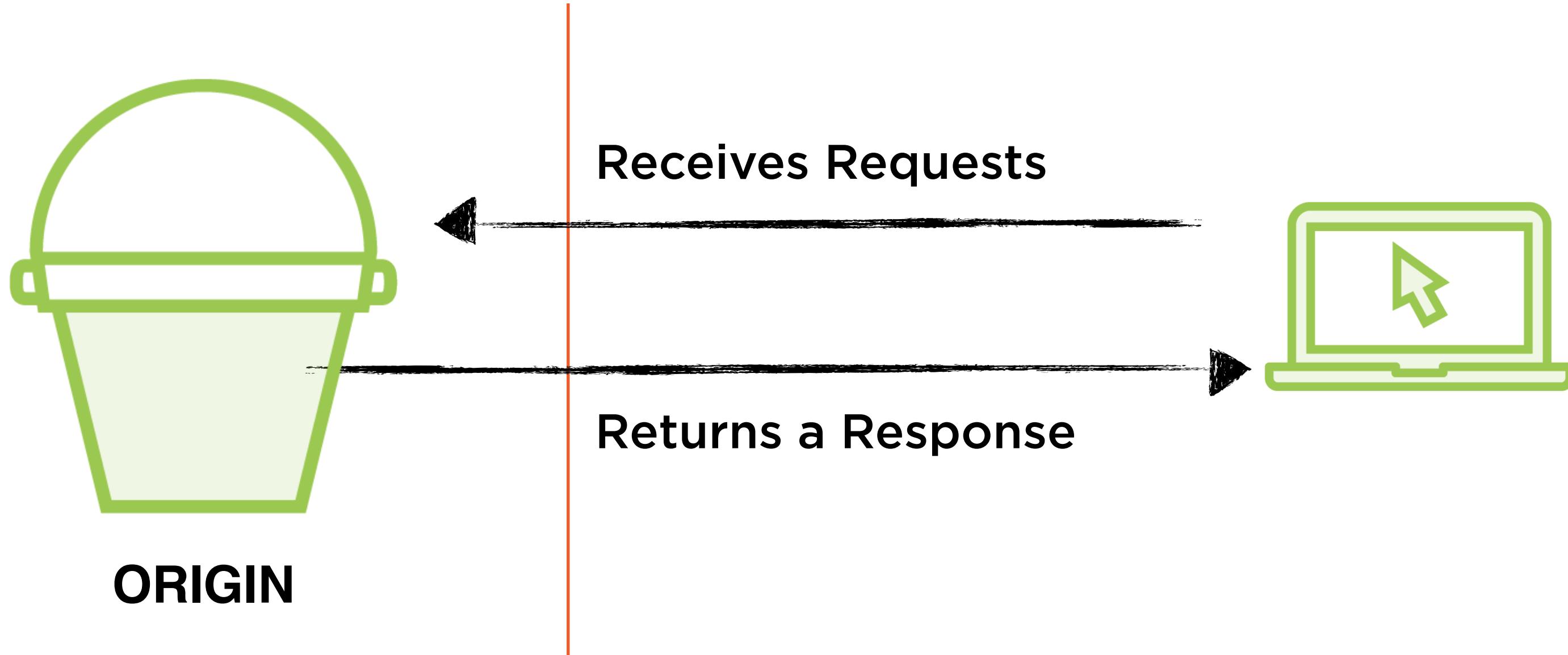
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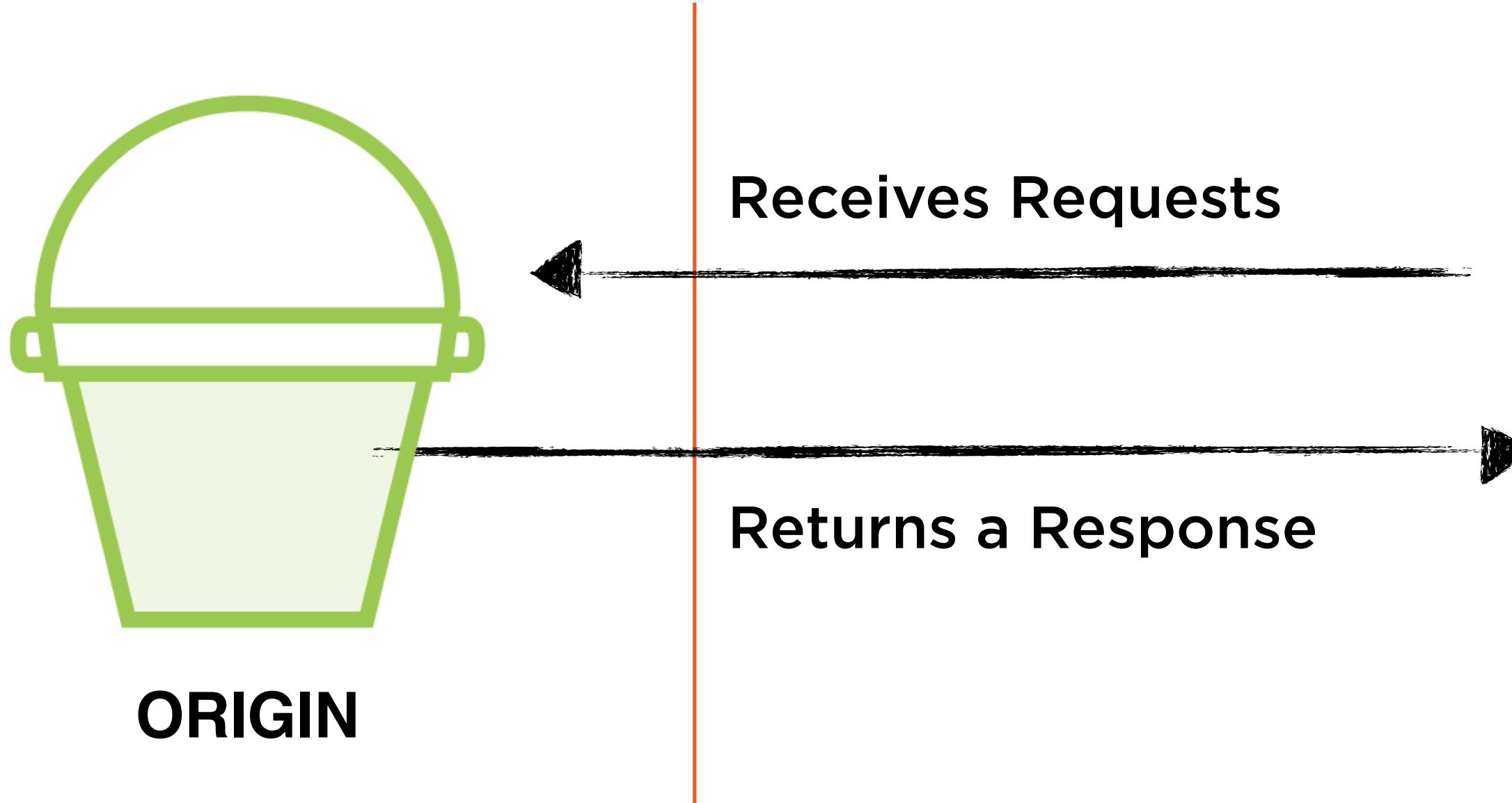
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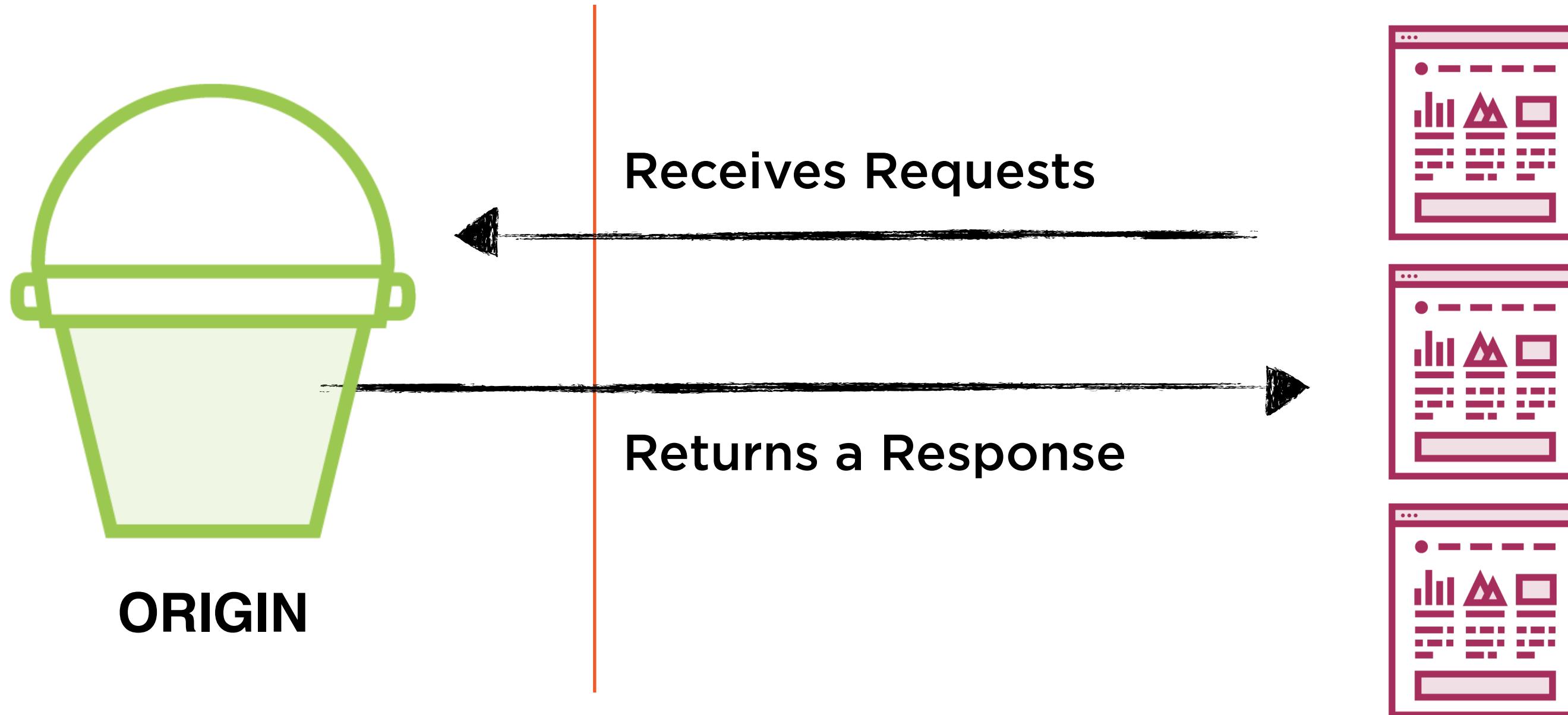
Web Server



Web Server



Web Server



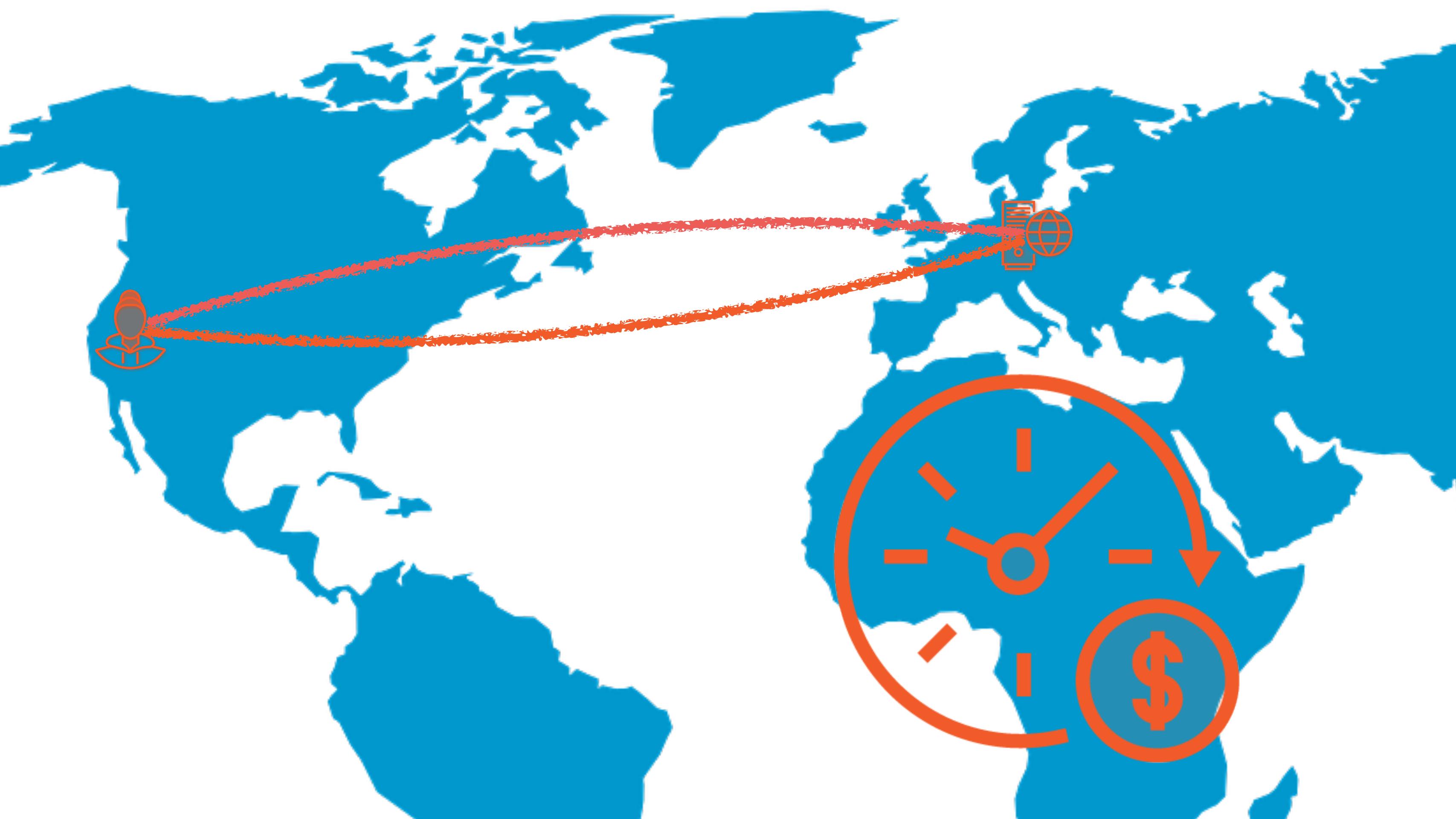












CDN

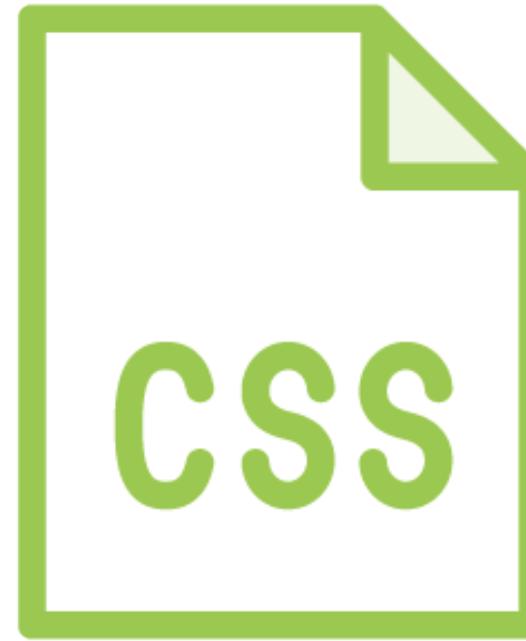
Content Distributed Network

- geographically distributed group of servers which work together to provide fast delivery of internet content.

Static Content



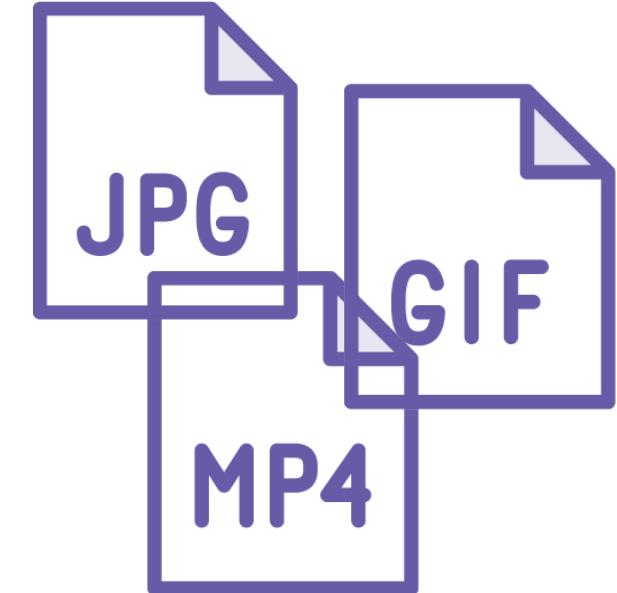
HTML Documents



Stylesheets



Javascript

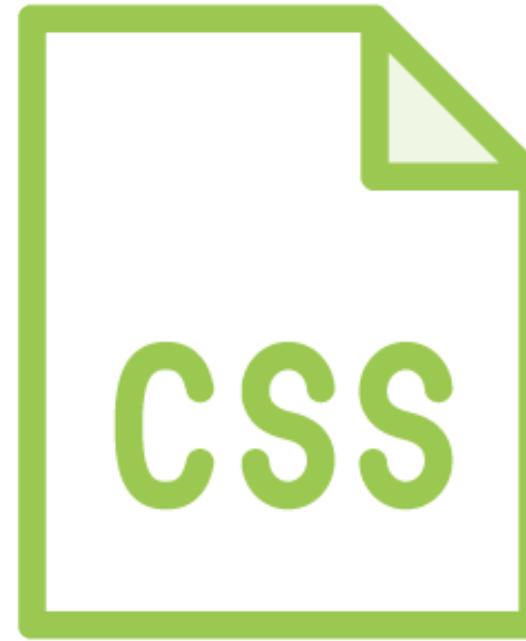


Media Objects

Static Content



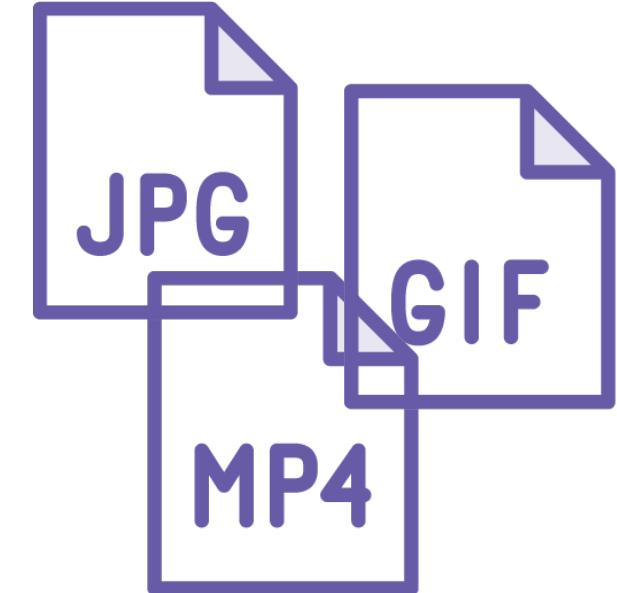
HTML Documents



Stylesheets



Javascript



Media Objects

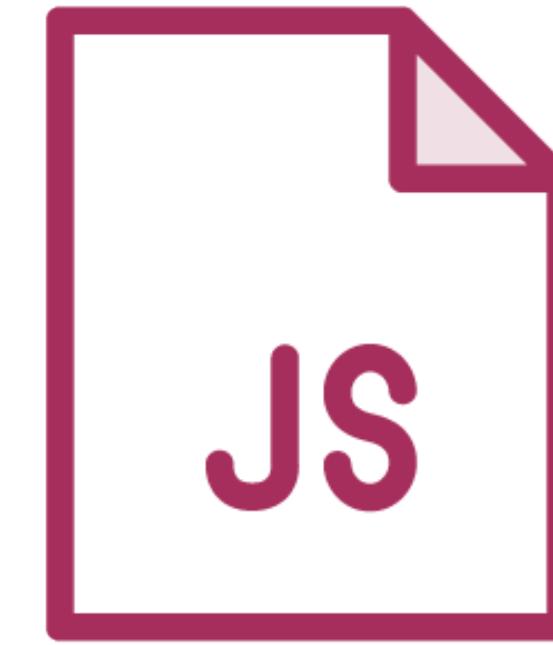
Static Content



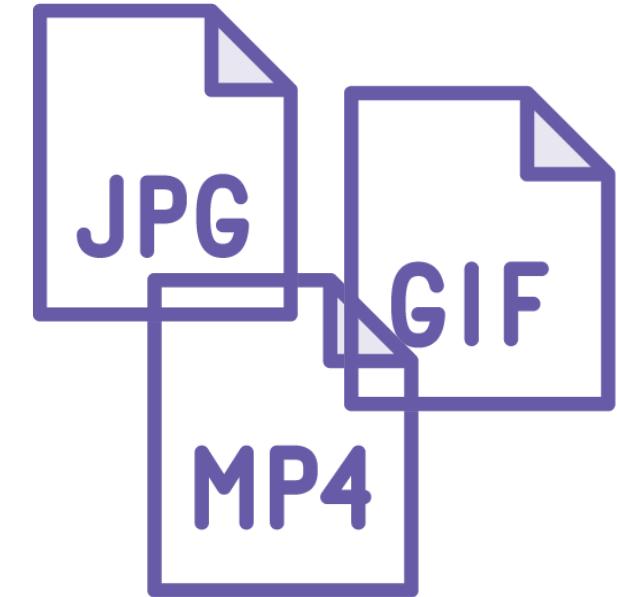
HTML Documents



Stylesheets



Javascript

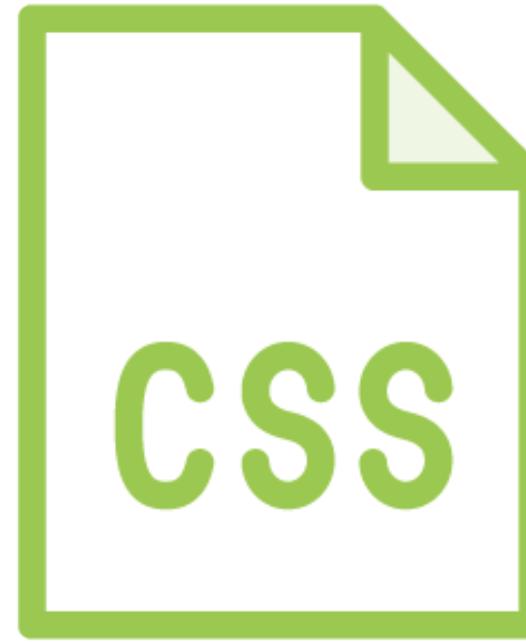


Media Objects

Static Content



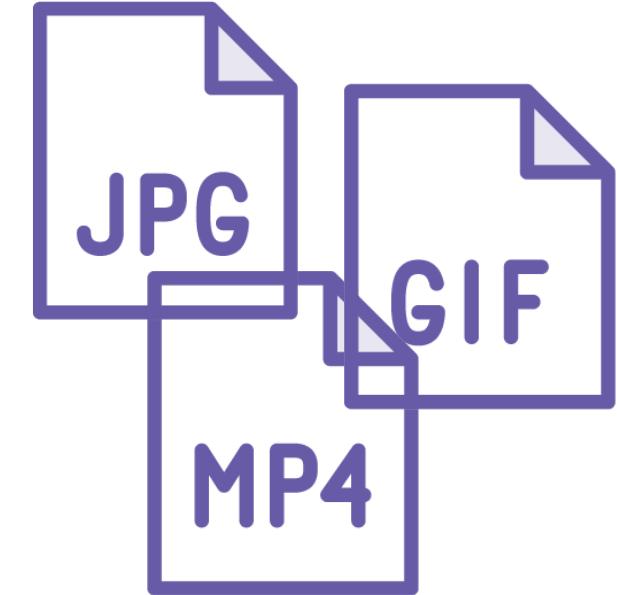
HTML Documents



Stylesheets



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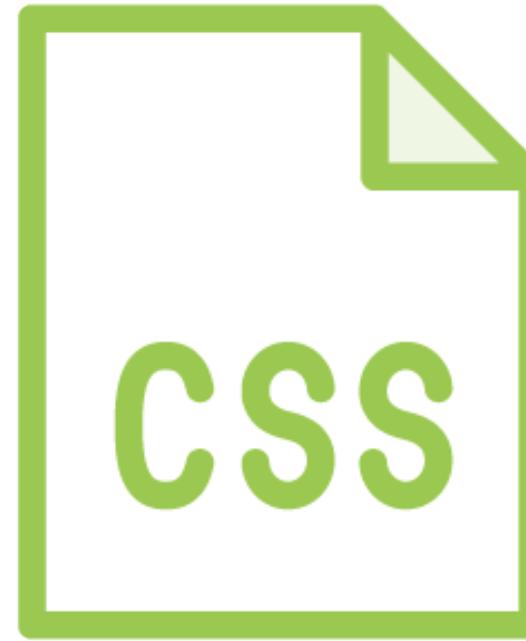


Media Objects

Static Content



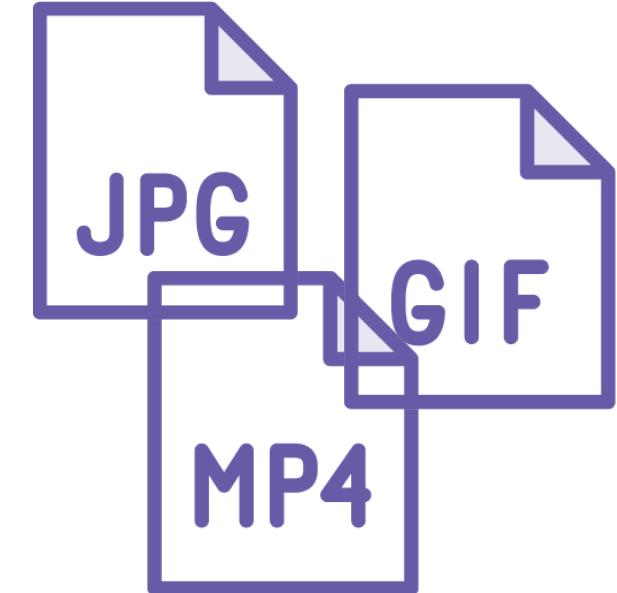
HTML Documents



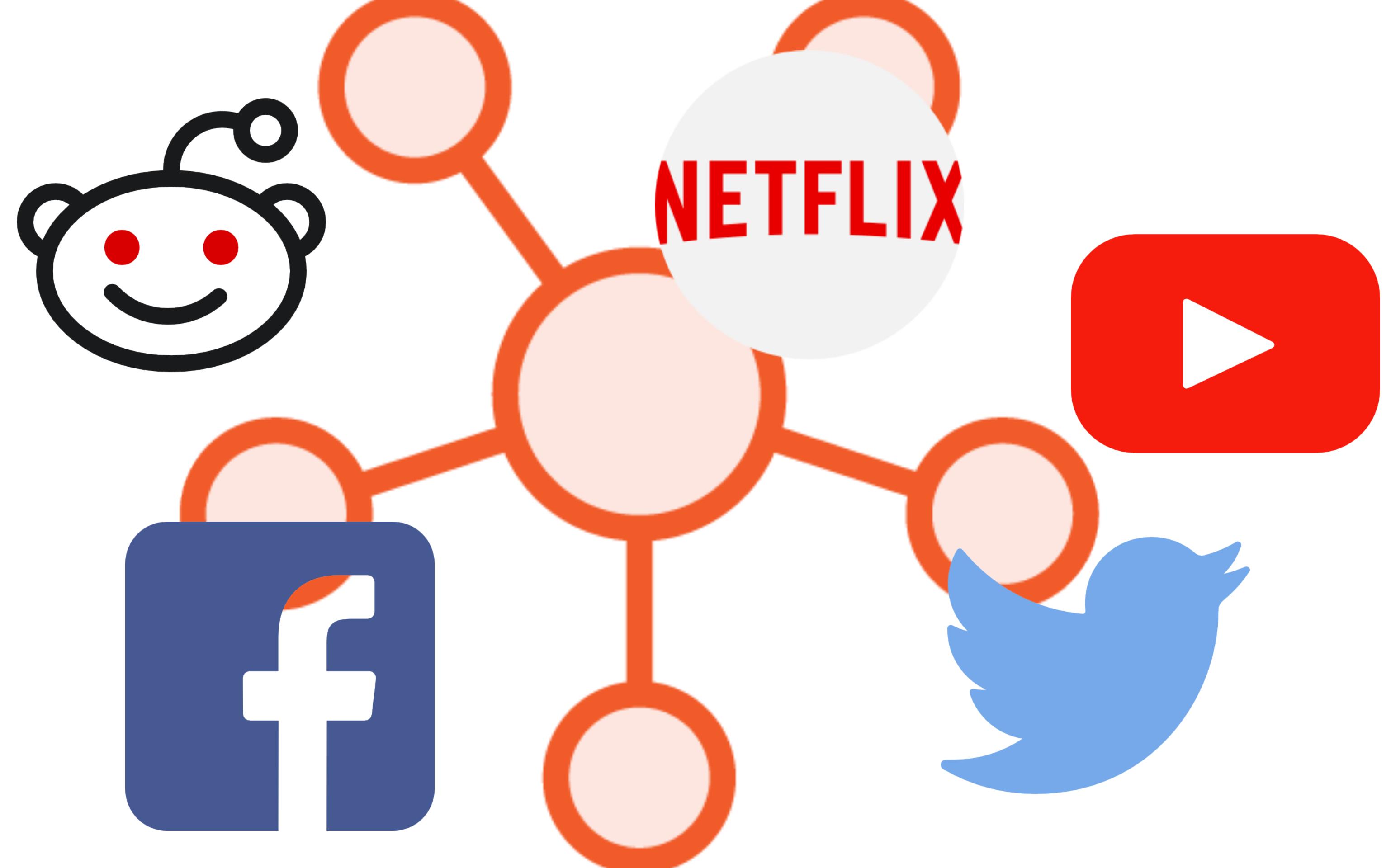
Stylesheets

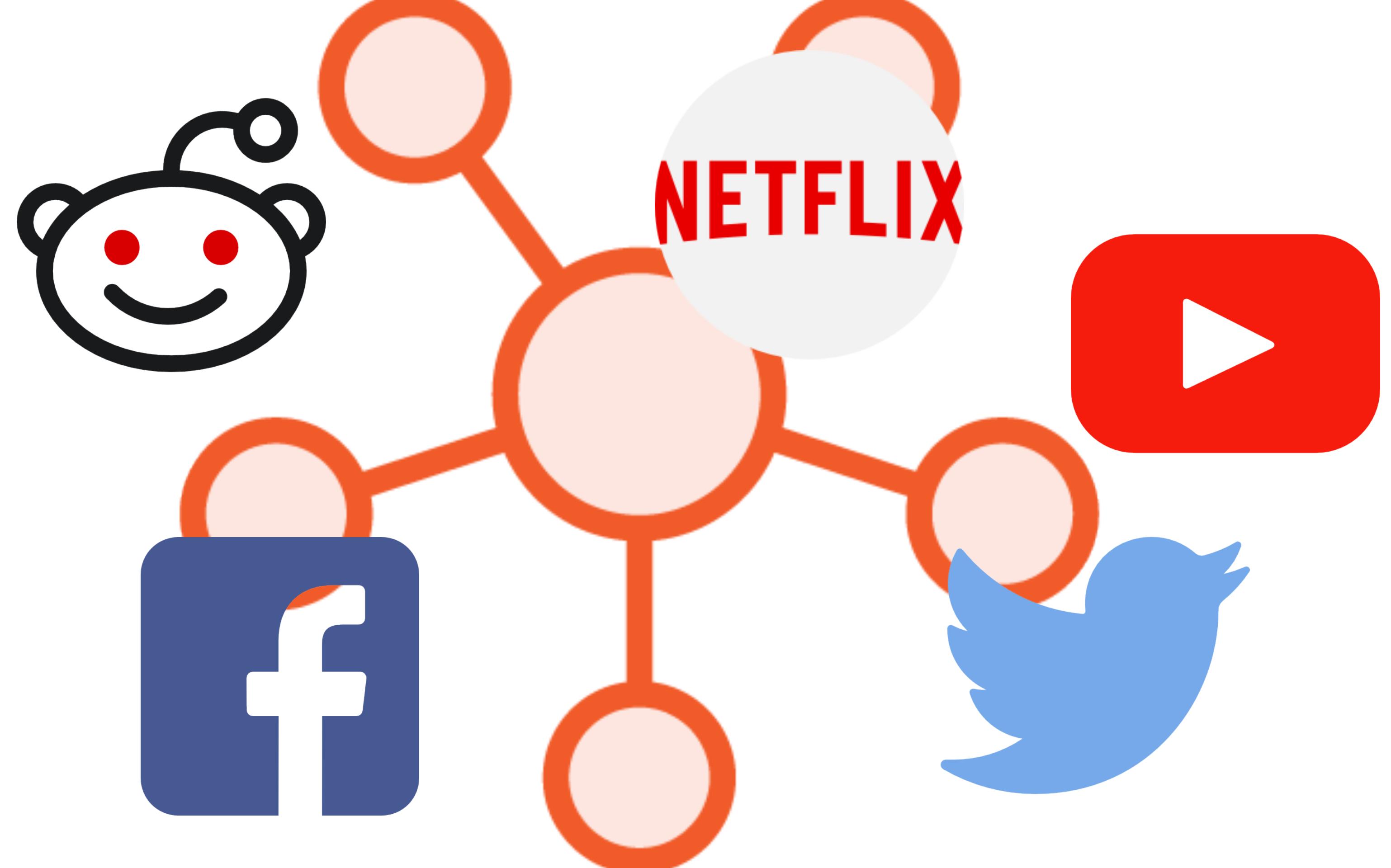


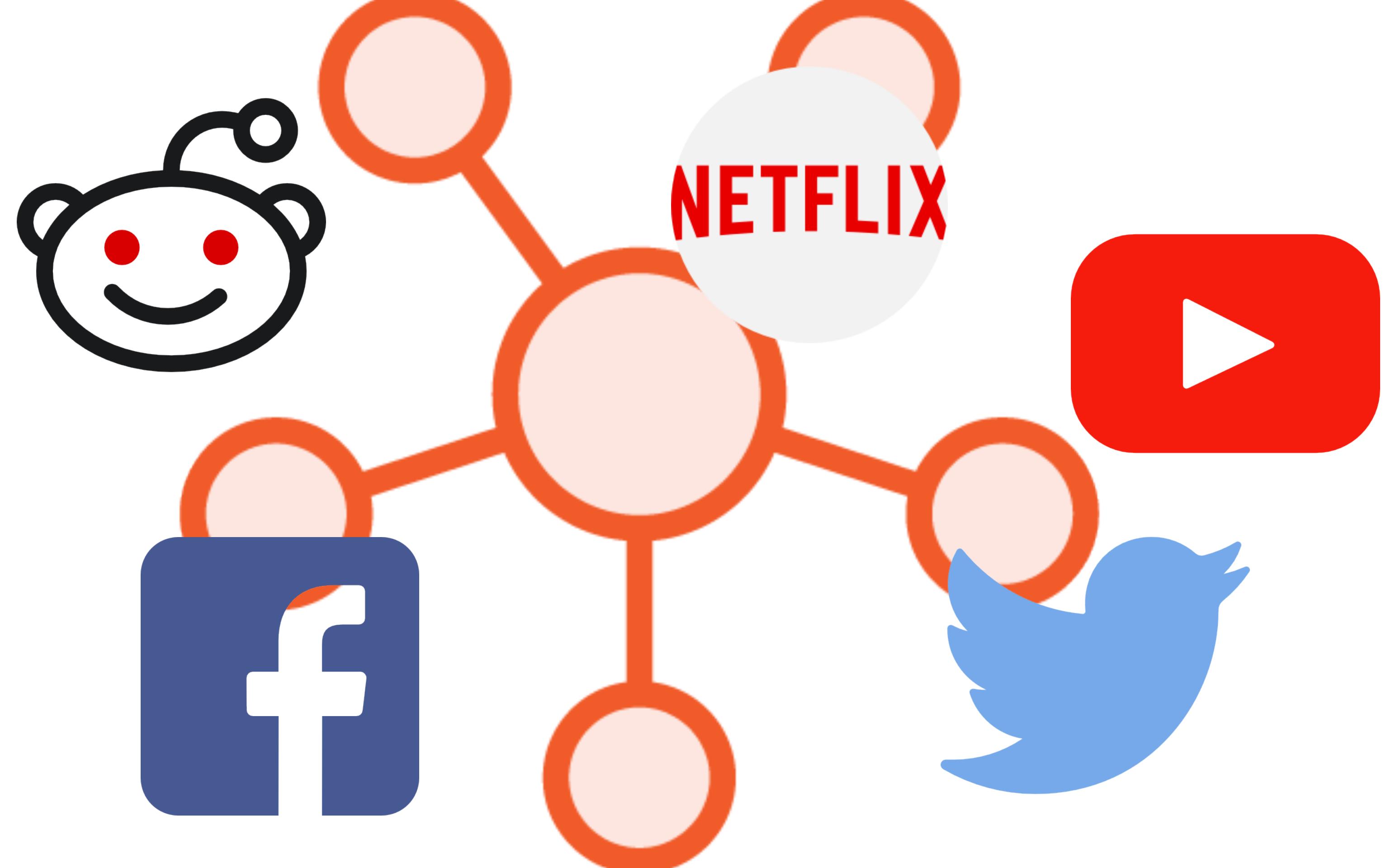
Javascript

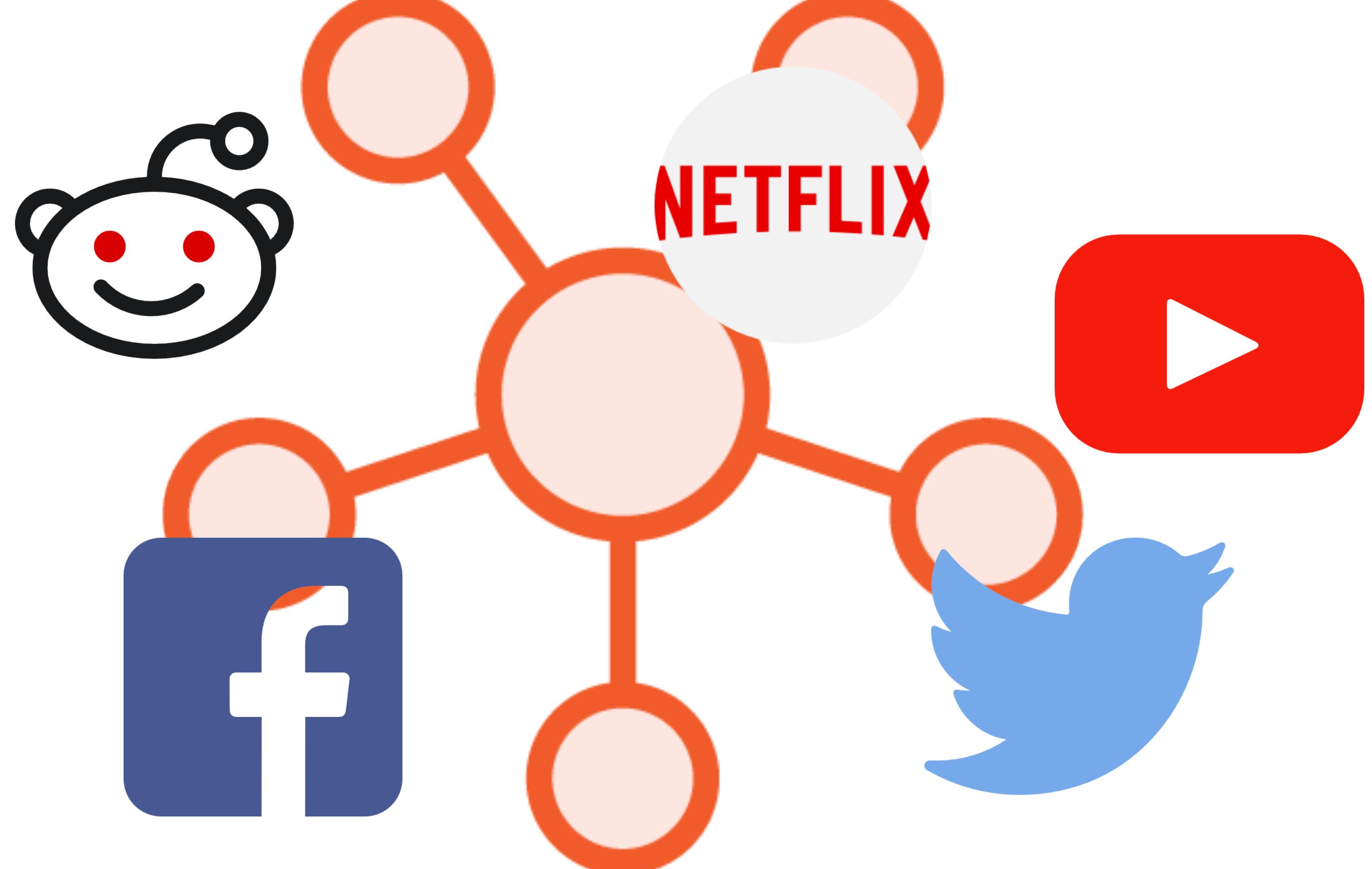


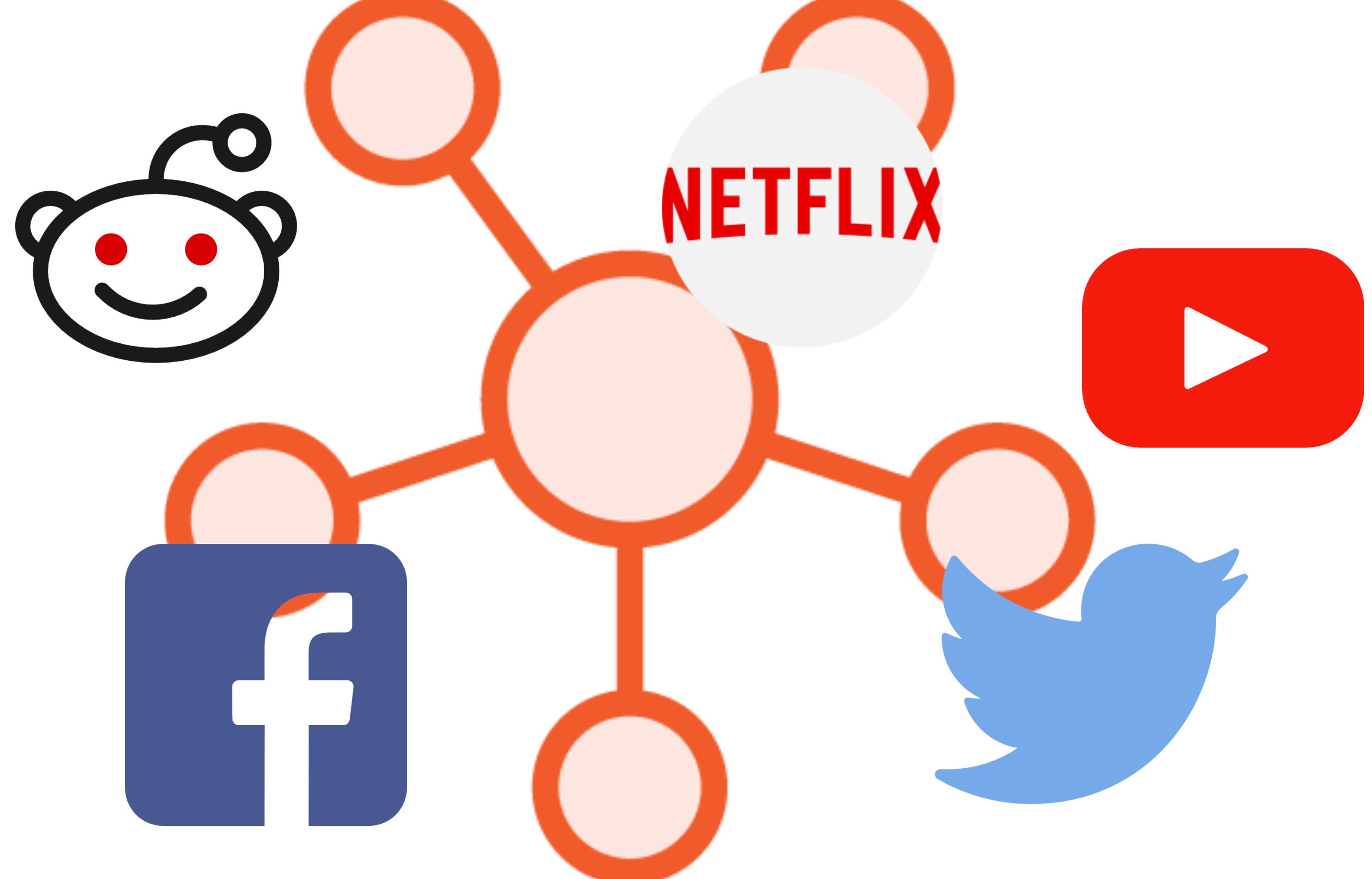
Media Objects

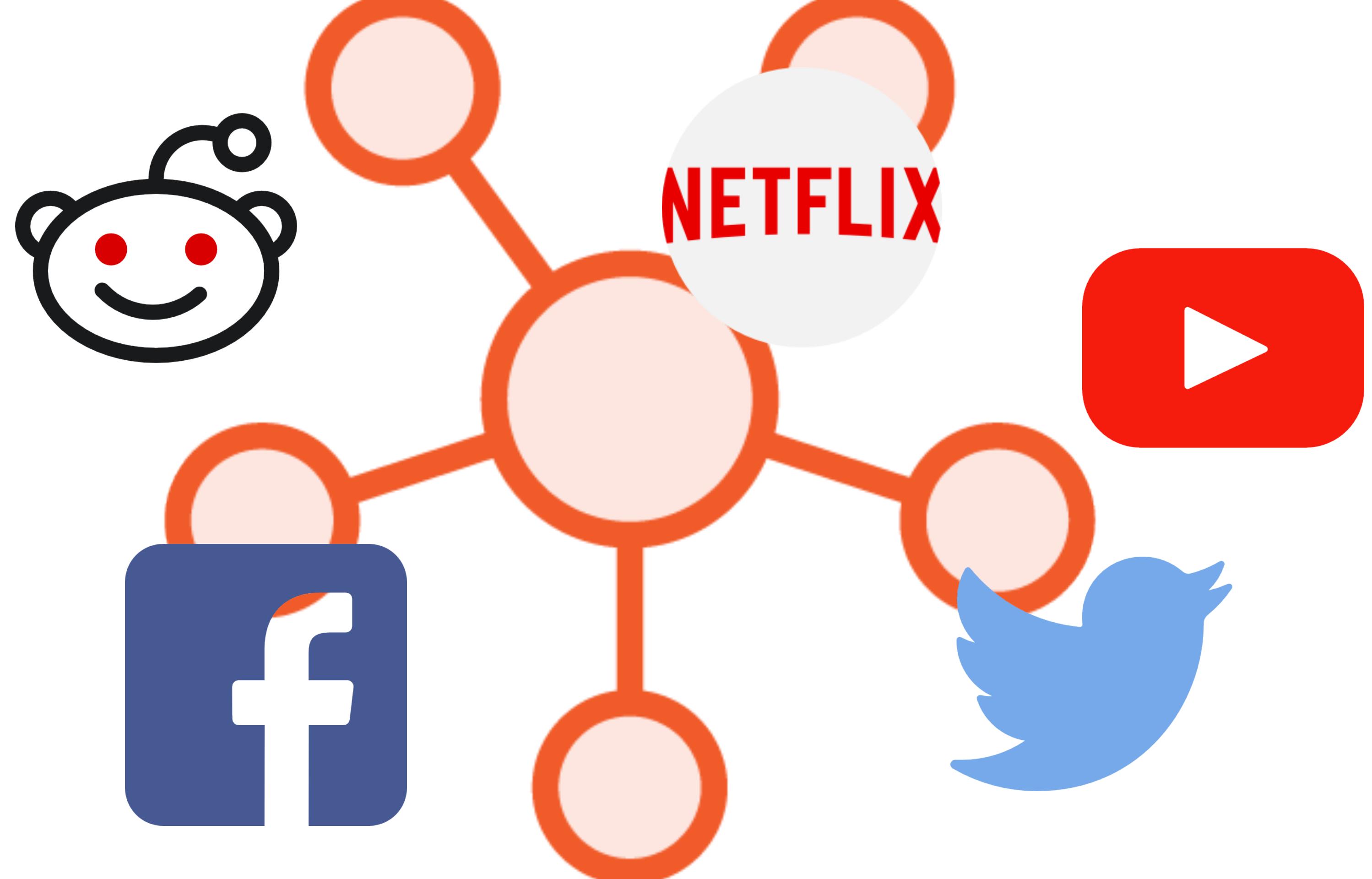












CDNs work by reducing the distance between your origin and your target audience.





The Goal of a CDN:

Deliver content as:

Quickly as possible.
Cheaply
Reliably
Securely

CDN Key Points



CDN Key Points

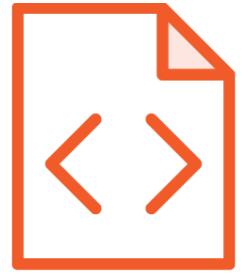


Geographically Distributed Network

CDN Key Points



Geographically Distributed Network



Cached Static Content

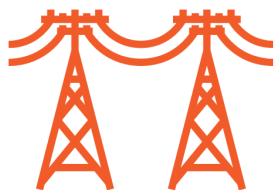
CDN Key Points



Geographically Distributed Network

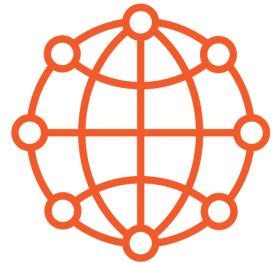


Cached Static Content



Reduce distance between visitors

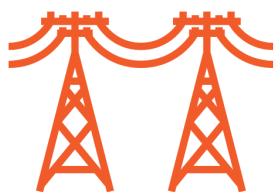
CDN Key Points



Geographically Distributed Network



Cached Static Content



Reduce distance between visitors



Reduce response time

Why should I use a CDN?

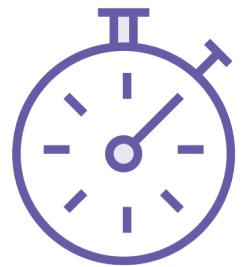


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Benefits of a CDN

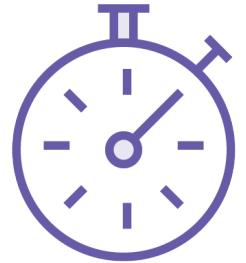


Benefits of a CDN



Improving website load times

Benefits of a CDN

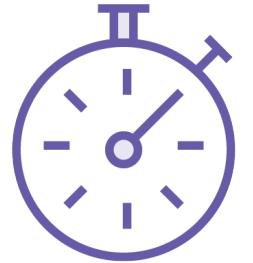


Improving website load times



Reducing bandwidth costs

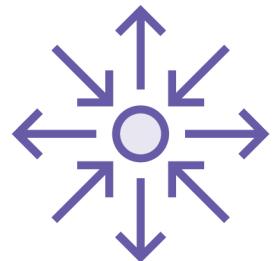
Benefits of a CDN



Improving website load times

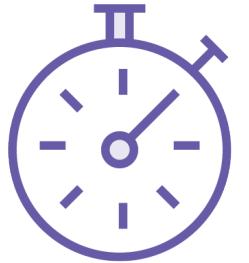


Reducing bandwidth costs



Increasing content availability and redundancy

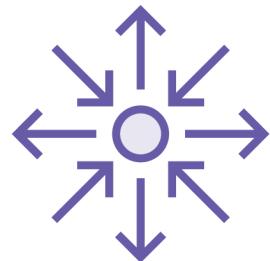
Benefits of a CDN



Improving website load times



Reducing bandwidth costs



Increasing content availability and redundancy



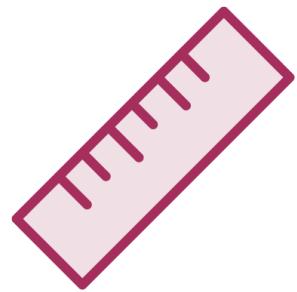
Improving website security

“How does a CDN improve website load times?”

Site Speed



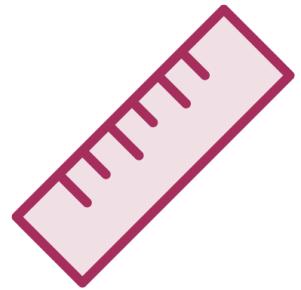
Site Speed



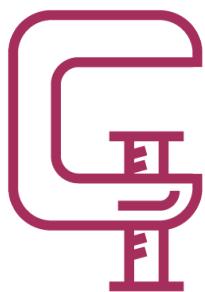
Reduce distance



Site Speed

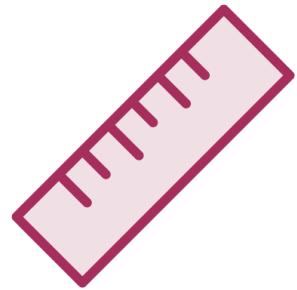


Reduce distance

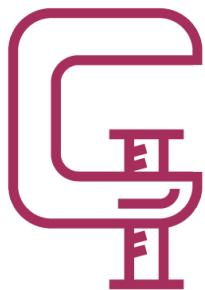


Reduce file sizes

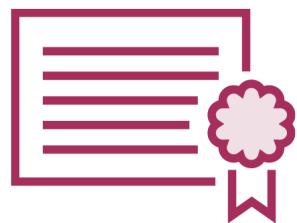
Site Speed



Reduce distance



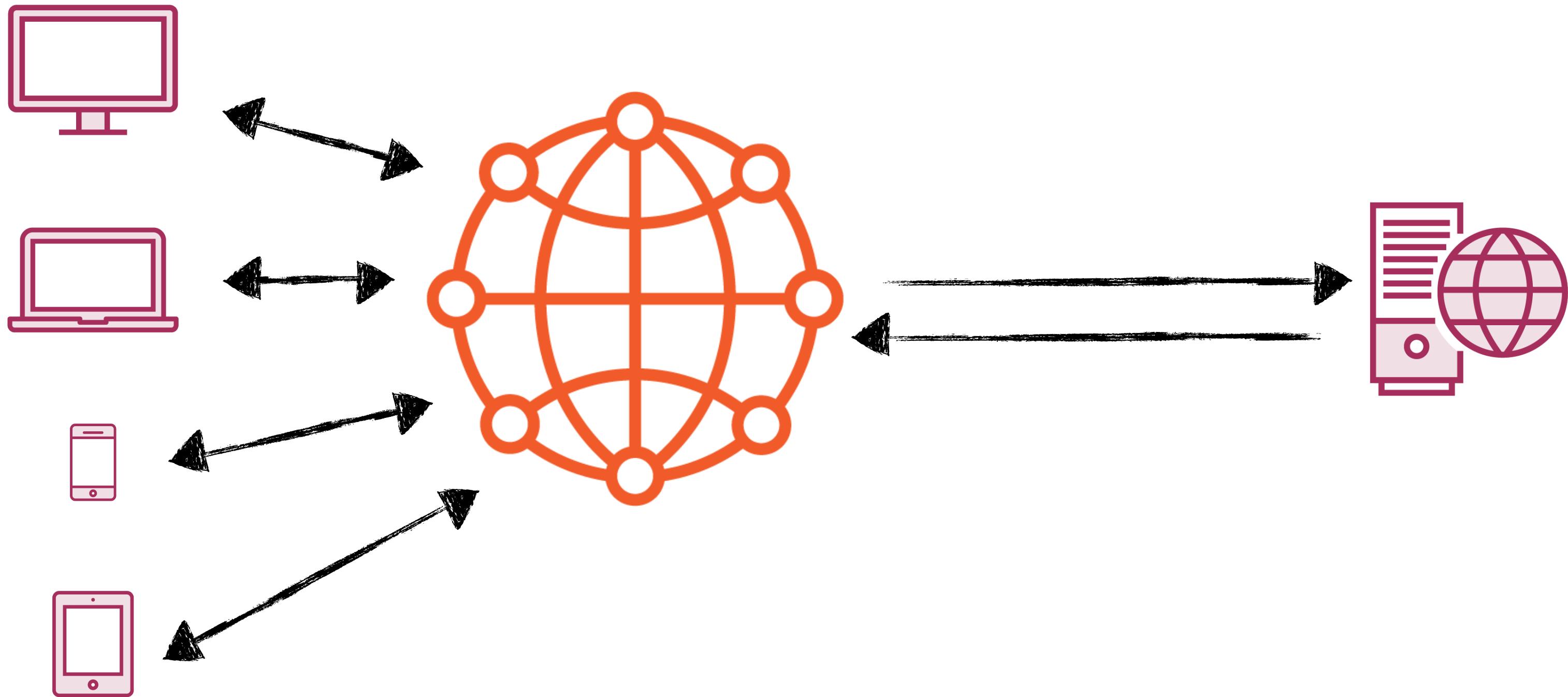
Reduce file sizes



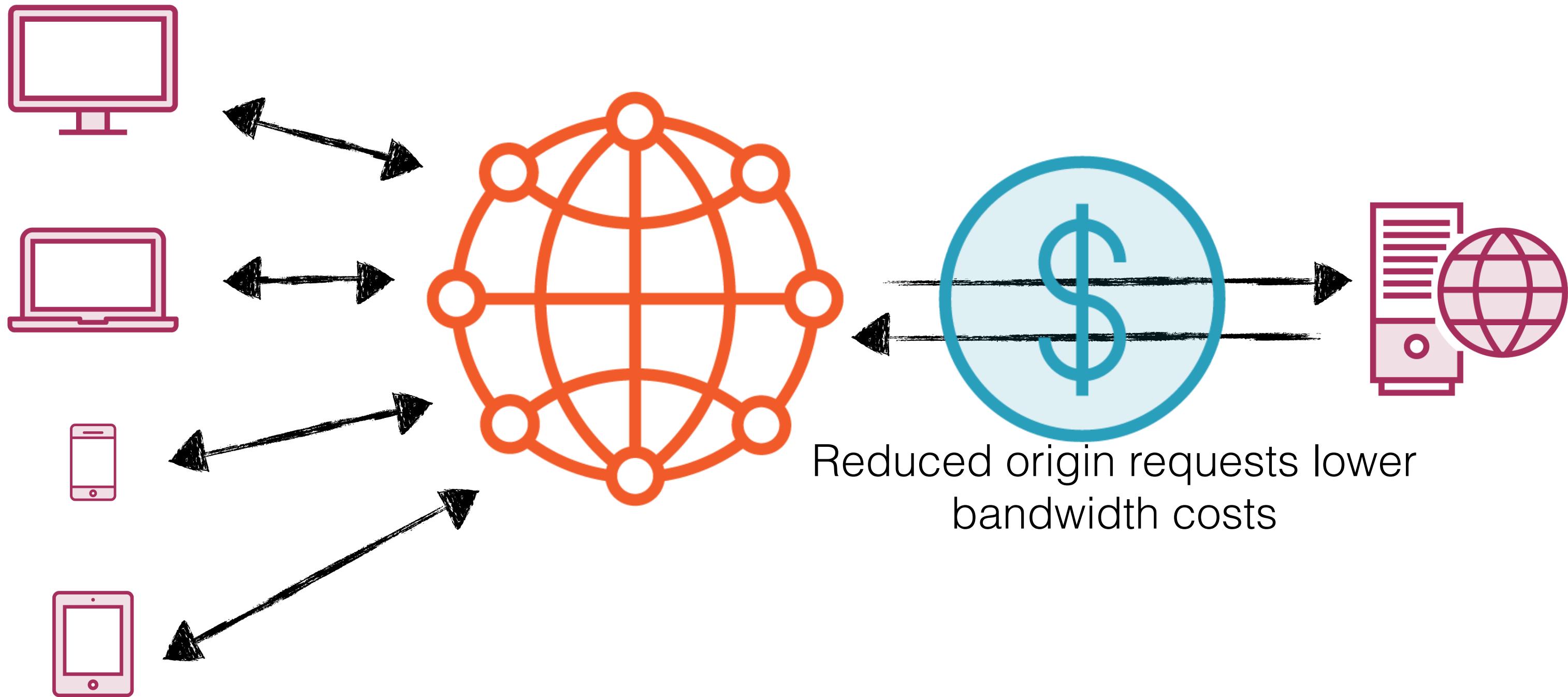
Optimizing certificate negotiation

“How does a CDN reduce bandwidth costs?”

Bandwidth Expense



Bandwidth Expense

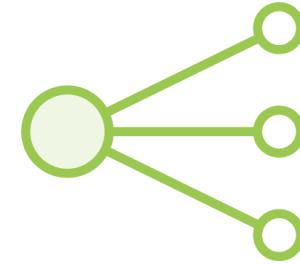


“How does a CDN keep a website
always online?”

Reliability and Redundancy

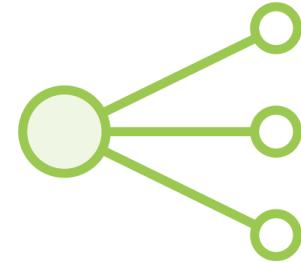


Reliability and Redundancy



Load balancing

Reliability and Redundancy

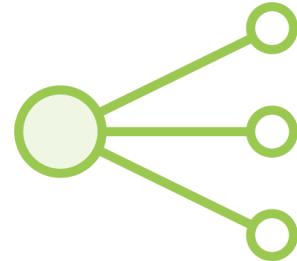


Load balancing



Intelligent failover

Reliability and Redundancy



Load balancing



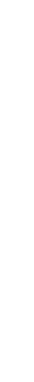
Intelligent failover



Anycast routing transfers

“How does a CDN protect data?”

Data Security



Data Security



Hosting TLS/SSL certificates

Data Security



Hosting TLS/SSL certificates

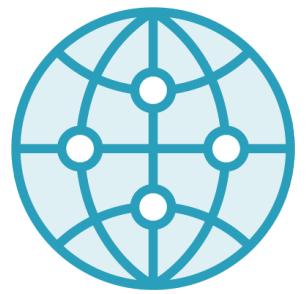


Preventing DDOS attacks

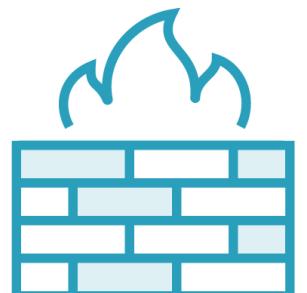
Data Security



Hosting TLS/SSL certificates



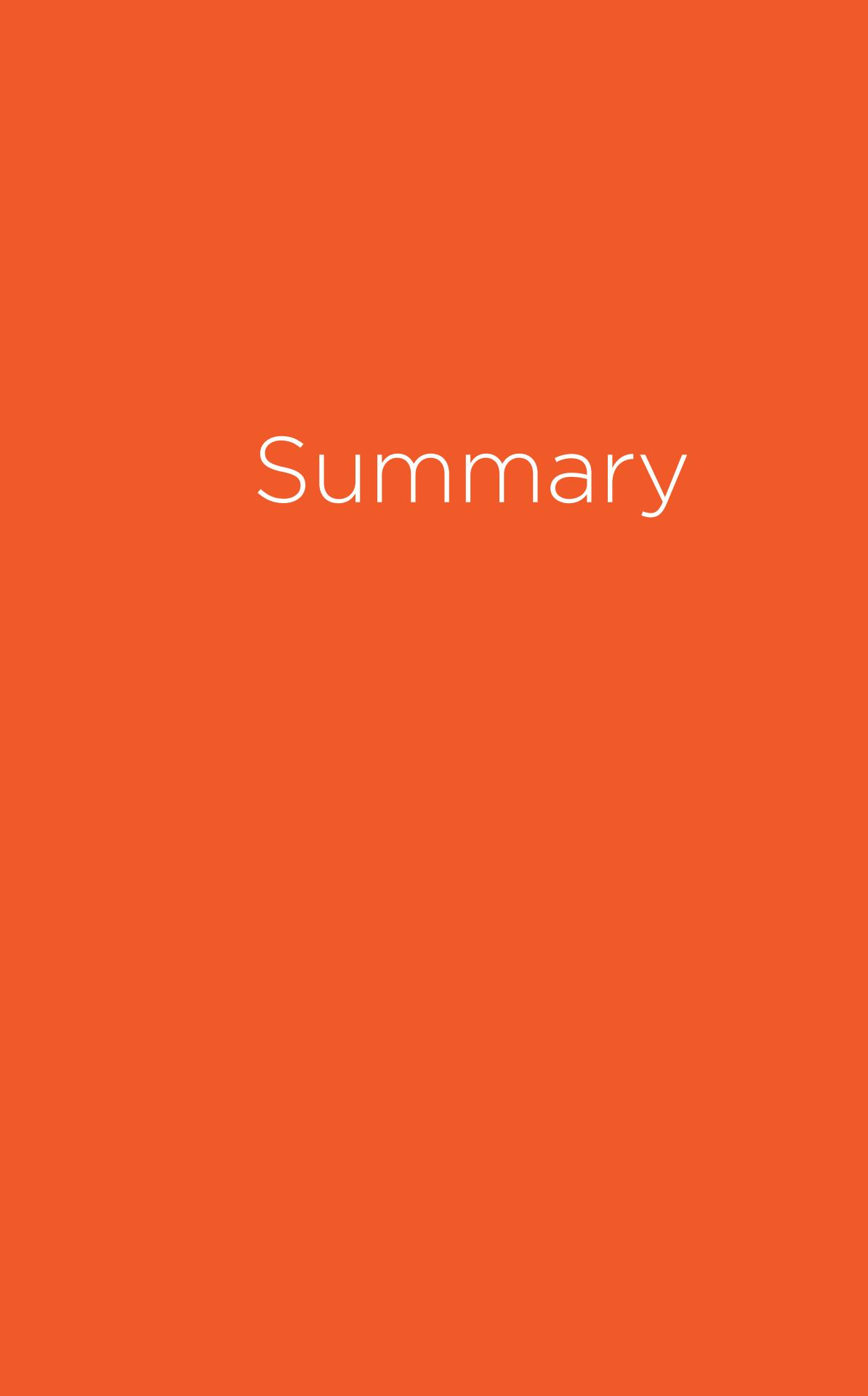
Preventing DDOS attacks



Enabling web application firewalls

Summary

Summary



Summary

Improve website load times

Summary

Improve website load times

Reduce bandwidth costs

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Improve website load times

Reduce bandwidth costs

Increase content availability and redundancy

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Improve website load times

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Increase content availability and redundancy

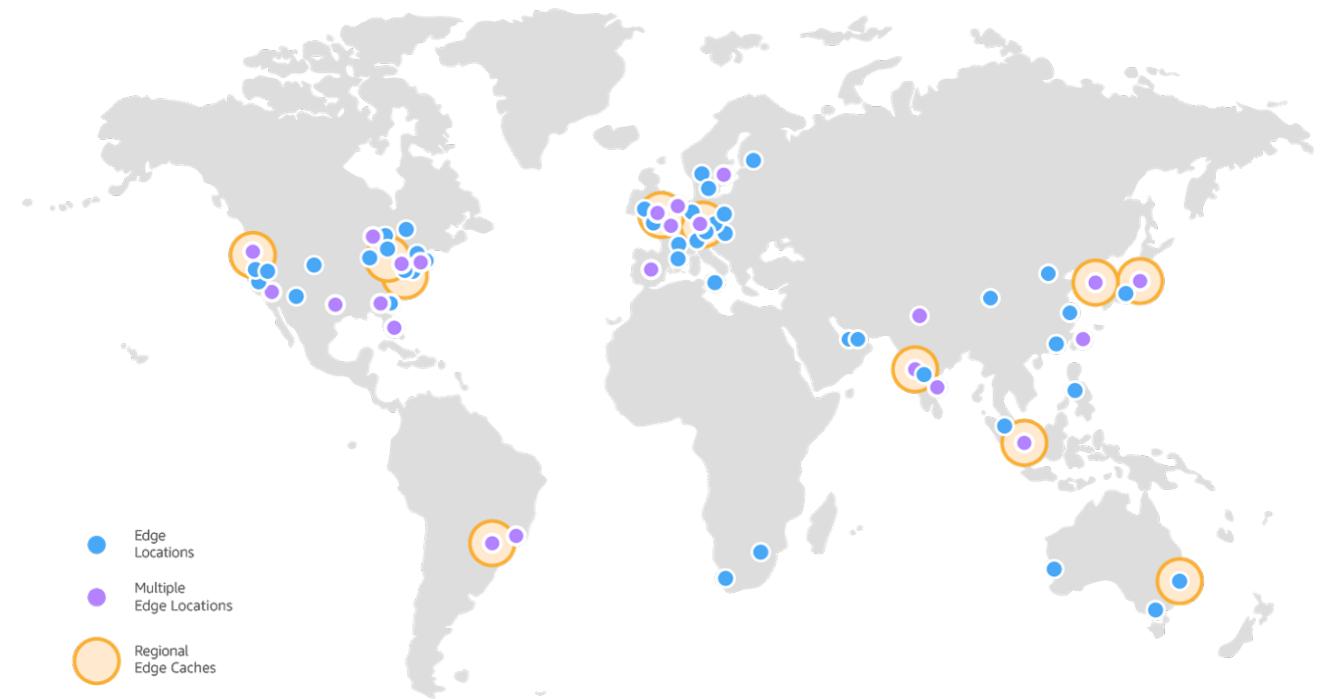
Improve website security

Why should I use CloudFront?

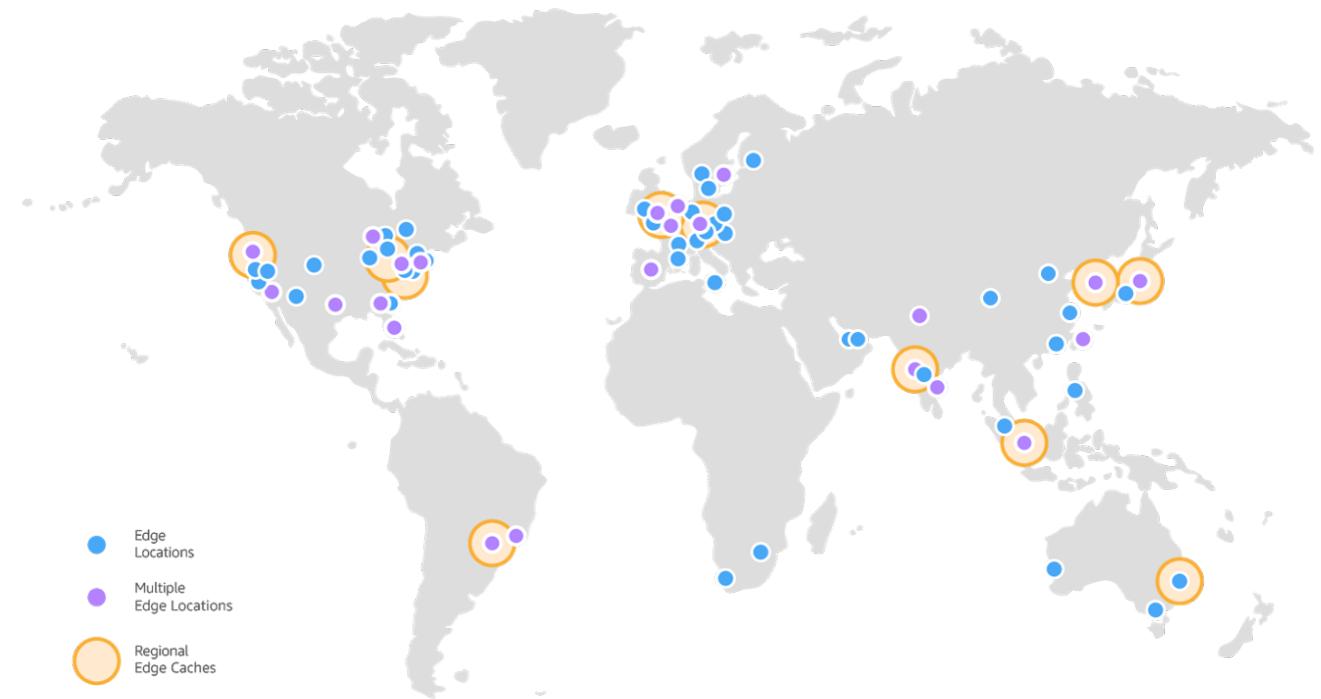


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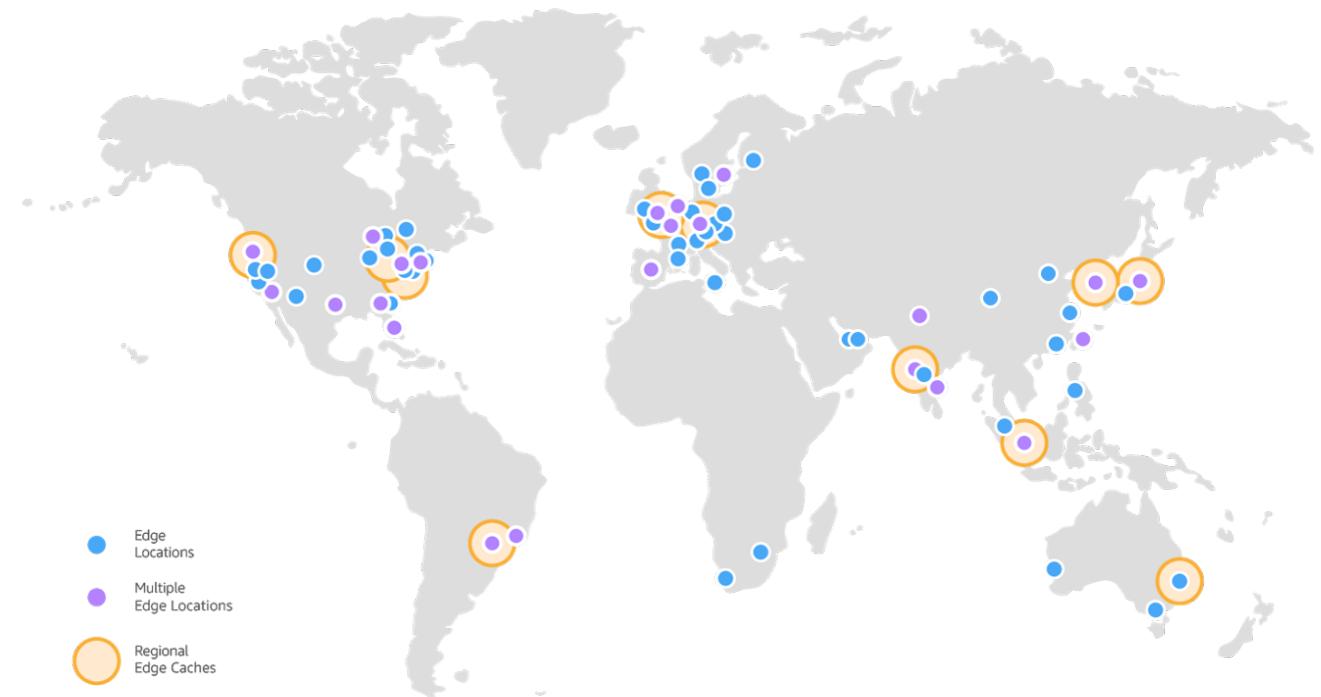




169 Points of Presence

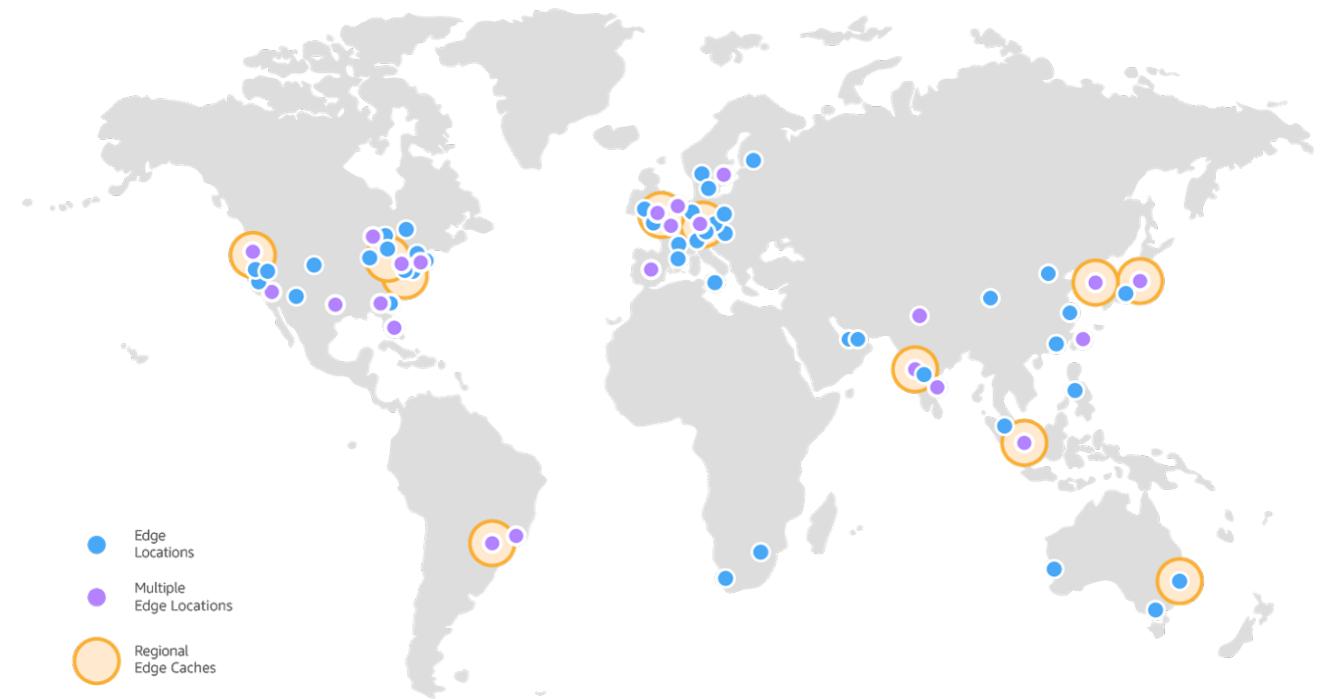


169 Points of Presence
- 6 Continents



169 Points of Presence

- 6 Continents
- 158 Edge Locations



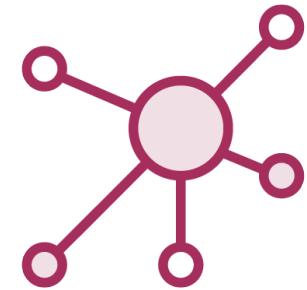
169 Points of Presence

- 6 Continents
- 158 Edge Locations
- 11 Regional Edge Caches

Performance

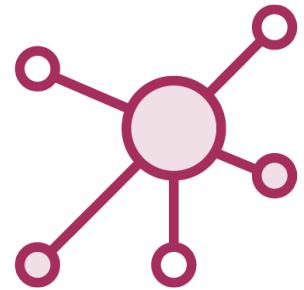


Performance

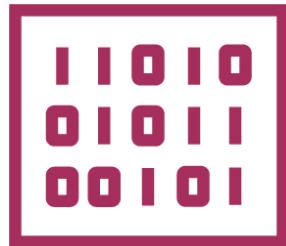


Network optimizations for optimal performance

Performance



Network optimizations for optimal performance



Dynamic or static content

HTTP METHODS

GET

HEAD

POST

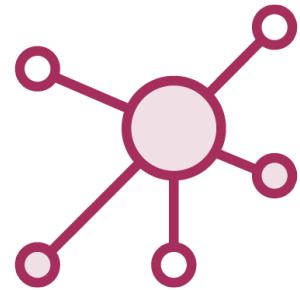
PUT

DELETE

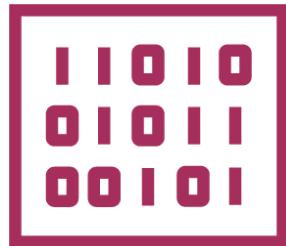
OPTIONS

PATCH

Performance

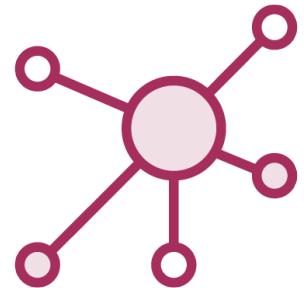


Network optimizations for optimal performance

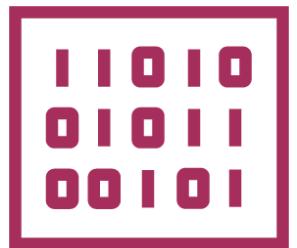


Dynamic or static content

Performance



Network optimizations for optimal performance



Dynamic or static content

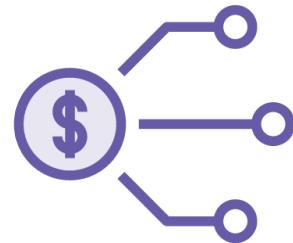


Cache Retention

Cost Effective

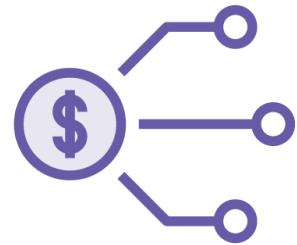


Cost Effective



Pay-as-you-go

Cost Effective

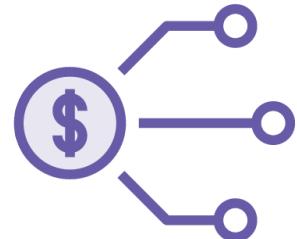


Pay-as-you-go



Free data transfer

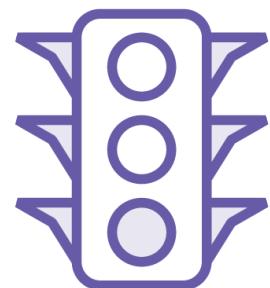
Cost Effective



Pay-as-you-go



Free data transfer



Reduced traffic to origin

Availability

Availability



**Increase application
availability**

Availability

Increase application availability

Enabling redundancy for origins

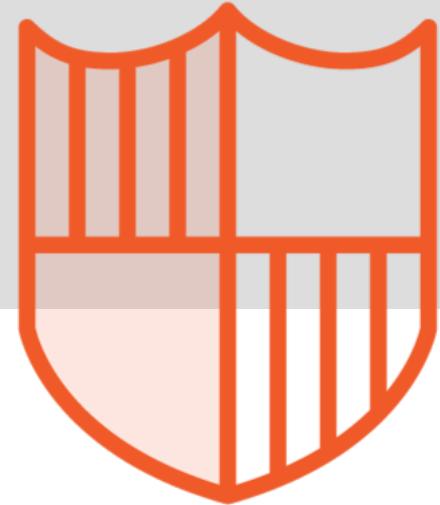
Security

Security



Security

AWS Shield & WAF

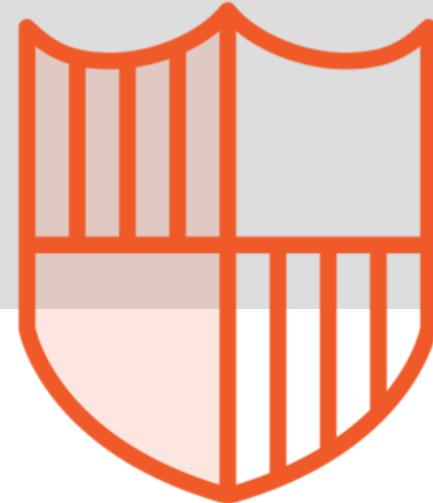


SSL/TLS
Encryptions and
HTTPS



Security

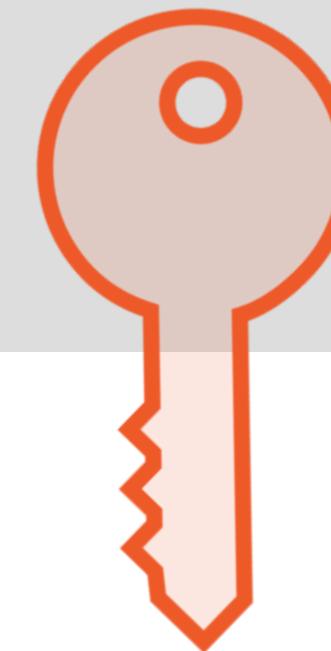
AWS Shield & WAF



SSL/TLS
Encryptions and
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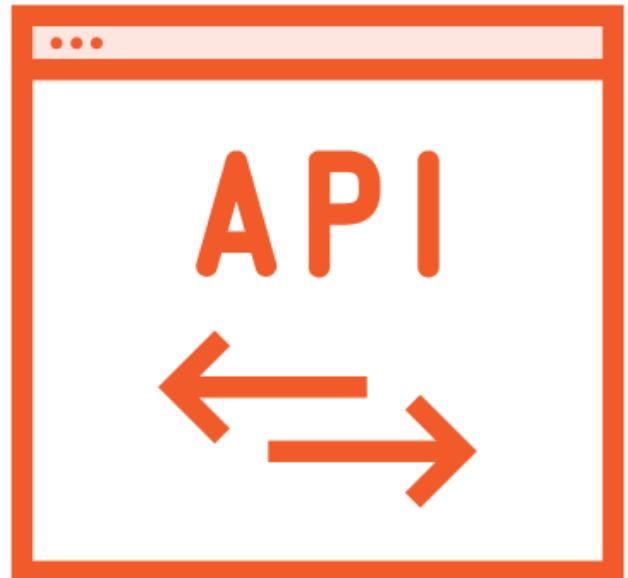


Access Control



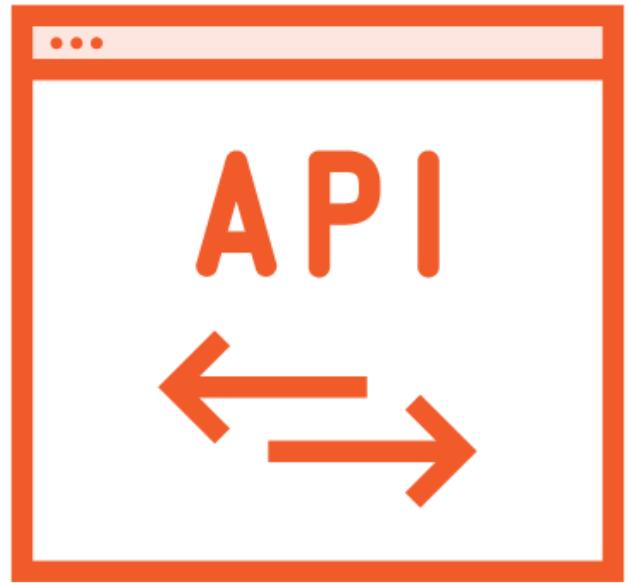
Programmable

Programmable



Full-featured APIs

Programmable

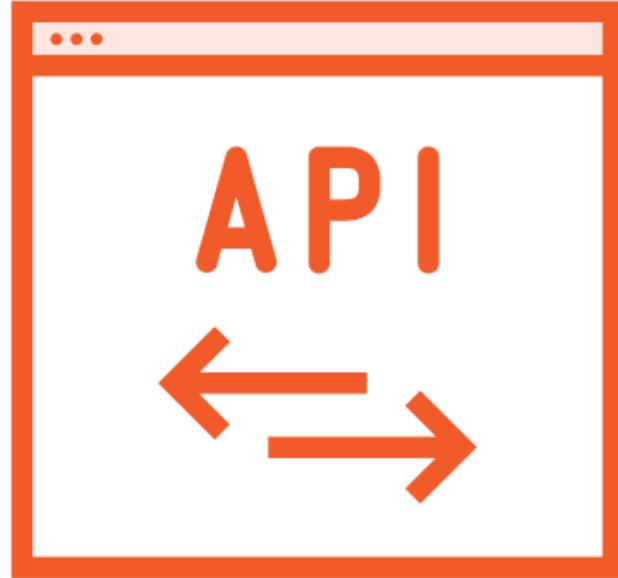


Full-featured APIs

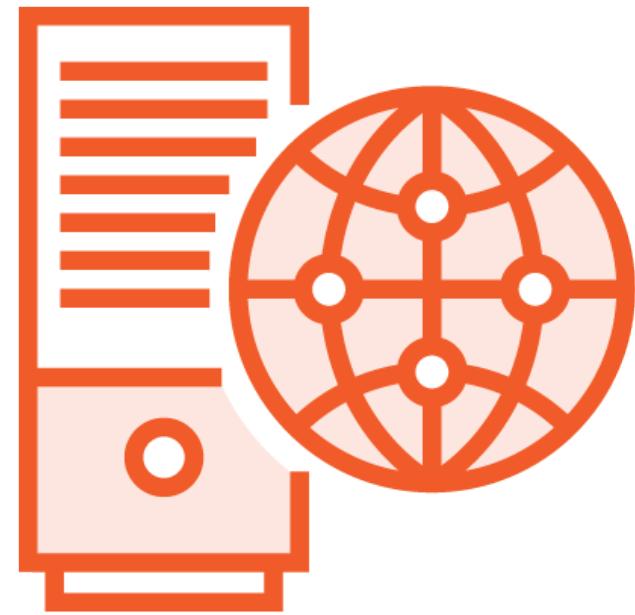


Edge behaviors

Programmable



Full-featured APIs



Edge behaviors



Lambda@Edge

Getting Started

Prerequisites

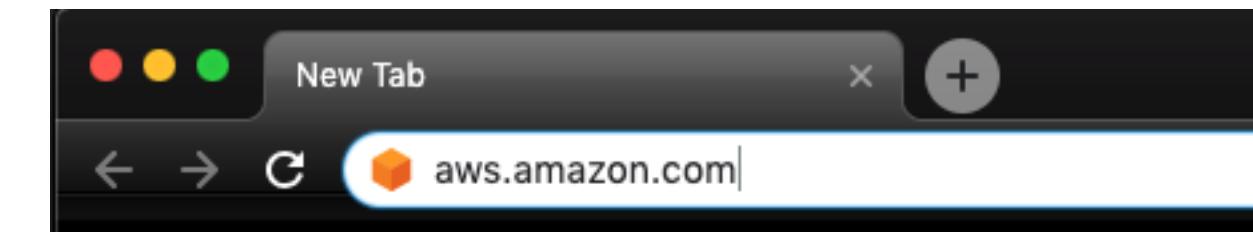
Prerequisites

AWS Account

Prerequisites

AWS Account
AWS CLI

Create an AWS Account



<https://aws.amazon.com>



English

Payment Information

Please type your payment information so we can verify your identity. We will not charge you unless your usage exceeds the [AWS Free Tier Limits](#). Review [frequently asked questions](#) for more information.

Credit/Debit card number

Expiration date

04 2019

Cardholder's name

Billing address

Use my contact address



Use a new address

Secure Submit

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English

Payment Information

Please type your payment information so we can verify your identity. We will not charge you unless your usage exceeds the [AWS Free Tier Limits](#). Review [frequently asked questions](#) for more information.

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04 2019

Cardholder's name

Billing address

Use my contact address



Use a new address

Secure Submit

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English

Payment Information

Please type your payment information so we can verify your identity. We will not charge you unless your usage exceeds the [AWS Free Tier Limits](#). Review [frequently asked questions](#) for more information.

Credit/Debit card number

Expiration date

04 2019

Cardholder's name

Billing address

Use my contact address



Use a new address

Secure Submit

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Confirm your identity

Before you can use your AWS account, you must verify your phone number. When you continue, the AWS automated system will contact you with a verification code.

How should we send you the verification code?

Text message (SMS) Voice call

Country or region code

Denmark (+45)

Cell Phone Number

Security check



Type the characters as shown above

Send SMS

AWS Console - Signup

https://portal.aws.amazon.com/billing/signup?nc2=h_ct&src=header_signup&redirect_url=https%3A%2F%2Faws.amazon.com%2Fregistration-confirmation#/identityverification

Incognito

aws

English ▾

Confirm your identity

Before you can use your AWS account, you must verify your phone number. When you continue, the AWS automated system will contact you with a verification code.

How should we send you the verification code?

Enter verification code

Enter the 4-digit verification code that you received on your phone.

Verify Code

Having trouble? Sometimes it takes up to 10 minutes to receive a verification code. If it's been longer than that, [return to the previous page](#) and enter your number again.

Send SMS

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AWS Console - Signup

https://portal.aws.amazon.com/billing/signup?nc2=h_ct&src=header_signup&redirect_url=https%3A%2F%2Faws.amazon.com%2Fregistration-confirmation#/identityverification

Incognito

aws

English ▾

Confirm your identity

Before you can use your AWS account, you must verify your phone number. When you continue, the AWS automated system will contact you with a verification code.

How should we send you the verification code?



Your identity has been verified successfully.

Continue

Send SMS

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English ▾

Select a Support Plan

AWS offers a selection of support plans to meet your needs. Choose the support plan that best aligns with your AWS usage. [Learn more](#)



Basic Plan

Free

- Included with all accounts
- 24/7 self-service access to forums and resources
- Best practice checks to help improve security and performance
- Access to health status and notifications



Developer Plan

From \$29/month

- For early adoption, testing and development
- Email access to AWS Support during business hours
- 1 primary contact can open an unlimited number of support cases
- 12-hour response time for nonproduction systems



Business Plan

From \$100/month

- For production workloads & business-critical dependencies
- 24/7 chat, phone, and email access to AWS Support
- Unlimited contacts can open an unlimited number of support cases
- 1-hour response time for production systems

Need Enterprise level support?

Contact your account manager for additional information on running business and mission critical-workloads on AWS (starting at \$15,000/month). [Learn more](#)

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Registration Confirmation + Incognito

https://aws.amazon.com/registration-confirmation/

Products Solutions Pricing Documentation Learn Partner Network AWS Marketplace Explore More Q Contact Sales Support English ▾ My Account ▾ Sign In to the Console

Welcome to Amazon Web Services

Thank you for creating an Amazon Web Services Account. We are activating your account, which should only take a few minutes. You will receive an email when this is complete.

Sign In to the Console

Get started with the AWS Command Line Interface >>

Personalize Your Experience X

Fill in the blanks below to receive recommendations catered to your role and interests.

My role is: *select role* ▾

I am interested in: *select area* ▾

Submit

Try a Tutorial on the Free Tier

COMPUTE

 Launch a Linux Virtual Machine  Deploy Docker Containers  Run a Serverless "Hello, World!"

WEBSITES & WEB APPS

We use cookies to provide and improve our services. By using our site, you consent to cookies. [Learn More](#)



Sign in ?

Email address of your AWS account

Or to sign in as an IAM user, enter your
[account ID](#) or [account alias](#) instead.

Next

New to AWS?

Create a new AWS account

Amazon Aurora

Performance and availability of commercial-grade databases at 1/10th the cost

[Learn more](#)



The advertisement for Amazon Aurora features a dark blue background with a large white database cylinder icon in the center. Three white plus signs (+) are positioned around the cylinder: one above it, one to its left, and one below it. The Amazon logo is visible in the bottom left corner of the ad area.

About Amazon.com Sign In

Amazon Web Services uses information from your Amazon.com account to identify you and allow access to Amazon Web Services. Your use of this site is governed by our Terms of Use and Privacy Policy linked below. Your use of Amazon Web Services products and services is governed by the AWS Customer Agreement linked below unless you have entered into a separate agreement with Amazon Web Services or an AWS Value Added Reseller to purchase these products and services. The AWS Customer Agreement was updated on March 31, 2017. For more information about these updates, see [Recent Changes](#).

AWS Management Console

https://us-east-2.console.aws.amazon.com/console/home?region=us-east-2#

Services Resource Groups durst Ohio Support

AWS Management Console

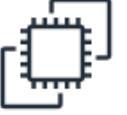
AWS services

Find Services
You can enter names, keywords or acronyms.
 Example: Relational Database Service, database, RDS

▶ All services

Build a solution

Get started with simple wizards and automated workflows.

Launch a virtual machine With EC2 2-3 minutes 	Build a web app With Elastic Beanstalk 6 minutes 	Build using virtual servers With Lightsail 1-2 minutes 	Connect an IoT device With AWS IoT 5 minutes 
Start a development project With CodeStar 5 minutes 	Register a domain With Route 53 3 minutes 	Deploy a serverless microservice With Lambda, API Gateway 2 minutes 	Create a backend for your mobile app With Mobile Hub 5 minutes 

Access resources on the go

 Access the Management Console using the AWS Console Mobile App. [Learn more](#)

Explore AWS

Run Serverless Containers with AWS Fargate
AWS Fargate runs and scales your containers without having to manage servers or clusters. [Learn more](#)

Amazon SageMaker
Machine learning for every developer and data scientist. [Learn more](#)

Open Distro for Elasticsearch
A 100% open-source, community driven distribution of Elasticsearch with enterprise-grade security and alerting features [Learn more](#)

AWS Marketplace
Find, buy, and deploy popular software products that run on AWS. [Learn more](#)

Have feedback?

 Submit feedback to tell us about your experience with the AWS Management Console.

Learn to build

Learn to deploy your solutions through step-by-step guides, labs, and videos. [See all](#)

Prerequisites

AWS Account
AWS CLI

AWS CLI

a unified tool to manage your **AWS** services from a terminal session on your own client.

AWS CLI

```
$ pip3 install awscli --upgrade --user
```

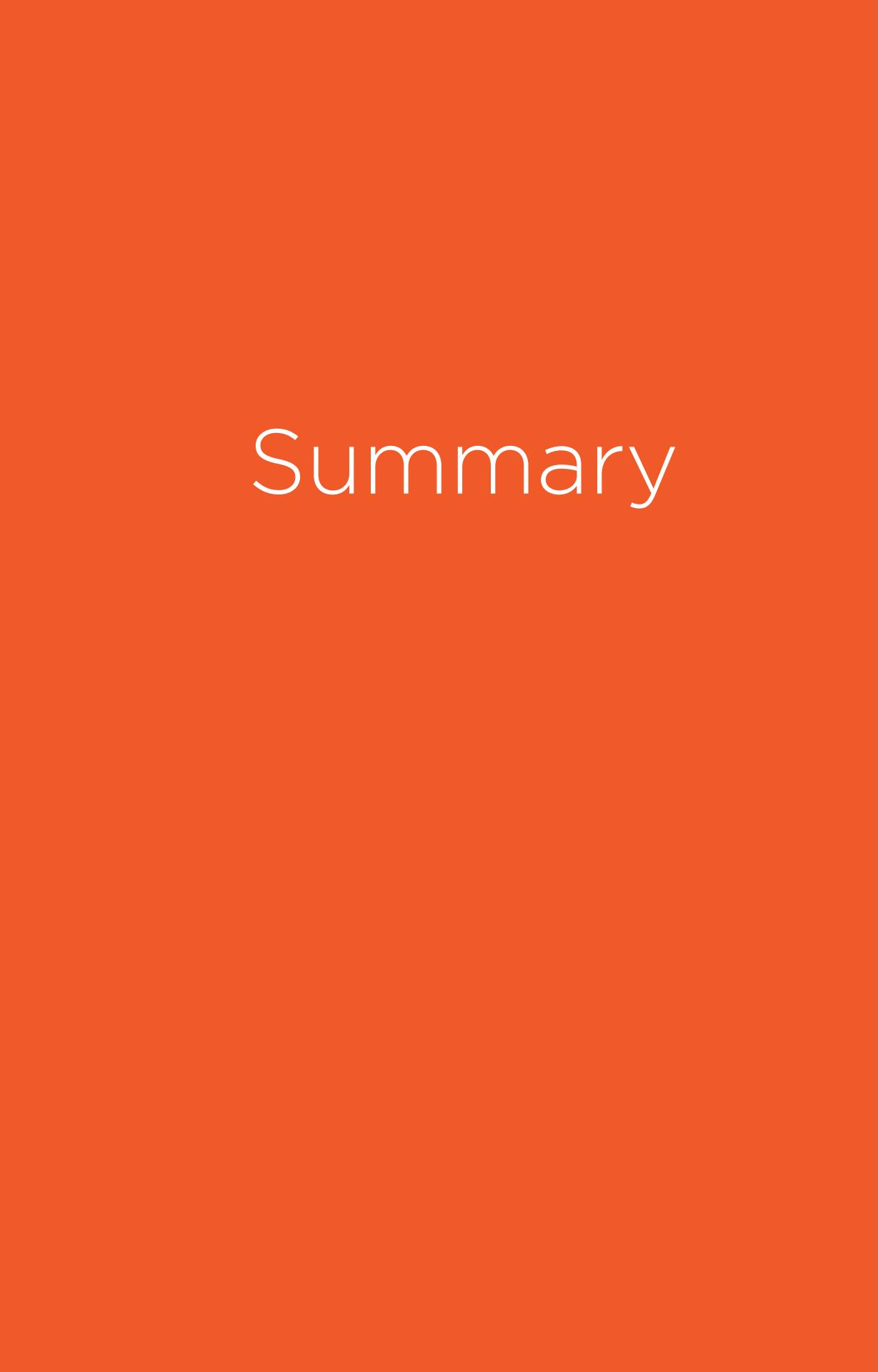
AWS CLI

```
$ aws configure
```

Wrapping Up Our Setup

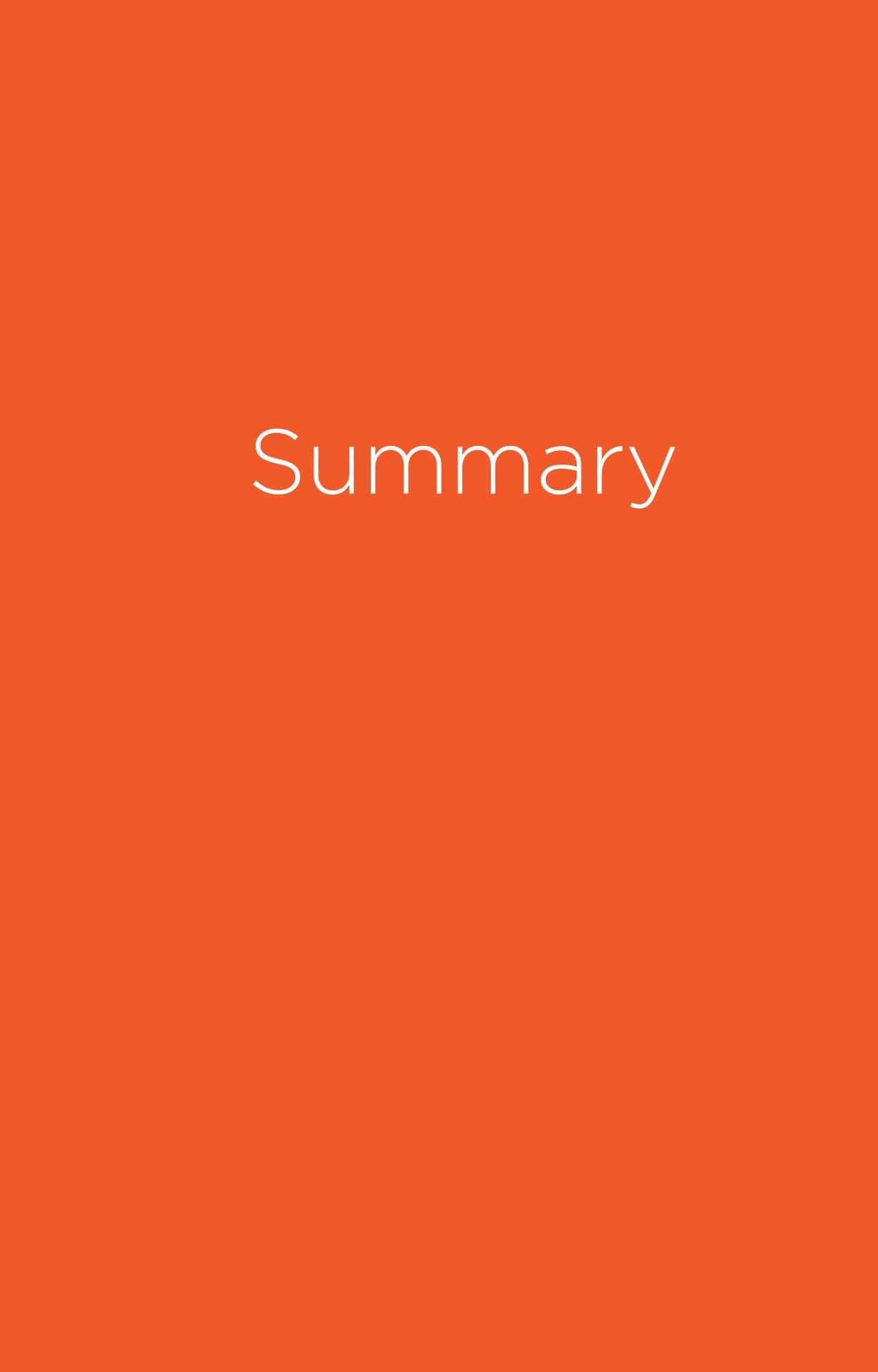


Andy Dyracz
CLOUD ARCHITECT
@adyracz

A solid orange vertical bar occupies the left third of the slide.

Summary

We learned

A solid orange vertical bar occupies the left third of the slide.

Summary

We learned

Summary

We learned

- What a CDN is

Summary

We learned

- What a CDN is
- How a CDN operates

Summary

We learned

- What a CDN is
- How a CDN operates
- How CloudFront operates

Summary

We learned

- What a CDN is
- How a CDN operates
- How CloudFront operates
- How to setup an AWS account

Summary

We learned

- What a CDN is
- How a CDN operates
- How CloudFront operates
- How to setup an AWS account
- How to install the AWS CLI