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# Selling Cloudflare - Technical Overview

Understanding Cloudflare's story, architecture and capability

Cloudflare Partner Enablement will arm you with the knowledge necessary to be **successful** in your market with Cloudflare.

## // Introductions

# What We Will Cover Today

- The Value of Partnering with Cloudflare
- Cloudflare Technical Architecture
- Cloudflare Services Overview
- Core Product Summary
- Core Product Demo
- Overview of Implementation

# What You Will Learn Today

- Explain the business benefits and key differentiations of Cloudflare's services:



Scale



Ease-of-use



Integrated  
Architecture

- Ability to explain the technical architecture of Cloudflare.
- Understand the onboarding steps of a customer application.



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Cloudflare provides Performance, Security, Reliability, and Platform solutions for anything connected to the Internet as an Integrated Global Network.

// Why partner with Cloudflare

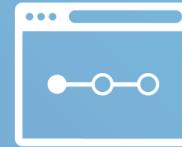
# The Cloudflare Advantage



INTEGRATED SOLUTION  
NO TRADE OFFS



NETWORK SCALE



EASY, UNIFIED &  
ADVANCED CONTROL



SHARED INTELLIGENCE

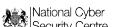
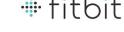


DEVELOPER FRIENDLY.  
API FIRST.



MULTI-CLOUD SUPPORT

# Cloudflare enterprise solutions for every vertical

Global	Financial Services	Public Sector	Technology	eCommerce
 <b>CISCO</b>	 <b>EUROVISION SONG CONTEST</b>	 <b>GOLDMAN SACHS</b>	 <b>BANC OF CALIFORNIA</b>	 <b>MO.GOV</b>
 <b>NASDAQ</b>	 <b>salesforce</b>	 <b>Montecito Bank &amp; Trust</b>	 <b>TradeKing</b>	 <b>National Cyber Security Centre</b>
 <b>WARNER BROS.</b>	 <b>Pfizer</b>	 <b>Dropbox</b>	 <b>PERSONAL CAPITAL</b>	 <b>AT&amp;T</b>
 <b>Sur la Table</b> THE ART & SOUL OF COOKING	 <b>Steelers</b>	 <b>SYMPHONY</b>	 <b>Bci somos diferentes</b>	 <b>IBM</b>
 <b>okcupid</b>	 <b>RTE</b>	 <b>AUTORITÉ DES MARCHÉS FINANCIERS</b>	 <b>BainCapital</b>	 <b>isle of man</b>
 <b>Johnson &amp; Johnson</b>	 <b>NOVARTIS</b>	 <b>coinbase</b>	 <b>dish NETWORK</b>	 <b>www.parliament.uk</b>
 <b>GE</b>	 <b>NYSE</b>	 <b>TSB</b>	 <b>acorns</b>	 <b>LIBRARY OF CONGRESS</b>
 <b>Riot GAMES</b>	 <b>zendesk</b>	 <b>CAPITAL BANK</b>	 <b>BancoEstado</b>	 <b>Australian Government</b>
				 <b>az.gov STATE OF ARIZONA</b>
				 <b>UBER</b>
				 <b>Parallels</b>
			 <b>TARINGA!</b>	 <b>fitbit</b>
				 <b>STEVE MADDEN</b>
				 <b>REDBUBBLE</b>
				 <b>BOSE</b>
				 <b>NIXON</b>
				 <b>Casper</b>
				 <b>LUSH Fresh Handmade Cosmetics</b>
				 <b>Hertz</b>
				 <b>American Apparel</b>
				 <b>WARBY PARKER</b>
				 <b>redbox</b>
				 <b>Snapple</b>
				 <b>thriftbooks</b>
				 <b>SENNHEISER</b>
				 <b>fiverr</b>
				 <b>LOOTCRATE</b>

# Six Core Use Cases

## SECURITY



### DDoS Attacks

Attack traffic degrades availability or performance and creates unpredictable surges in infrastructure costs



### Malicious Bots

Malicious bots abuse customer applications through content scraping, account takeovers, credential stuffing, and fraudulent check outs



### Data Theft

Attackers compromise customer data, such as user credentials, credit card information, and other PII

## PERFORMANCE



### Slow Internet Applications and APIs

Heavy pages and long distances from the origin slow down webpages, applications, and APIs



### Slow Mobile Sites and Apps

Mobile clients introduce performance and content delivery constraints that hurt user experience



### Unavailable Applications

Overloaded or unavailable infrastructure stops users from accessing applications

Cloudflare is an **integrated global cloud network**  
delivered as a distributed **reverse proxy**  
provisioned via **Anycast DNS**.

## // Technical Architecture

# High Level Overview

## Anycast Network

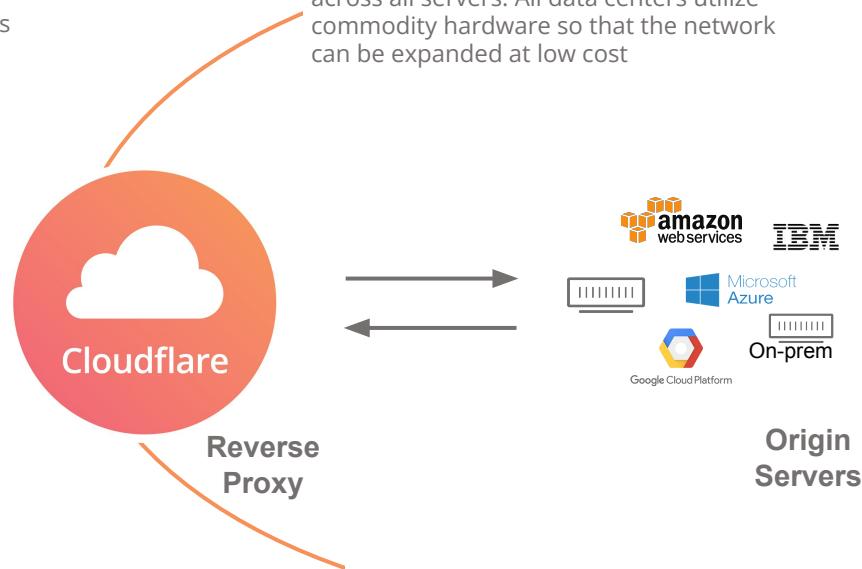
Connects each consumer to the nearest data center  
Distributes attack traffic across data centers  
Additional Cloudflare PoPs added for customer automatically as network grows

## Modern, Unified Architecture

Integrated stack, where each server reliably runs all types of user queries



Visitor

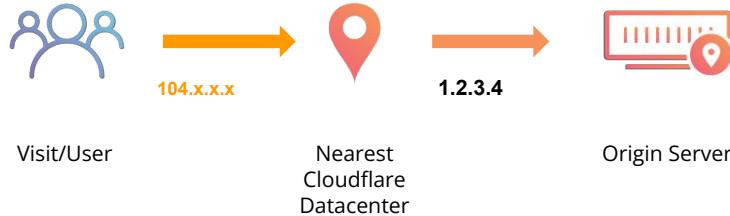


# With a reverse proxy, setup is a DNS change.

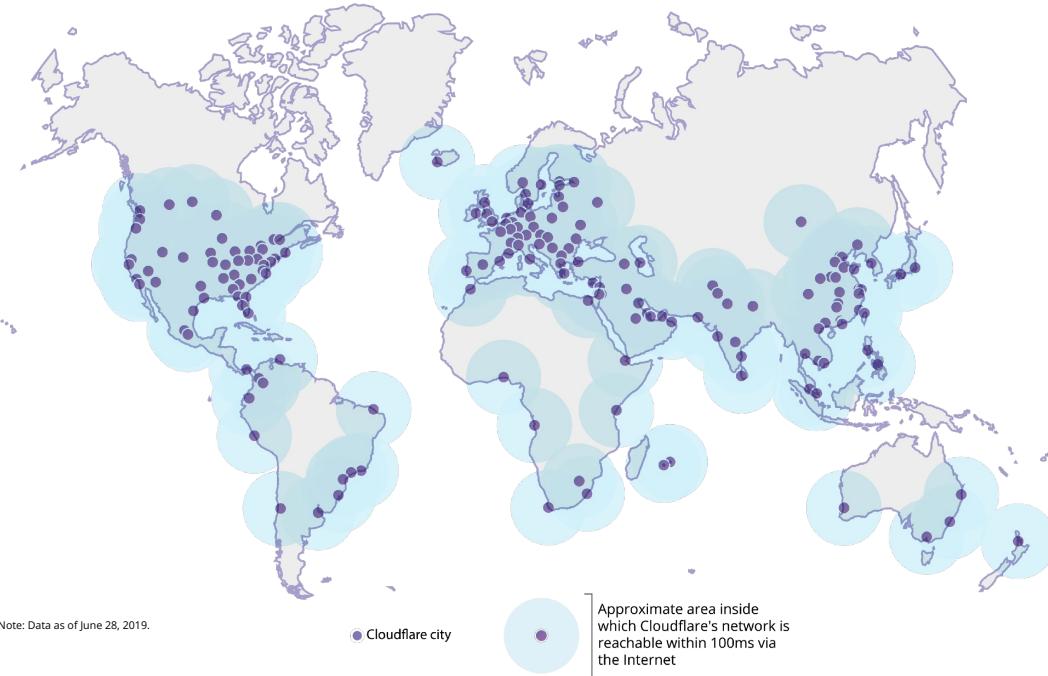
**Before Cloudflare**, an origin is exposed to visitors and attackers.



**With Cloudflare**, all requests route to the nearest data center via Anycast DNS and proxy to the origin.



# Cloudflare's network operates at massive scale



**25M+**

Internet properties

**200**

Cities and 90+ countries

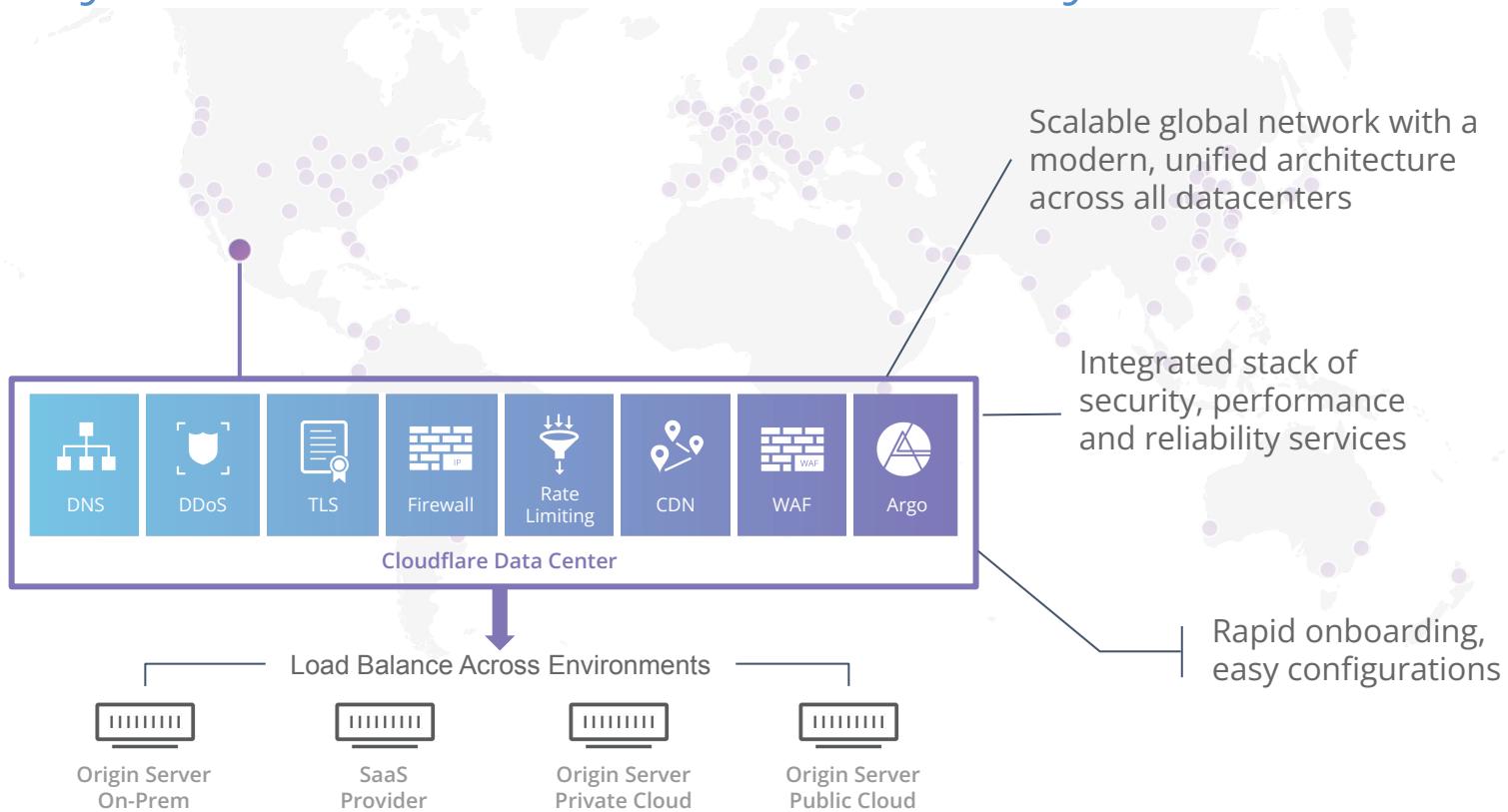
**50B**

Cyber threats blocked each day in Q4'19

**99%**

Of the Internet-connected population in the developed world is located within 100 milliseconds of our network

# Every Data Center Performs Every Task



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# Anycast vs. Unicast

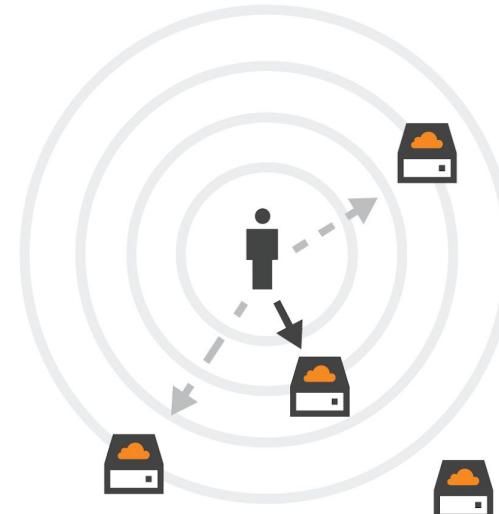
- Multiple machines share the same IP address
- Requests are to the shortest, fastest pathway
- More than one way to reach the web content



- Most of the internet is Unicast
- Every node gets a unique IP address
- Easiest way to run a network

## Anycast

One to closest of many



# Internet Exchange Points (IXP)



HURRICANE ELECTRIC  
INTERNET SERVICES

Search

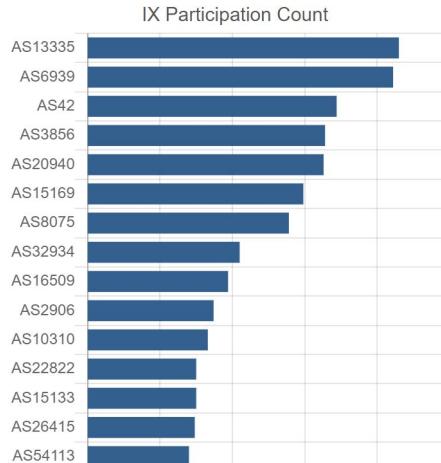
## Internet Exchange Report

Quick Links
<a href="#">BGP Toolkit Home</a>
<a href="#">BGP Prefix Report</a>
<a href="#">BGP Peer Report</a>
<a href="#">Exchange Report</a>
<a href="#">Bogon Routes</a>
<a href="#">World Report</a>
<a href="#">Multi Origin Routes</a>
<a href="#">DNS Report</a>
<a href="#">Top Host Report</a>
<a href="#">Internet Statistics</a>
<a href="#">Looking Glass</a>
<a href="#">Network Tools App</a>
<a href="#">Free IPv6 Tunnel</a>
<a href="#">IPv6 Certification</a>
<a href="#">IPv6 Progress</a>
<a href="#">Going Native</a>
<a href="#">Contact Us</a>



Internet Exchanges Exchange Participants

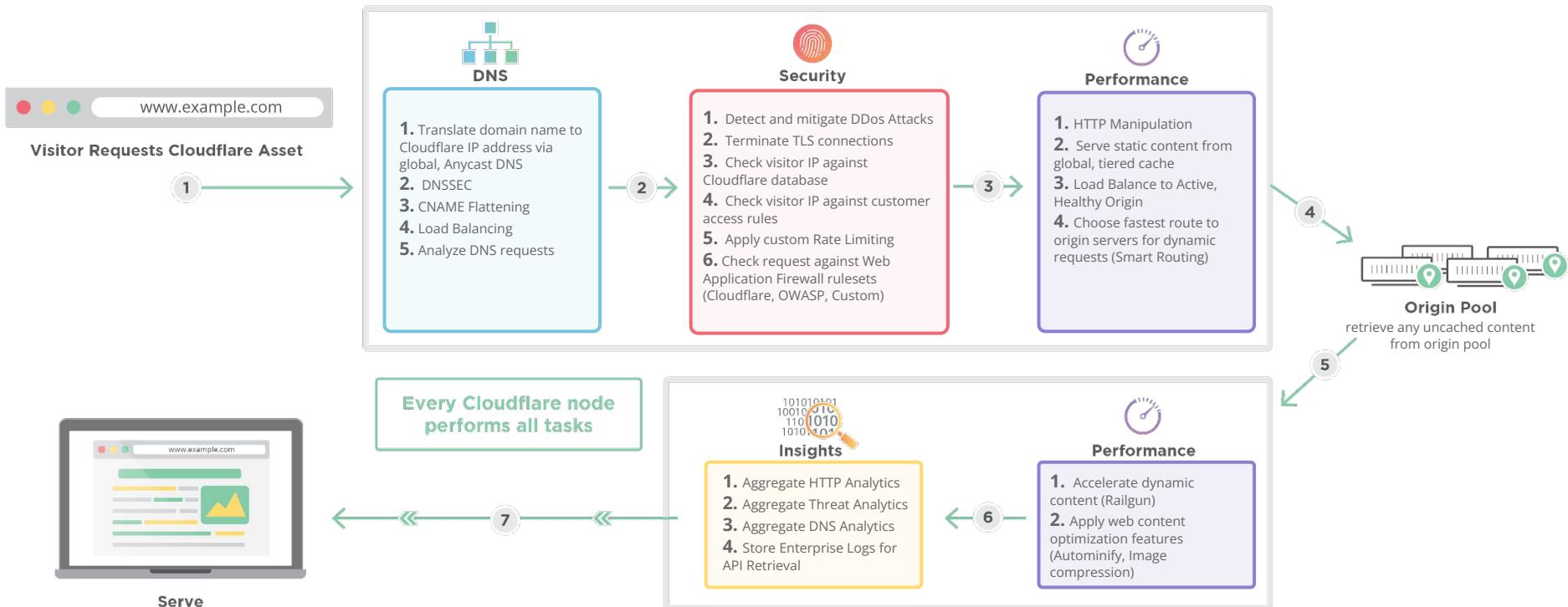
IX Participation Count		
ASN	Name	IXes
AS13335	Cloudflare, Inc.	215
AS6939	Hurricane Electric LLC	211
AS42	WoodyNet	172
AS3856	Packet Clearing House	164
AS20940	Akamai International B.V.	163
AS15169	Google LLC	149
AS8075	Microsoft Corporation	139
AS32934	Facebook, Inc.	105
AS16509	Amazon.com, Inc.	97
AS2906	Netflix Streaming Services Inc.	87
AS10310	Oath Holdings Inc.	83
AS22822	Limelight Networks, Inc.	75
AS15133	EdgeCast Networks, Inc. d/b/a Verizon Digital Media Services	75
AS26415	VeriSign Global Registry Services	74



- Peering results in favourable routing.
- Improves fault tolerance.
- Cost savings for service Providers.
- Cloudflare will peer with ISP's and private customers that own their own ASN.
- Cloudflare is peered with IBM in majority of locations

[https://bgp.he.net/report/exchanges#\\_participants](https://bgp.he.net/report/exchanges#_participants)

# Life Of A Request



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// Next : Services Overview

# ASE - Technical Architecture - Quiz #1

How do you implement Cloudflare?

- a. DNS
- b. BGP
- c. Both
- d. None of the above



# ASE - Technical Architecture - Quiz #2

What were the two key technologies of Cloudflare technical architecture?  
Do type it in the chat!

<Hints>

1. Networking technology that is not 1:1,  
but 1:closest of any
2. A middle man who takes the request and process it on  
behalf of the origin



All features can be activated easily via the dashboard and [\*\*API\*\*](#). All changes made will take effect globally in **under 30 seconds**.

## // Services Overview

# An integrated global cloud platform

## SECURITY



Firewall



IoT Security



Bot Management



DDoS Protection



Zero Trust  
Security



SSL/TLS



Secure Origin  
Connection



Rate  
Limiting

## PERFORMANCE



Cache



Mobile  
Optimization



Intelligent  
Routing



Image  
Optimization



Content  
Optimization



Mobile SDK

## RELIABILITY



Load Balancing



Domain Name  
System (DNS)



Anycast  
Network



DNS  
Resolver



Virtual  
Backbone



Always Online

## PLATFORM



Serverless Compute



Cloudflare Apps



Analytics



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# Cloudflare Security Services



**Mutual TLS**  
Secure and authenticated connection between an IoT device and origin.



**Spectrum**  
Protect TCP & UDP applications and ports from volumetric DDoS attacks and data theft.



**Access**  
Secure, authenticate, and monitor user access to any domain, application, or path on Cloudflare.

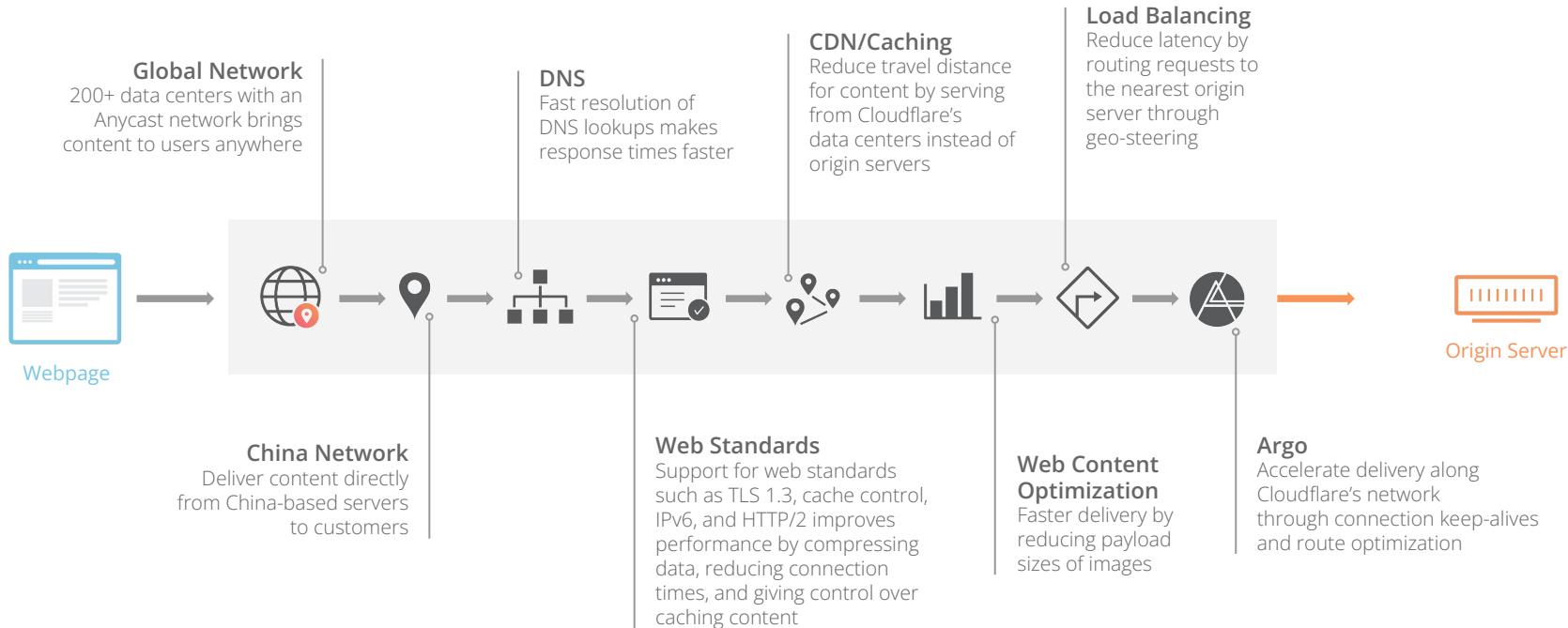


**Argo Tunnel**  
Creates an encrypted tunnel between an application's origin server and the nearest data center without opening a public inbound port.



**Workers**  
Runs JavaScript Service Workers to customize and configure apps on the edge.

# Cloudflare Performance Services



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# ASE - Service Overview - Quiz #1

The prospect's website is under DDoS, they need rapid implementation. They use standard ports (80, 443) but they also use custom ports like 1233. To protect their website, what products would we propose? Select all that apply.

- a. Cloudflare Core Product (DDoS, WAF, CDN)
- b. Cloudflare Load Balancing
- c. Cloudflare Rate Limiting
- d. Cloudflare Spectrum



# ASE - Service Overview - Quiz #2

The prospect is very performance sensitive. We would like to not sacrifice any performance while giving all DDoS/security benefits to them. What are the performance related products and features we could configure, in order to ensure their performance isn't hurt? Select all that apply.

- a. Cloudflare DNS
- b. Modern web technologies (TLS 1.3, HTTP/2, Brotli etc)
- c. CDN/Caching
- d. Content optimization
- e. Argo Smart Routing



Our **API-first** development provides easy control and access to all of Cloudflare's capabilities.

## // Seamless Control & Visibility

# Easily Control And Manage Cloudflare

Dashboard	Easy to use multi-tenant dashboard with API-first design.
API Access	<p>Work easily with our system programmatically using our API. Full documentation: <a href="https://api.cloudflare.com">https://api.cloudflare.com</a> Partner Platform API Documentation: <a href="https://developers.cloudflare.com/tenant/">https://developers.cloudflare.com/tenant/</a></p>
Terraform	<p>Cloudflare is a Terraform provider which allows bulk configuration management: <a href="https://www.terraform.io/docs/providers/cloudflare/index.html">https://www.terraform.io/docs/providers/cloudflare/index.html</a></p>



# Easily Administer Users And Domains

## Multi-Tenant

Provide a group of users role-based permissions to better control the administration of your domains. Each user has their own role and limited API key. [Learn More](#)

- Super Administrator
- Analytics Admin
- DNS Admin
- Crypto (SSL/TLS), Caching, Performance, Page Rules, and Customization
- Firewall Admin
- Raw Log Access
- Cache Purge
- Read-Only

## SSO Support

Cloudflare supports SSO providers (SAML providers)

## Enforce 2FA

Ensure your entire dashboard is secure by enforcing 2-factor authentication for your organization.



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# Quickly And Easily Review Changes Made To Your Account And Domains

## Quick Log Review

Easily review audit logs and drill down to detailed information from the dashboard.

## API Log Export

Export logs via API for further filtering, inspection and monitoring using any log analysis tool

The screenshot shows the Cloudflare Audit Log interface. At the top, there's a navigation bar with the Cloudflare logo, a 'Select Website' dropdown, and links for '+ Add Site', 'Support', and 'adminuser@cloudflare.com'. Below the header is a search bar with fields for 'User' (containing 'user@example.com') and 'Domain' (containing 'example.com'). A date range selector shows 'Today' to 'Aug 2016'. The main area is titled 'Audit Log' and displays a table of recent actions:

Date	Action	Performed By	Performed On	Details
5 days ago	Toggle waf set	user@cloudflare.com	cloudflare.com	<a href="#">Details</a>
5 days ago	Firewall change setting	user@cloudflare.com	cloudflare.com	<a href="#">Details</a>
5 days ago	Firewall change setting	user@cloudflare.com	cloudflare.com	<a href="#">Details</a>
5 days ago	Firewall change setting	user@cloudflare.com	cloudflare.com	<a href="#">Details</a>
5 days ago	Firewall change setting	user@cloudflare.com	cloudflare.com	<a href="#">Details</a>
5 days ago	Remove custom cert	otheruser@cloudflare.c...	cloudflare.com	<a href="#">Details</a>
5 days ago	Toggle waf set	user@cloudflare.com	cloudflare.com	<a href="#">Details</a>
5 days ago	Toggle waf set	user@cloudflare.com	cloudflare.com	<a href="#">Details</a>

A 'Send Feedback' button is located at the bottom right of the table area.

## Customizable Filters

Whether for compliance reviews or change monitoring, easily pare down logs by the desired field including: date, user and domain.

## Simple Configuration Change Review

Make compliance reviews and monitoring configuration changes easy with Audit Logs



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# Key Takeaways - Cloudflare Services

List Cloudflare Security Services	List Cloudflare Performance and Reliability Services	Describe features of Anycast routing	How its easy to manage domains and users with Cloudflare?
DNS / DNSSEC	Web Optimization	Multiple machines share the same IP address	Easy to use multi-tenant dashboard with API-first design.
DDoS Protection	CDN/Caching	All Cloudflare IP's can proxy any request (with a valid Host header)	All features can be activated via the dashboard and API.
WAF	Load Balancing	More than one way to reach the web content	Cloudflare is a Terraform provider allowing bulk configuration management
Bot Management	Web Standards	Requests are routed to the shortest, fastest pathway	All changes made will take effect globally in under 30 seconds.
Rate Limiting	China Network		
SSL	Argo		
	DNS		



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Cloudflare runs one of the largest managed DNS services answering requests for over **38% of all managed DNS traffic** in the world.

// Cloudflare DNS - Fast, Powerful, Secure

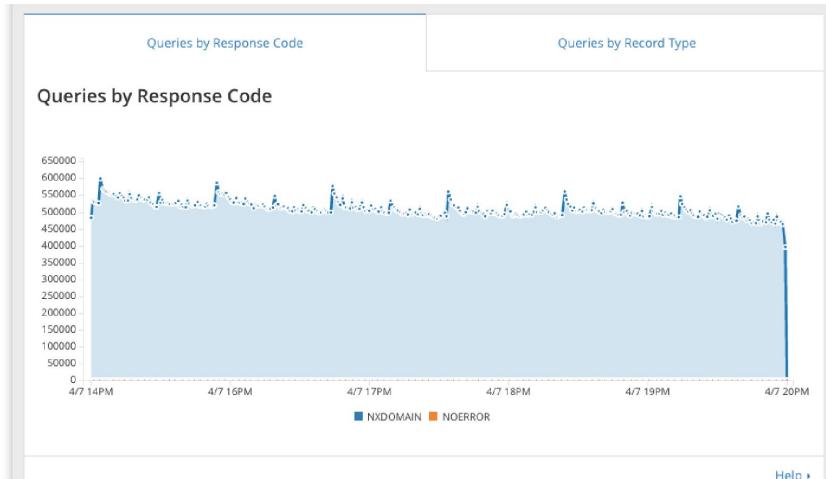
# Insight Into Your DNS Queries

## DNS Analytics

Gain valuable insight into DNS traffic. Understand and visualize data through metrics such as query count, response time, response codes, data centers, and more.

## Related Products

- [DNS Flood Mitigation](#)
- [Cloudflare Reliability](#)
- [DNSSEC](#)
- [Registrar](#)
- [DNS Firewall](#)
- [Load Balancing](#)



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# Authoritative DNS Built For Performance

Global

Powering over 38% of managed DNS domains, Cloudflare runs one of the largest authoritative DNS networks in the world.

Fast

We have the fastest performance of any managed DNS provider. DNS updates also happen within seconds, making DNS propagation delays a thing of the past.

Secure & Reliable

DDoS protection is built in with load-balancing, automatic failover, rate-limiting, and filtering options. Cloudflare also offers DNSSEC to add a layer of trust on top of DNS by providing authentication.

**12ms**

Average DNS lookup speed

**<5 seconds**

Worldwide DNS record propagation



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# ASE - Core Product Summary - DNS

**Why do customers leverage Cloudflare's DNS solution?**

- a. Global network
- b. Fastest performance of any managed DNS provider
- c. DDoS Protected DNS Infrastructure
- d. DNSSEC Included



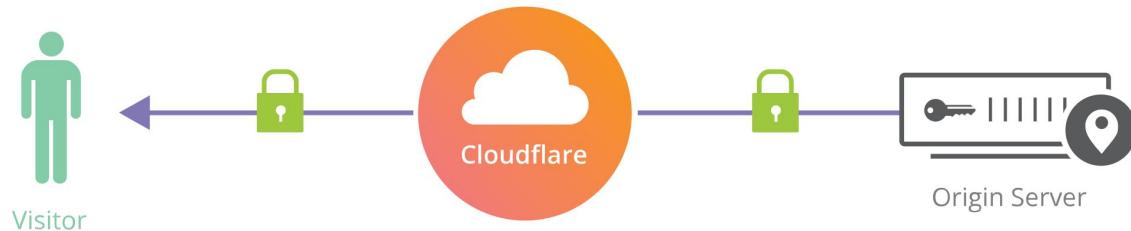
**Encrypting** as much web traffic as possible to **prevent data theft** and other tampering is a critical step toward building a safer, better Internet.

// Cloudflare One-Click SSL

# SSL Built To Be Free, Easy, Fast

Customers  
need SSL

- **Performance:** Modern SSL can actually improve page load times.
- **Search Ranking Boost:** Search engines favor HTTPS websites.
- **Security:** Encrypting traffic prevents snooping on your users' data.
- **Trust:** Browser's highlight SSL usage to increases visitor's trust.
- **Regulatory Compliance:** SSL is a key component in PCI compliance.



Cloudflare  
benefits

Cloudflare allows any Internet property to become HTTPS-enabled with the click of a button. You'll never need to worry about SSL certificates expiring or staying up to date with the latest SSL vulnerabilities when you're using Cloudflare SSL.

# Encrypt Traffic End To End

Cloudflare  
Provisioned

Custom  
Certificates

 A diagram illustrating end-to-end encryption. It shows a "Visitor" icon on the left connected by a purple line with a green padlock to a "Cloudflare" logo in the center. From the Cloudflare logo, another purple line with a green padlock connects to an "Origin Server" icon on the right, which features a key and a location pin.	
<b>Universal SSL Pack</b> Keep HTTPS easy with <a href="#">free and automatic wildcard certificates</a> . <ul style="list-style-type: none"><li>• SHA2 ECDSA; SHA2 RSA Cloudflare will lazy-load the right certificate for each browser!</li></ul> <b>Dedicated SSL / ACM</b> Secure multiple levels of subdomains with your own certificates.	<b>Origin CA</b> A <a href="#">Cloudflare-issued certificate</a> can be provided to encrypt traffic from our edge to your origin. <ul style="list-style-type: none"><li>• Cloudflare-managed Key and CSR (ECDSA, RSA)</li><li>• Upload your own CSR</li></ul> 
<b>Upload Custom Certificates</b> Business and Enterprise customers can serve their own <a href="#">certificates</a> from Cloudflare's edge. They can even select which data center regions the private key is stored and served from with <a href="#">Geo Key</a> .  Or, customers can keep their private key with our <a href="#">Keyless SSL offering</a> .	<b>Keep the origin certificate</b> Serve your certificate for traffic from our edge to your origin.

# ASE - Core Product Summary - DNS

What benefits do customers get from using TLS/SSL?

- a. Performance
- b. Higher Search Engine Ranking
- c. Security & Trust
- d. Compliance
- e. DDoS Protection



# Key Takeaways - DNS and SSL

List performance benefits of Cloudflare authoritative DNS

One of the largest authoritative DNS networks in the world

Fastest performance of any managed DNS provider

DDoS protection is built in with along with load balancing, automatic failover, rate-limiting, and filtering options

List benefits of Cloudflare SSL/TLS

Become HTTPS-enabled with the click of a button

Improve page load times

Boost search ranking

Encrypt traffic

Increases visitor's trust.

PCI Compliance

List encryption options with Cloudflare

Cloudflare provisioned

- Universal SSL
- Dedicated SSL
- Advanced SSL
- Origin CA

Custom Certificates

- Uploaded by customer

Cloudflare's IP reputation database identifies and blocks new and evolving threats across all **27+ million applications** on the network.

// Always Evolving Security

# Always-on, Always Available

## Scale

Cloudflare has over 59 Tbps over network capacity that allow us to mitigate [the largest DDoS attacks in internet history.](#)

## Always-On

Unlike traditional security solutions like scrubbing centers, Cloudflare's proxy solution reduces latency and provides always-on protection.



## Collective Learning

Our firewall learns from every request that passes through the Cloudflare network, and Cloudflare sees over 10% of all internet requests. This allows our firewall and IP Reputation DB to learn and adapt to protect our customers.

# Industry On-Demand vs. Cloudflare Always On



## Industry Legacy Scrubbing

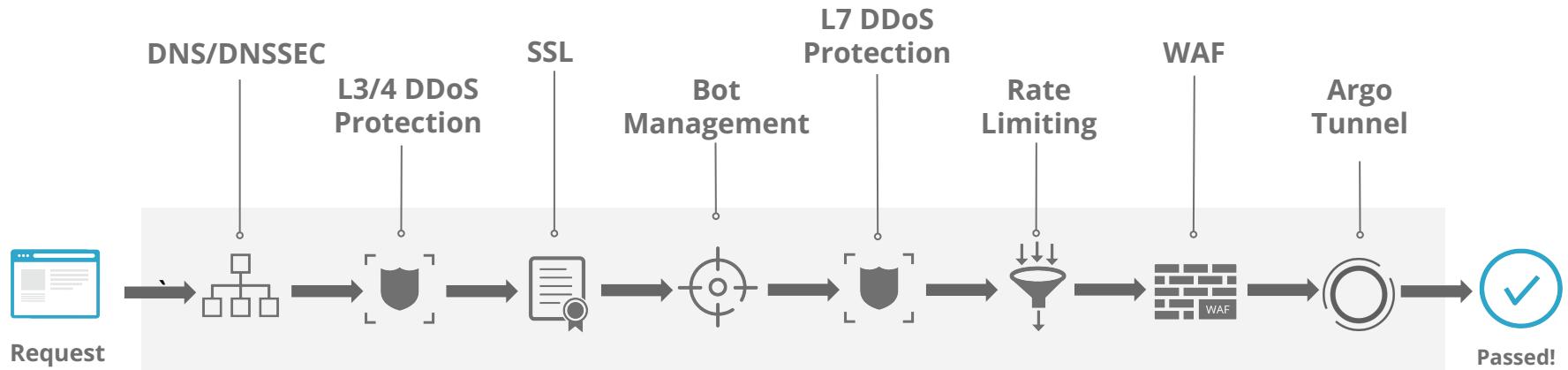
- Long propagation times (up to 300 sec)
- Asynchronous routing
- Adds significant latency
- Typically requires manual intervention and regular testing (config drift)



## Always-On

- Zero propagation time
- Synchronous routing
- No added latency; ongoing perf. improvements
- Immediate, automated mitigation, with no "cutover" required

# Layered protections against attacks



EXTEND



Orbit



Spectrum

TCP/UDP

CONTROL



Access

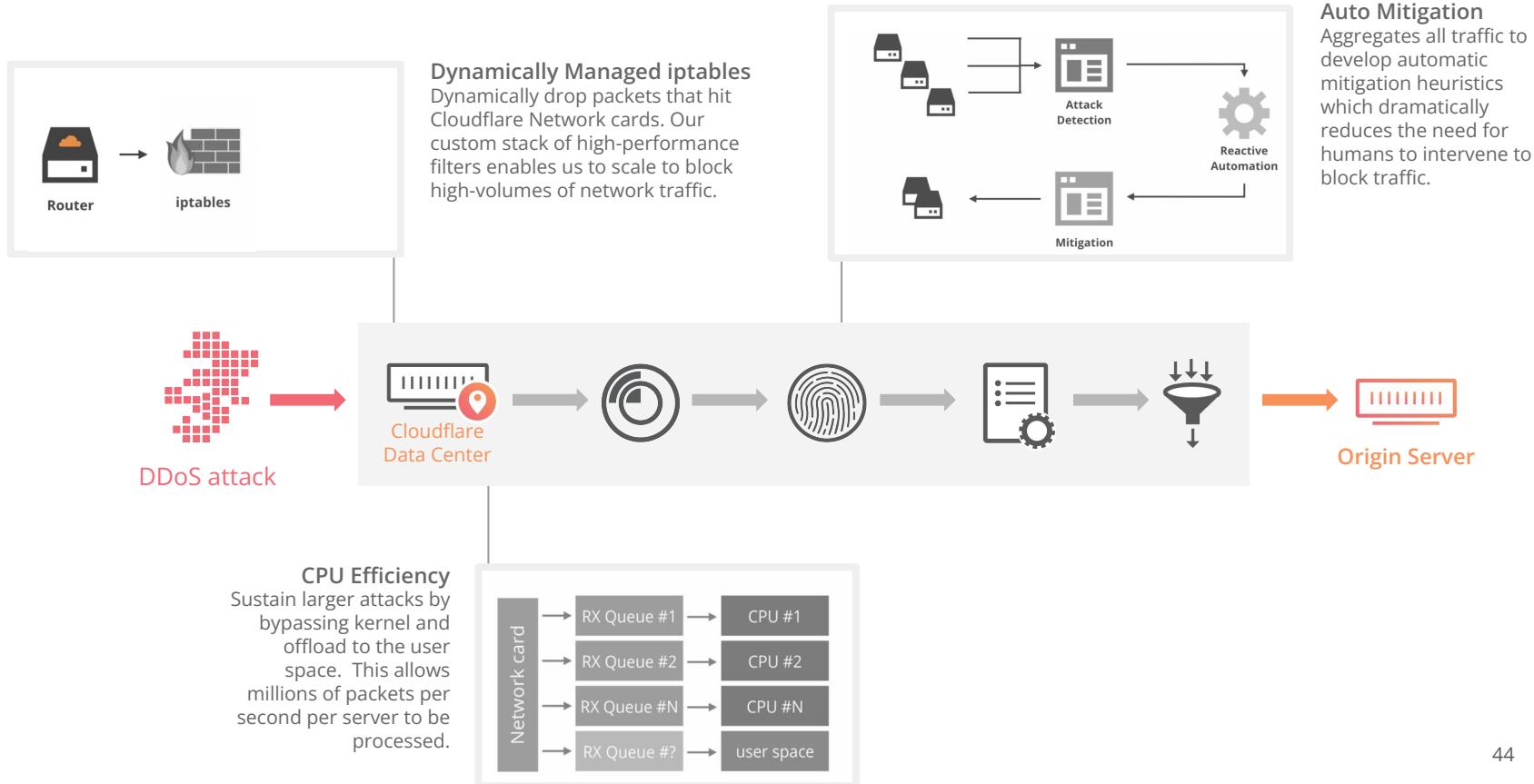


Workers

Custom Logic

VPN Replacement

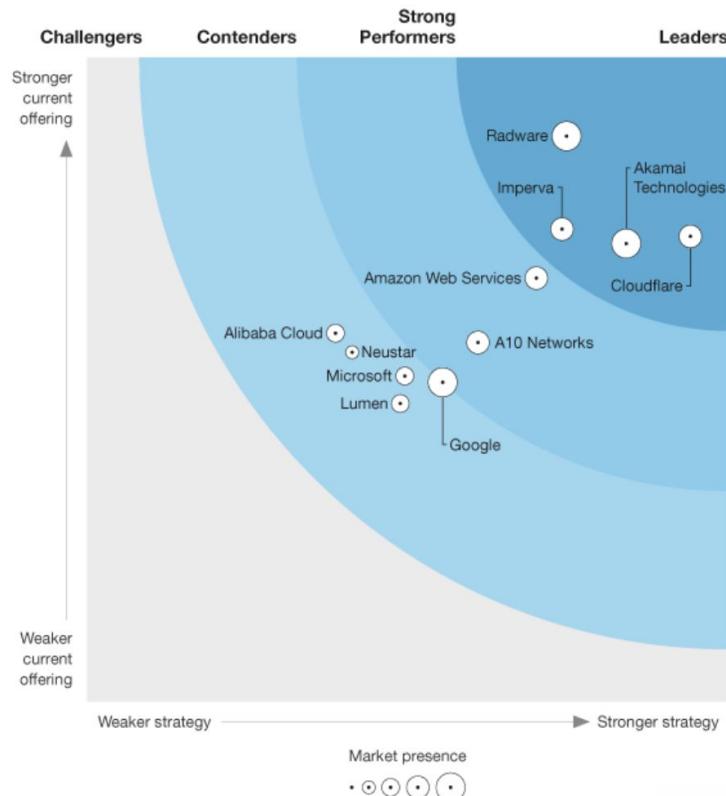
# Cloudflare DDoS - Technical Advantage



# "The Forrester Wave: DDoS Mitigation Solutions, Q12021" Report

## THE FORRESTER WAVE™

DDoS Mitigation Solutions  
Q1 2021



# Protect against Layer 7 vulnerabilities

## Web Application Firewall (WAF)

Our WAF is built around three rulesets with fast <1ms latency and global activation within 30 seconds.

1. OWASP ModSecurity: The most common vulnerabilities leveraging a configurable sensitivity threshold.
2. Cloudflare Managed Ruleset: Our ruleset increases security and allows for virtual patching of zero-day and novel attacks.
3. Custom Rules: You can write Firewall filters to best fit your application.

### Actions:

- **Block:** Prevent violating requests from even reaching your origin.
- **Challenge:** A CAPTCHA page will be shown to prevent automated attacks.
- **Log:** A mode that simply logs an event without taking any action. This mode is perfect for fine tuning and discovering any false-positives before going live.



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# Control who accesses your domain websites or applications

## Access Rules

Access Rules specify an action based on the origin of your user across a single domain or all of the domains in your account.

Access Rules can be applied based on:

- IPv4 address or range: Specified in CIDR notation as /16 or /24
- IPv6 address or range: Specified in CIDR notation as /32, /48, /64
- ASN
- Country or the Tor network

Actions:

- **Block:** Ensures that an IP address will never be allowed to access your site
- **CAPTCHA Challenge:** Rules will be shown a CAPTCHA before allowed access
- **Javascript Challenge:** Rules will be shown 5 second javascript confirmation
- **Whitelist:** Ensures that an IP address will never be blocked from accessing your site. This supersedes any Cloudflare security profile

Create Firewall Rule x

Rule name  
Give your rule a descriptive name

When incoming requests match...

Field	Operator	Value
Select...	Select...	

And      Or

Expression Preview Edit expression

Then...

Choose an action

Specific filter expressions could affect how known good bots, e.g. Googlebot, access your site. Details on how to avoid this can be found here: [Firewall Rules Documentation](#). x



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# Rate Limit, Block, and Lock down your domains

## Configurable Rate Limit

Rate Limiting provides the ability to configure thresholds, define responses, and gain valuable insights into specific URLs of websites, applications, or API endpoints. It is useful for protecting Login pages, API endpoints and origins with limited capacity.

## User Agent Rules

User Agent (UA) rules match against the [User-Agent headers](#) sent by the browser or application accessing your site.

## Zone Lockdown

Zone Lockdown rules allow you to define paths and only allow specific, trusted IPs to those paths. Any requests to those paths from non-whitelisted IPs will be automatically blocked with an 1106 HTTP code. This ability is particularly useful for locking down administrative or staging portions of your application.

### Zone Lockdown

Lockdown a specific URL on your zone to specific IP addresses. This is useful to protect an admin or protected area from non-specified IP addresses.

[Create Lockdown Rule](#)



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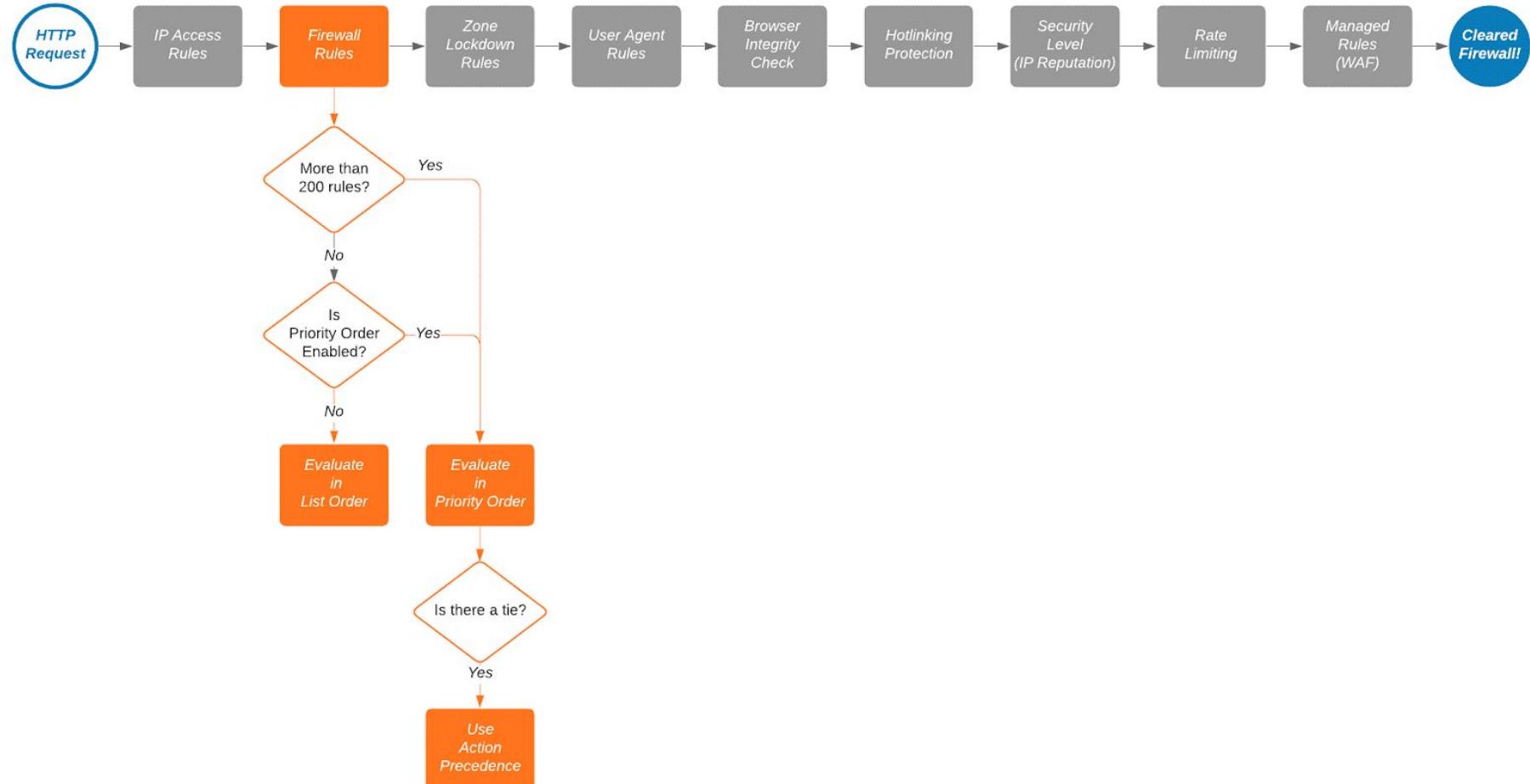
# Use Firewall Rules for your needs

Trigger:

AS num	Cookie	Country	Continent	European Union
Hostname	IP Address	Referrer	Request Method	SSL/HTTPS
URI Full	URI	URI Path	URI Query String	HTTP Version
User Agent	X-Forwarded-For	Known Bots	Threat Score	And Custom

Action:

Block	JS Challenge	CAPTCHA	Allow	Bypass	Log
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<https://developers.cloudflare.com/firewall/cf-firewall-rules/order-priority/>

# Key Takeaways - Security

List the advantages of Cloudflare's always on security

Zero propagation time  
Synchronous routing  
No added latency, ongoing performance improvements  
Immediate, automated mitigation, with no "cutover" required

Describe the technical advantages of Cloudflare's DDoS protections

**Dynamically managed iptables**  
Our custom stack of high performance filters enables us to scale to block high-volumes of network traffic.

**CPU Efficiency**  
Sustain larger attacks by bypassing kernel and offload to the user space.

**Auto Mitigation**  
Aggregates all traffic to develop automatic mitigation heuristics

Describe how Cloudflare WAF protects against Layer 7 vulnerabilities

Three rulesets with fast <1ms latency and global activation within 30 secs  
Blocks violating requests from reaching your origin.

A CAPTCHA page is displayed to prevent automated attacks.

Simulates by simply logging an event without taking any action.

How does Cloudflare protect against sustained attack from a source and locks down your domains

**Rate Limiting** enables you to configure thresholds, define responses, and gain insights into specific URLs of websites, applications, or API endpoints.

**Zone Lockdown** rules allow you to define a whitelist and only allow specific, trusted IPs to those paths. Requests from non-whitelisted IPs will be automatically blocked with an 1106 HTTP code.



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# ASE - Core Product Summary - Security

My customer has the URL <https://customer.com/limitededition> they want to protect. They want to allow only 50 requests per minute from a specific user. When it exceeds, they would like to block or slow down the user. Can Cloudflare support this?

- a. Yes with Cloudflare WAF.
- b. Yes with Cloudflare Firewall Rules.
- c. Yes with Cloudflare Rate Limiting.
- d. Yes with Cloudflare Security Level.
- e. Can't support.



# ASE - Core Product Summary - Security

How fast are new WAF rules propagated to the Cloudflare network?

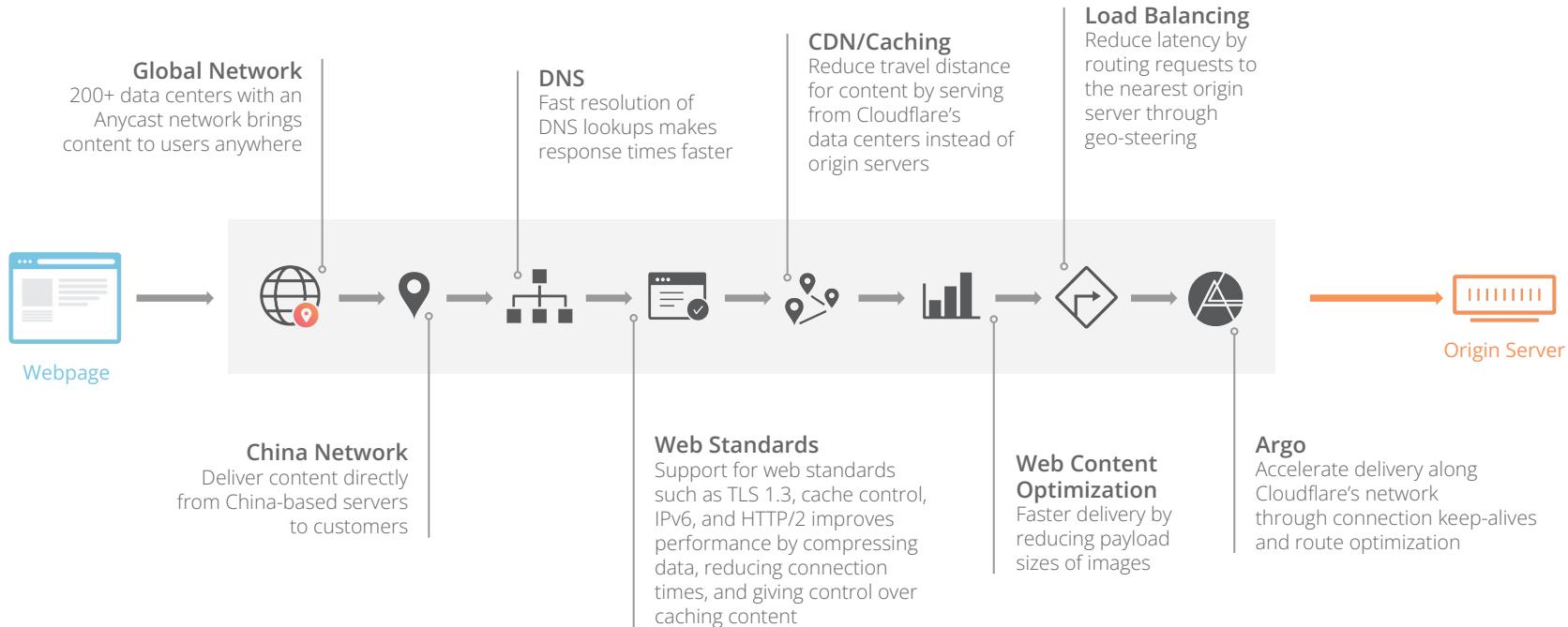
- a. 24-48 hours
- b. 2-4 hours
- c. 1-5 minutes
- d. 5-30 seconds



A CDN that is easy to set up, more affordable, and sits  
within **100ms of 99%** of the global population.

// End to End Performance

# Cloudflare's Performance Services



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# Scaled, single-price acceleration

## Global CDN

Our proprietary CDN technology was built to continuously adapt and integrate emerging technologies to meet future needs of everyone's Internet properties.

## Mobile

Device identification and optimizations provide enhanced mobile support.

*Open connections with global footprint close to end users significantly improve response time.*



## Web Content Optimization

Ensure every page loads quickly with image compression and render enhancements, including dynamic content acceleration.

## China Network

Through a strategic partnership with Baidu/JD, we've created the only truly integrated global network that offers a fast, secure, and reliable experience for visitors inside and outside of China.

[Learn More: Performance](#)

# Control your caching via many methods

Method	Use case	Instructions
<b>Dashboard</b>	A great way to clear an individual file, tagged files, or the entire cache in under 5 seconds.	In the Caching App, scroll down to purge cache or browser cache expiration.
<b>API</b>	The API can be used as part of new publishing protocols to quickly purge an updated file, tagged files, or the global cache.	<a href="#">Purge All Files API</a> <a href="#">Purge by Tag API</a> <a href="#">Purge Single File API</a>
<b>Page Rules</b>	Page Rules allow you to cache everything, nothing, and all the levels in between with custom TTLs.	<a href="#">Advanced Caching Knowledge Base</a>
<b>Cache-control headers</b>	Cloudflare always respects headers such as Cache-Control, max-age, s-maxage, and Expires (unless overwritten with a Page Rule).	<a href="#">Cache Headers Knowledge Base</a>



# Enterprise-only Caching Capabilities

Method	Use case
<b>Custom Cache Keys</b>	Allow different objects to be served for the same URI based on any arbitrary request header or cookie. For example, an image with a device-type cookie set to desktop would be a different object in our cache than an image with device-type cookie set to tablet.
<b>Cookie</b>	When a specific cookie is present, cache or bypass the cache entirely. This option allows for Wildcard matching (.* ) and the OR ( ) operator to handle multiple values.
<b>PreFetch</b>	We can increase performance of static content availability. Prefetching stays one step ahead of the browser's request.
<b>Region Control</b>	Control where we cache your content by PoP or selective geographic region.
<b>Query String Sort</b>	Increase cache hit rates by ensuring we serve cached objects regardless of parameter order.



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# Integrated China Network

Cloudflare's Global Network



China Network via Baidu/JD

Cloudflare  
Global  
Network

**Single control panel**  
across multiple origins  
in China & overseas

Interconnected



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# Key Takeaways - Performance

**How can Websites benefit from Cloudflare's Scaled, single-price acceleration?**

Global CDN

Web content optimization

Mobile optimization

China Network

**List the methods used to control your caching via many methods**

Dashboard

API

Page Rules

Cache-control headers

**Describe Cloudflare's caching capabilities for enterprise accounts**

Custom Cache Keys

Cookie

PreFetch

Region Control

Query String Sort

**Advantage of Cloudflare China network**

Single control panel across multiple origins in China & overseas

# ASE - Core Product - Performance

Which of these are some of Cloudflare's performance features?

- a. Serving static content from a global cache
- b. Load balancing across healthy origins
- c. Choosing the fastest route to origin(smart routing)
- d. Applying web content optimizations



# ASE - Core Product - Performance #2

I would like to cache more files for my customer, such as videos, HTML, etc. Which app in the dashboard would I find for that?

- a. Caching
- b. Page Rules
- c. Custom Pages
- d. Workers

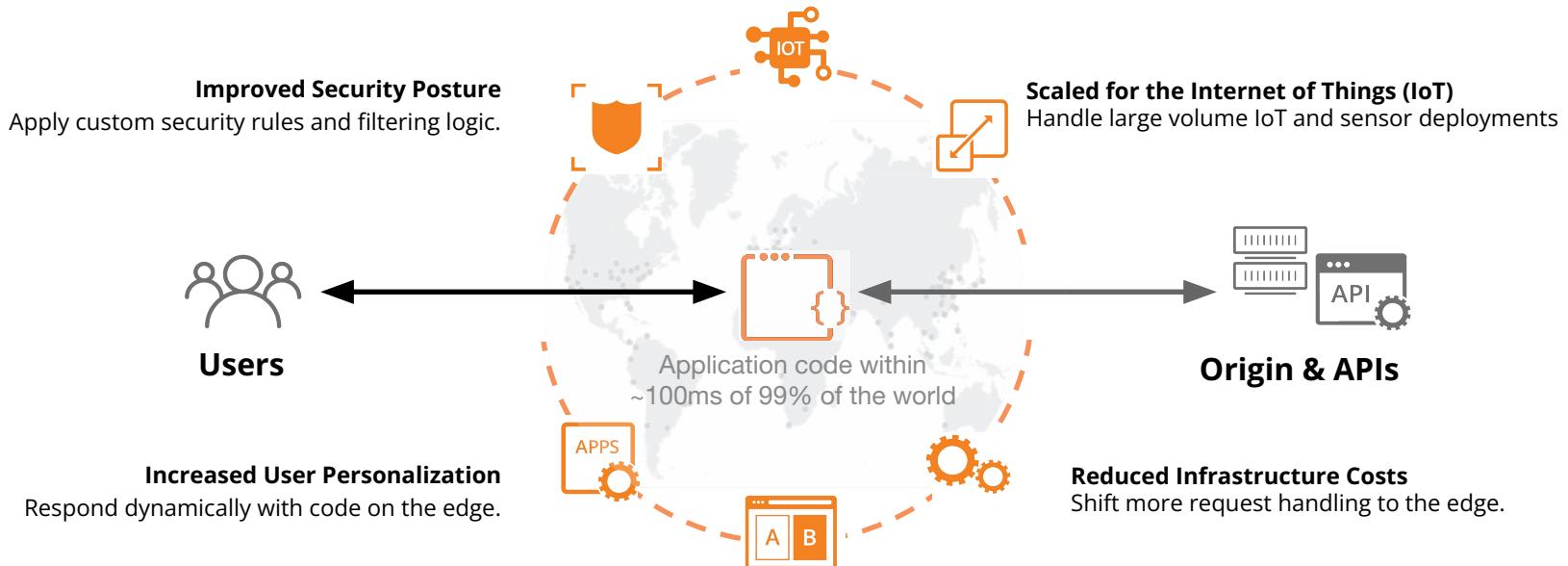


Cloudflare Workers provides serverless,  
“Functions-as-a-Service” within 100ms of 99% of the globe.

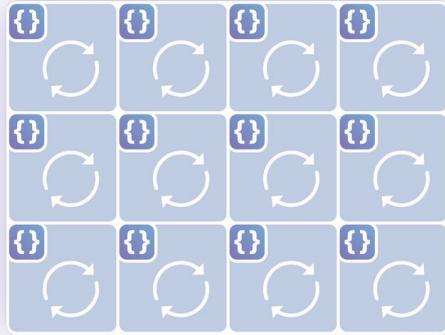
// Cloudflare Platform

# Future applications require the scale of serverless

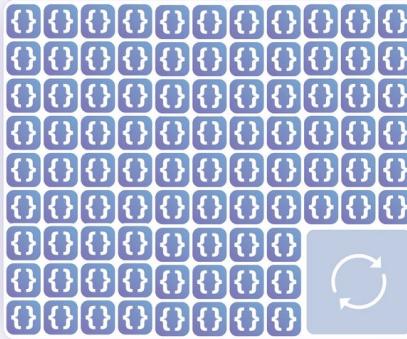
Serverless solutions provide a third place to run code for latency-sensitive and high volume applications.



# Cloudflare Workers Differentiation



Traditional Container Serverless Overhead



Workers Isolate Serverless Overhead

## High Performance

Unlike serverless platforms built on containers to run in regions, Workers' V8 isolate architecture developed for Google Chrome provides enhanced performance with far less overhead.



Deliver a High Quality User Experience



Performance



Instant Global Scale



Developer Productivity



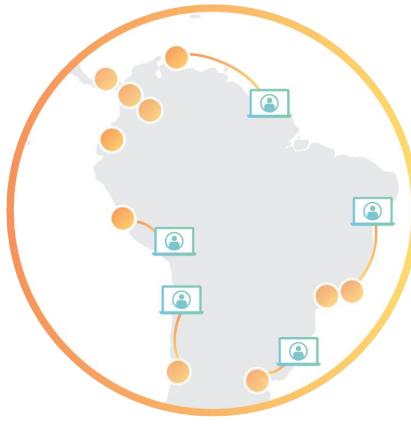
Lower Cost

Cloudflare Workers

# Cloudflare Workers Differentiation



Traditional Cloud Provider



Cloudflare Workers

## Instant Global Scale

With Workers, developers avoid complex load balancing setups — they can deploy to 200+ locations as easily as they can deploy to one cloud availability zone with other providers.



Easily Expand to Serve  
a Global User Base



Performance



Instant Global  
Scale



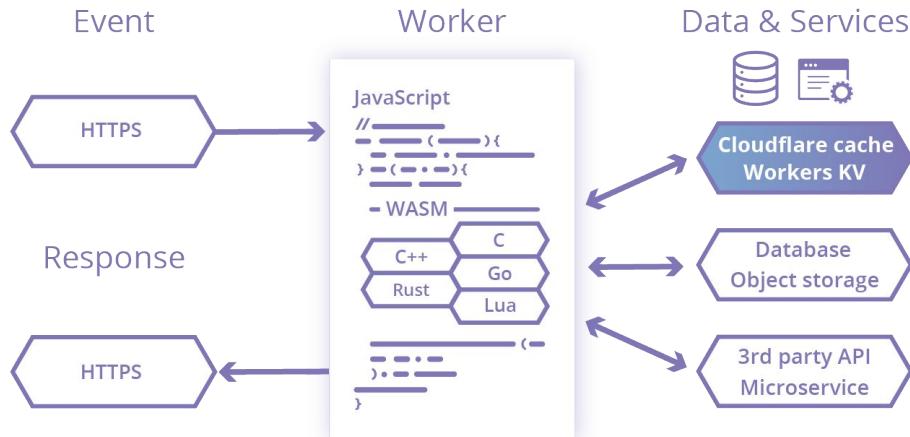
Developer  
Productivity



Lower Cost

Cloudflare Workers

# Cloudflare Workers Differentiation



## Developer Productivity

Built in HTTP handling removes the need to integrate with an API gateway, and the use of the standardized Service Worker specification makes getting started and troubleshooting easier.

Workers can be written in Javascript or any WebAssembly language.



Stay Ahead of The Competition



Performance



Instant Global Scale



Developer Productivity



Lower Cost

Cloudflare Workers

# Key Takeaways - Cloudflare Workers

**Describe how Cloudflare delivers high quality user experience?**

**Describe how Workers are used to expand to serve global user base**

**How does Cloudflare Workers increase developer productivity and reduce cost?**

---

Unlike serverless platforms built on containers to run in regions, Workers' V8 isolate architecture developed for Google Chrome provides enhanced performance with far less overhead.

With Workers, developers avoid complex load balancing setups — they can deploy to 200+ locations as easily as they can deploy to one cloud availability zone with other providers.

Built in HTTP handling removes the need to integrate with an API gateway, and the use of the standardized Service Worker specification makes getting started and troubleshooting easier.



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# ASE - Core Product Summary - Workers

In which Cloudflare data center would you be able to deploy and execute your Workers script?

- a. U.S. and Europe
- b. U.S, Europe, and Asia
- c. Everywhere in the world using 200 data centers

ASE



Accredited Sales  
Engineer

Over **10% of all Internet requests** run through  
Cloudflare's network, giving us unprecedented insight into  
our customers' web traffic.

// Unparalleled Insights

# Gain Unique Insight Into Your Traffic

## Traffic Analytics

At-a-glance [Cloudflare analytics](#) provides visibility into: WAF events, rate limited requests, Argo Smart Routing performance, bandwidth savings, visitor geography, DNS queries, and more.

## Threat Breakdowns

When we identify requests that are threats, we log them and block them. That means we not only protect your site, but also provide insight into the malicious activity we're seeing.



## Enterprise Log Access

For enterprise customers, we can provide consolidated logs from around the world. These are very rich, containing detailed information about every request and response.

# View Key Analytical Highlights

## Traffic

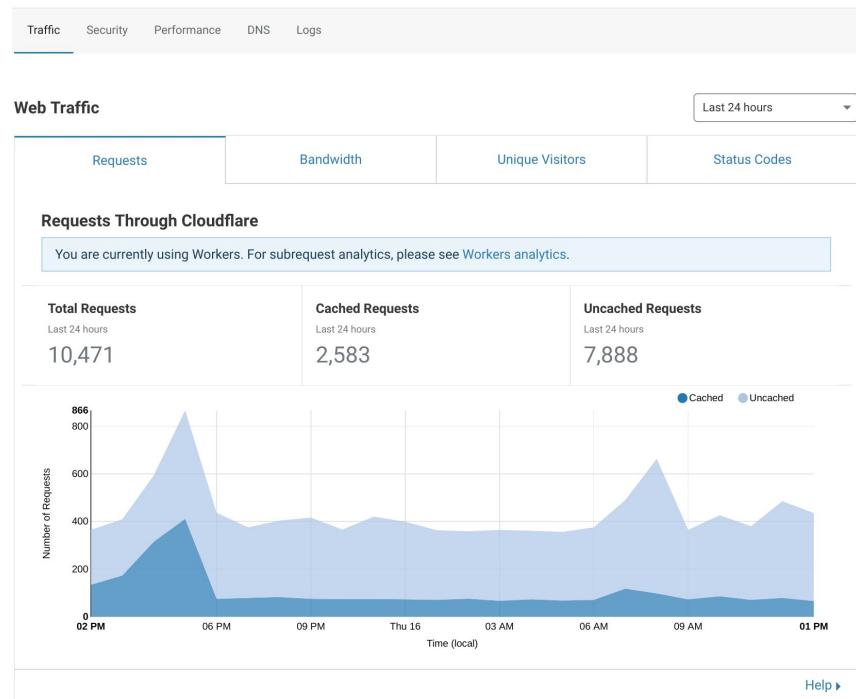
- Requests
- Bandwidth
- Unique Visitors
- Threats
- Status Codes

## Performance

- Hardware Savings
- Bandwidth Savings
- Content Type

## Security

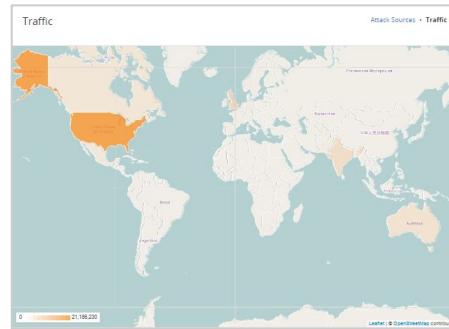
- Total Threats
- SSL Traffic Served
- Types of Threats



# Review Top Threats & Search Engines

## Geography Breakdown

Highlight the origins of your traffic and your key threats. As well as how frequently one of the major search engines has crawled your pages.



## Search Engine Traffic

### Top Threat Origins

Last 24 Hours

Country	Requests
United States	15,074
Philippines	6,881
India	4,073
Indonesia	890
Unknown	783

### Top Visitor Origins

Last 24 Hours

Country	Requests
United States	21,186,230
United Kingdom	7,445,990
India	4,396,070
Australia	3,350,717
Canada	2,305,874

### Top Search Engines

Last 24 Hours

Search Engine	Pages Crawled
Google	17,635
Bing	10,017
Yandex	2,890
facebookexternalhit	1,801
Twitter	157

# Detailed Security Reporting

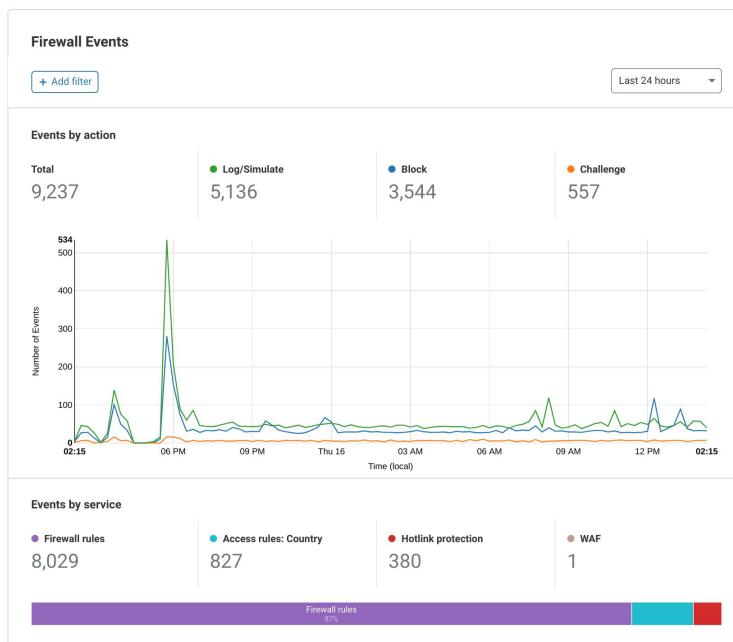
## Firewall Events

View a log of broken WAF Rules and other security steps taken against your website.

Activity log				
Date	Action taken	Service	IP address	Country
16 May, 2019 14:28:04	Log/Simulate	Firewall rules	162.218.67.34	United States
Ray ID	4db0702029c4c9a1	Service	Firewall rules	
Method	GET	Rule ID	0a98f71b707a4739aed33cae78da35ad	
Host	www.theburritobot.com	Rule name	Unavailable	
URI	/static/img/background-white.png	Expression	Unavailable	
User agent	Pingdom.com_bot_version_1.4_(http://www.pingdom.com/)	Action taken	Log/Simulate	
IP address	162.218.67.34		Download JSON	
ASN	AS46841 FORKNETWORKING - Fork Networking, LLC			
Country	United States			
Additional matches	2 ▾			

## Event Detail

View additional information and take action on the events.



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# Raw Logs & SIEM Integrations

## Cloudflare Logs

Cloudflare Enterprise customers have access to detailed logs of HTTP requests for their domains. These logs are helpful for debugging, identifying configuration adjustments, and creating analytics, especially when combined with other data sources, such as application server logs.

**Cloudflare Logs** feature two mechanisms for getting your traffic data:

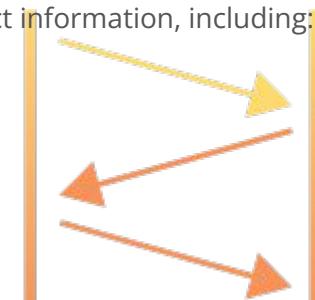
- [Logpull](#) - To request log data programmatically using a RESTful API
- [Logpush](#) - To automate log data delivery to a cloud storage provider

### SIEM Integrations:

- <https://splunkbase.splunk.com/app/4501/>

Visit the [Cloudflare Logs documentation portal](#) for additional product information, including:

- [Tutorials and examples](#)
- [Reference](#)



# Key Takeaways - Analytics

How does Cloudflare provide traffic insights?

How does Cloudflare provide performance Insights?

How does Cloudflare provide security Insights?

Cloudflare Logs feature which two mechanism

Requests

Hardware Savings

Total Threats

**Logpull** - To request log data programmatically using a RESTful API

Bandwidth

Bandwidth Savings

SSL Traffic Served

**Logpush** - To automate log data delivery to a cloud storage provider

Unique Visitors

Content Type

Types of Threats

Threats

Status Codes

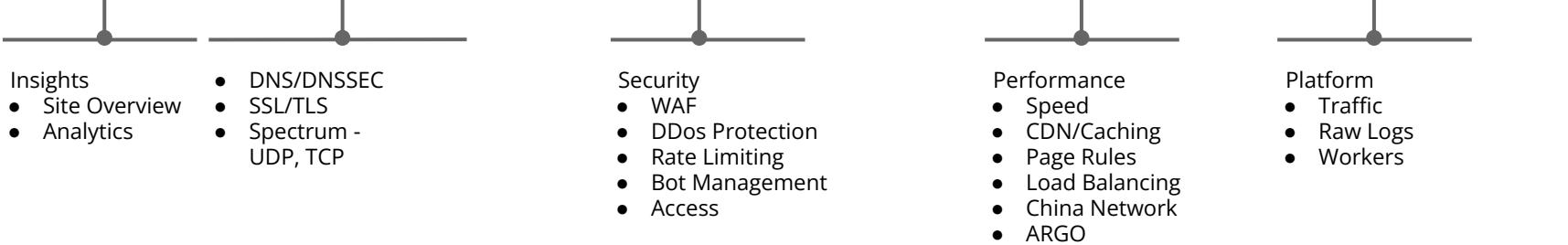


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Cloudflare provides an intuitive interface with multi-user access, audit logs, and extensibility with API-first design.

// Dashboard Demo

# Cloudflare Dashboard



# Dashboard Demo: Group Exercise



# Exercise Personas

	Company A	Company B	Company C	Company D
Primary Concerns	Security	Performance	Reliability	Platform
Company Size	Large	SMB	Large	SMB
Key Audience	CISO Security Engineers	Marketing Web developers	Web Infrastructure IT Team	CEO, CTO

All features can be activated easily via the dashboard and **API**. All changes made will take effect globally in **under 30 seconds**.

## // Implementation Overview

# What We Will Cover Today

- The Value of Partnering with Cloudflare
- Cloudflare Technical Architecture
- Cloudflare Services Overview
- Core Product Summary
- Core Product Demo
- Overview of Implementation    **<< We are here!**

# Implementation Overview: Getting Started

1. Customer Decisions: **DNS, SSL, Plan and Addons**
2. Account creation
3. Adding a website
4. Configuring DNS: **Full or CNAME**
5. Configuring SSL: **Custom or Cloudflare**
6. Staging
7. Changing Nameservers

# POC Requirements

- It happens after solution design (don't drive POC at too early stage!)
- Customer has expectation on the proposed solution
  - = if we meet it, they're ok to buy
- Typically < 2 weeks (Approval required for longer duration)
- Partner Sales/SE initiates a kick off meeting with Cloudflare and customer to discuss success criterias, POC requirements, and implementation planning
- Through POC, we need to ensure to meet customer's success criteria

# e.g.: Singapore Card Ltd - Cloudflare POC Plan

Attributes	Decision
Ownership	Uncle Roger at Partnercorp & Jean Ryu at Cloudflare
Kick-off Date	June 24th
Wrap-up Date	July 8th
Products	Web Application Firewall + Overall Security
Testing Site (host)	testing subdomain pointing to live site : <i>cf.singaporecard.com.sg</i>
<b>Success Criteria</b> (Measurable, Quantifiable)	<ul style="list-style-type: none"><li>• successful integration with aimed products</li><li>• feature feedback &amp; easy to use</li><li>• successful pass of customer's security pentest</li><li>• performance comparison with current vendor</li></ul>
<b>Onboarding Decisions</b>  CLOUDFLARE	DNS - CNAME setup SSL - Cloudflare provisioned SSL

# Handling Common Technical Objections

Objection	Answer
<b>Why would someone choose a DNS-based DDoS Solution over BGP? BGP vs DNS-based</b>	<p>DNS-based solutions provide a much simpler and always-on solution.</p> <p>BGP-based solutions require some amount of downtime and increase latency during an attack.</p> <p><u><a href="#">See Memcached DDoS Attack</a></u></p>
<b>How does Cloudflare handle local DDoS attacks that may be limited to a single country?</b>	<p>Although a local attack will not likely generate much traffic volume, Cloudflare uses advanced machine learning at each PoP to discover and mitigate large attacks at each PoP.</p>
<b>Why not leverage one of the major Cloud providers edge capabilities (DDoS, CDN, etc)?</b>	<p>Although many single-cloud customers may benefit from using built-in capabilities from the major providers, multi-cloud and hybrid cloud solutions would benefit from Cloudflare's single edge network.</p> <p>Additionally, Cloudflare's solutions are typically superior to the built-in solutions (more locations, more performant DNS, superior WAF).</p>



# In Summary

Elevator Pitch	Cloudflare provides an Integrated Global Network Platform providing security, performance, reliability and platform solutions.
Technical Architecture	Cloudflare is a reverse proxy provisioned via Anycast DNS with 200+ global PoPs running a single, integrated software stack. Every PoP provides every service.
Core Products	<b>Security:</b> DDoS, TLS, Firewall, Web Application Firewall, Bot Mitigation <b>Performance:</b> CDN, Optimization, Smart Routing, China Network <b>Reliability:</b> Anycast DNS, Load Balancing and Health Checks <b>Platform:</b> Cloudflare Workers, Single-Pane Analytics
Implementation	Cloudflare can be provisioned via a DNS change. No hardware or software to install.



## Next steps

- Get the ASE certificate
- Get the Partner Demo Account (recommended)
- Learn more at Cloudflare ACE course

// Thank you !

Cloudflare **continuously adds additional capabilities** to our network. These can be added seamlessly to a customer's account to solve their latest application challenges.

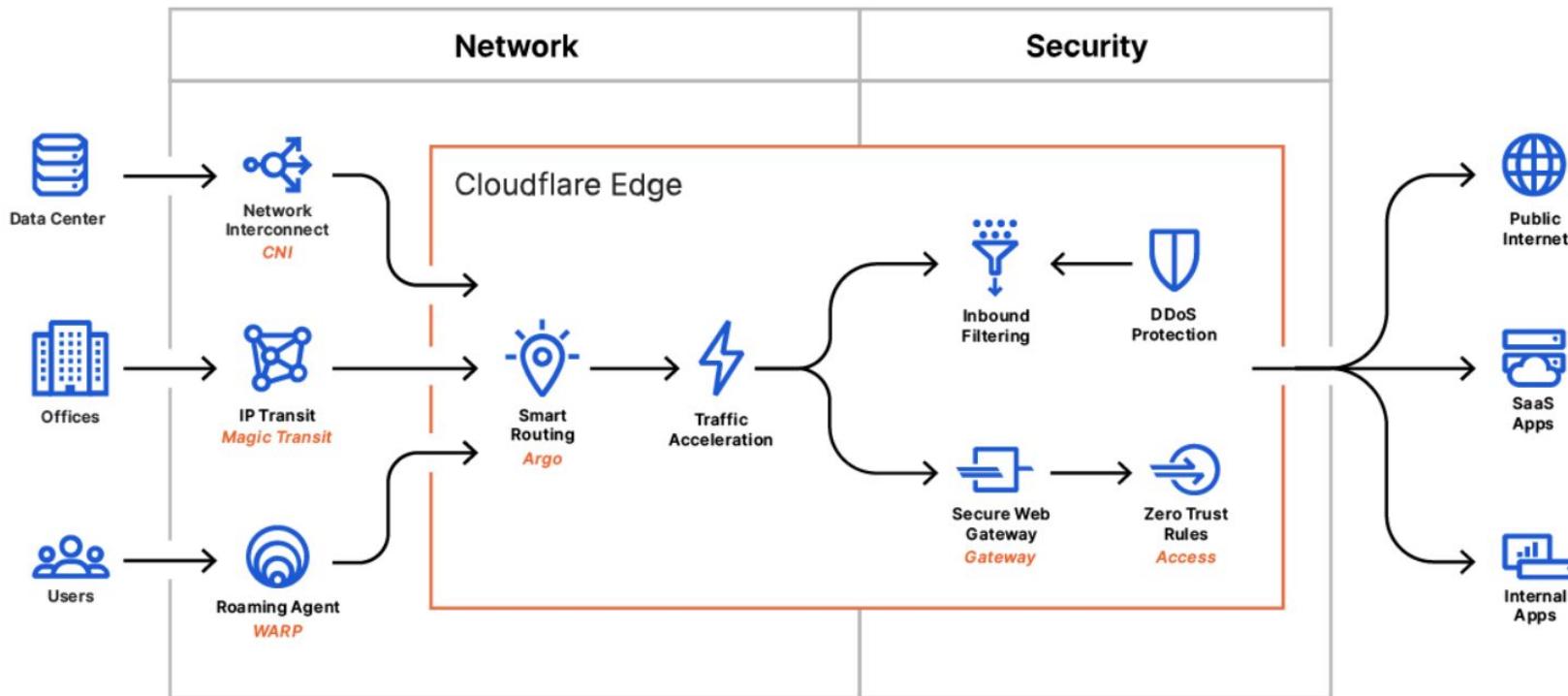
## // Product Add-Ons

# Cloudflare's Capabilities Keep Expanding

- [Cloudflare for Teams](#) - Authenticated [access](#) and a secure web [gateway](#)
- [Magic Transit](#) - IP transit with DDoS Protection, next-gen firewall, and acceleration
- [Load Balancing](#) - Global and local reliability with fast failover
- [Stream](#) - An All-in-One Video Solution
- [Argo](#) - Smart Routing & Tiered Caching
- [Workers](#) - Deploy javascript code at the Cloudflare Edge
- [Rate Limiting](#) - Configurable protection against suspicious requests
- [Bot Management](#) - Configurable bot management leveraging machine learning
- [Argo Tunnel](#) - Easy Origin Protection for Any Application
- [DNS Firewall](#) - Advanced Firewall for your DNS infrastructure
- [SSL for SaaS](#) - Protect, encrypt and accelerate custom SaaS hostnames
- [Orbit](#) - Protect and accelerate your IoT devices
- [Secure Registrar](#) - Protect your applications from domain hijacking



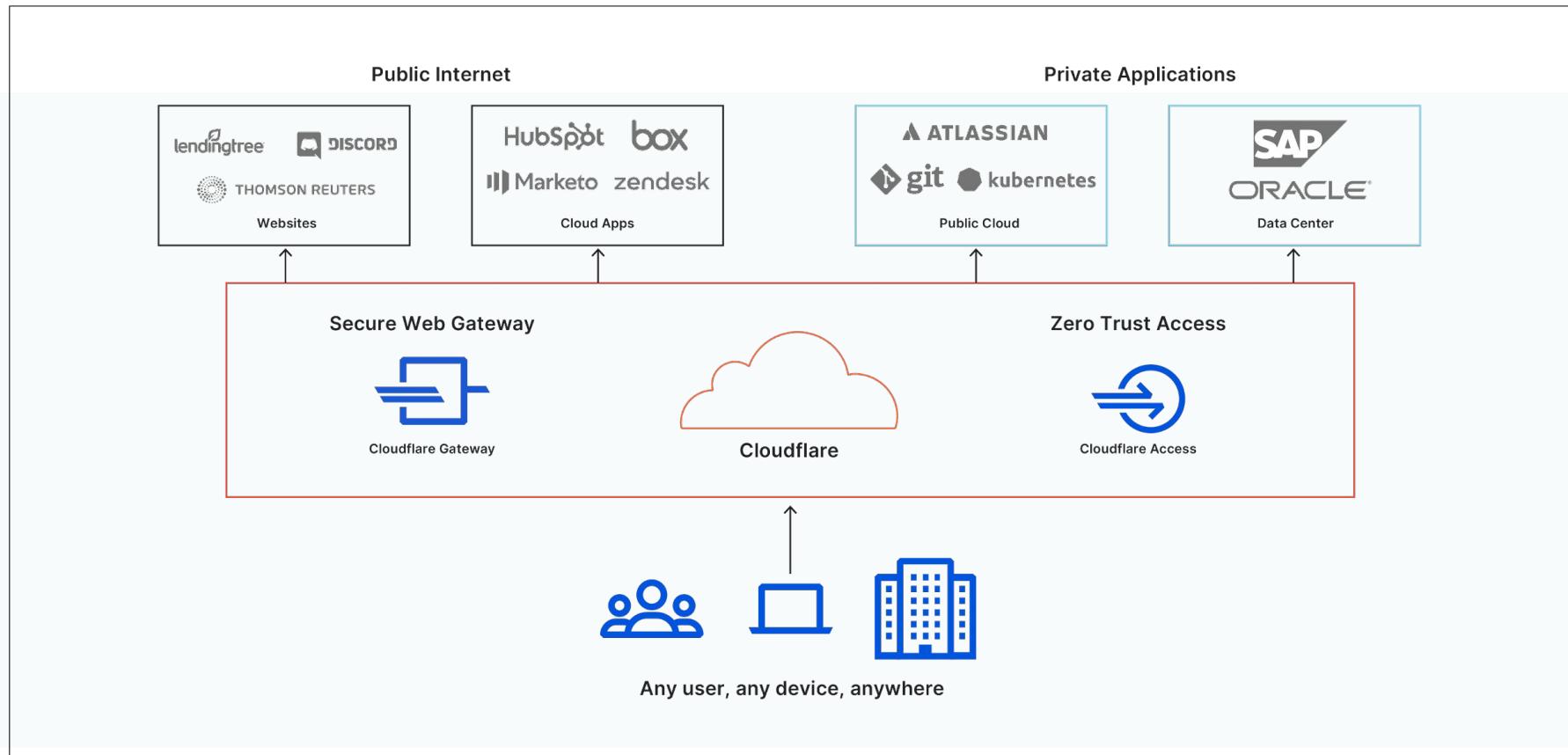
Cloudflare  
One



# Replace your VPN with Cloudflare's global network



Scalability	<b>Instant</b>	<b>Manual</b>
Request throughput	<b>Unlimited</b>	<b>Limited</b>
Architecture	<b>Global</b>	<b>Point-to-point or site-to-site</b>
Traffic routing	<b>Nearest Cloudflare PoP</b>	<b>Centralized locations</b>
Policy engine	<b>Granular</b>	<b>Generic</b>
User trust	<b>Based on identity and context</b>	<b>Granted by default</b>
Monitoring	<b>Comprehensive</b>	<b>Limited</b>





# Cloudflare for Teams



Access	Gateway
Protect access to internally managed applications	Internet-bound traffic
<ul style="list-style-type: none"><li>Modernize security and login flow for internally managed apps that traditionally required VPN or private network connection</li><li>Establish discrete perimeters of protection around key applications</li><li>Improve application delivery speed with Cloudflare's network scale and intelligent routing</li><li>Extend access to partners and contractors without issuing and managing corporate login accounts</li></ul>	<ul style="list-style-type: none"><li>Shift from on-premise threat sandboxing to catching threats at the edge of our network</li><li>Replace antivirus scanning and software</li><li>Enforce URL filtering without additional software licensing</li><li>Secure branch office traffic without hardware or centralized backhauling</li><li>Inspect SaaS applications for DLP</li><li>Eliminate expensive MPLS fees</li></ul>



# Cloudflare Access

## Zero Trust Security Solution

### Problem:

Traditional VPN solution results in poor user experience.

VPN becomes single point of failure.

VPN is slow.

VPN drills a hole at our internal network, it becomes vulnerability itself.

VPN stays on-prem while the organization is on digital transformation journey.

However, still need to secure the internal applications from remote access.

with a third party SIEM.



# Cloudflare Gateway

## Secure Web Gateway Solution

### Problem:

Devices connecting to internal applications may be compromised.

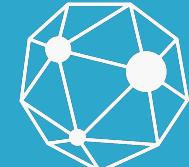
Employees may access undesired websites and get attacked by ransomwares.

So, they want a way to log, inspect, and secure traffic from corporate devices.

They want a way to push “internet access policy” to corporate devices.

End-users get an amazing experience leveraging the world's fastest public DNS resolver.

# Magic Transit empowers your network



## Problem:

Devices connecting to internal applications may be compromised.

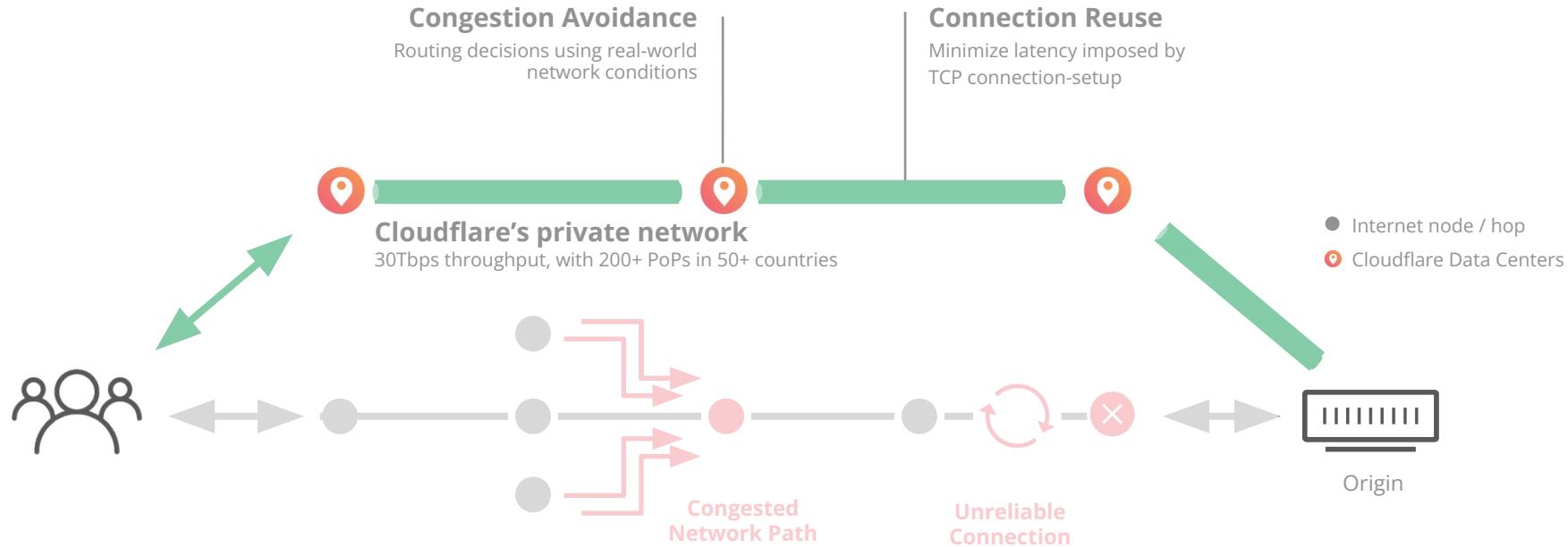
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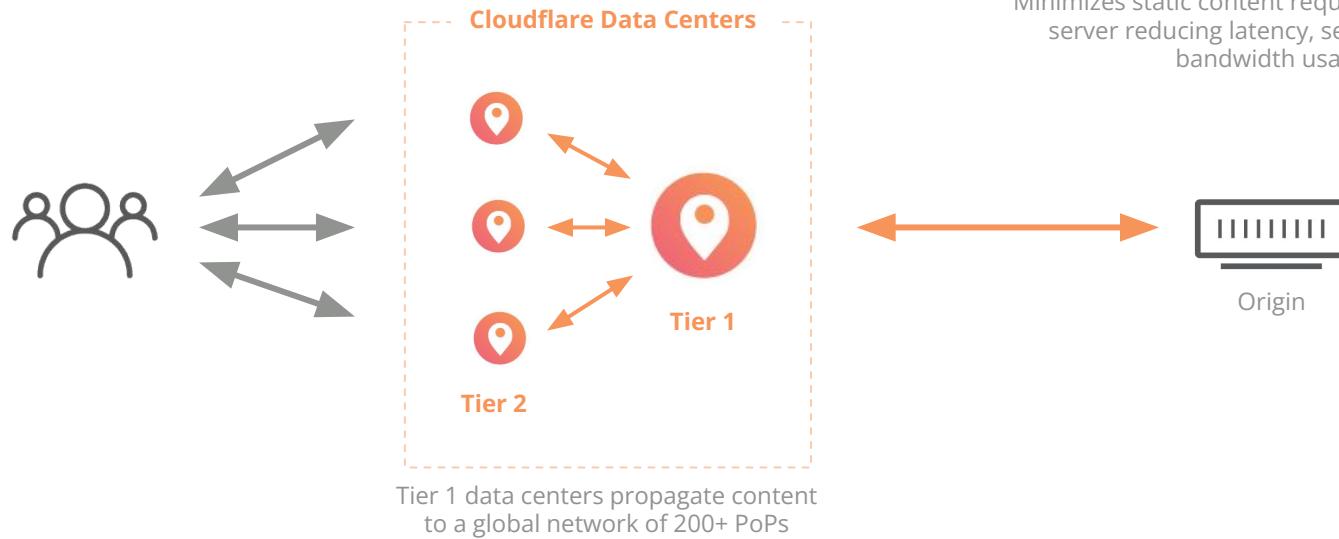
# Cloudflare Argo Smart Routing



## Faster Loading Times

Cloudflare routes over 10% of all HTTP Internet traffic providing Argo with real world intelligence on the fastest network paths.

# Cloudflare Argo Tiered Caching

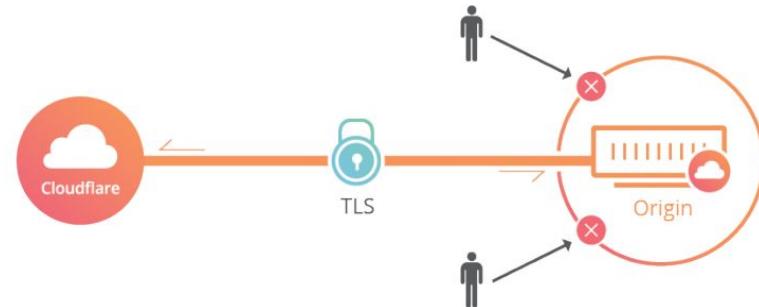


\*For free for Ent. customers

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# Cloudflare Argo Tunnels

- Warp establishes an **encrypted tunnel** to the Cloudflare edge without needing to open ports in the firewall or have a public IP.
- Applications protected by Cloudflare Warp receive all of the security and performance benefits of Cloudflare without direct exposure to the internet.



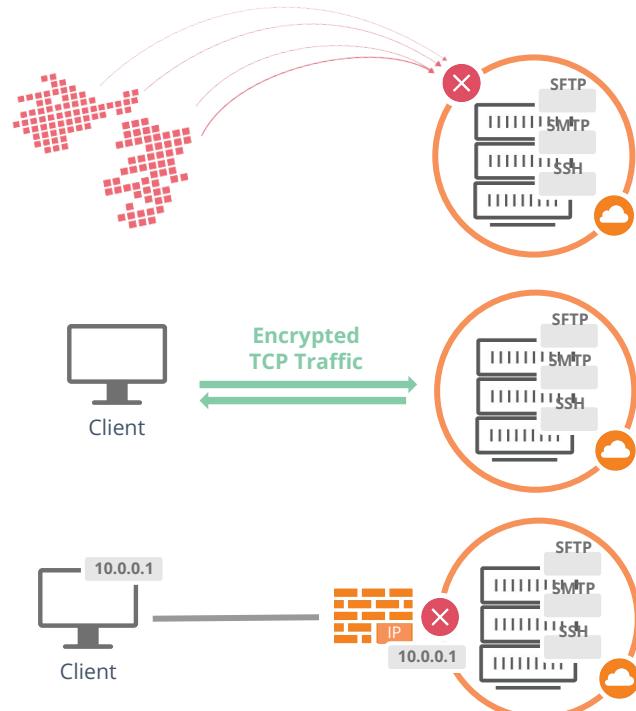
## How It Works

- 1 Install the Cloudflare Warp daemon on a server that is either NAT'ed or behind a firewall and does not have a public IP address
- 2 The Cloudflare Warp daemon establishes a persistent encrypted virtual tunnel with the nearest Cloudflare data center
- 3 All requests sent to the application first pass through the Cloudflare data center closest to the visitor
- 4 Requests then route over optimized transit using Argo Smart Routing to the Cloudflare data center connected to the tunnel
- 5 Cloudflare connects back to the server over the tunnel, even while the server remains hidden



# Cloudflare Spectrum

Proxy non-HTTP/S TCP traffic through Cloudflare



## 1 Mitigate DDoS for TCP Protocols and Ports

Cloudflare Spectrum proxies all non-HTTPS TCP traffic through the same 120+ cloudflare data centers, ensuring protection against DDoS attacks targeting layers 3 and 4 across open ports.

## 2 Encrypt Non-HTTP/S TCP Traffic

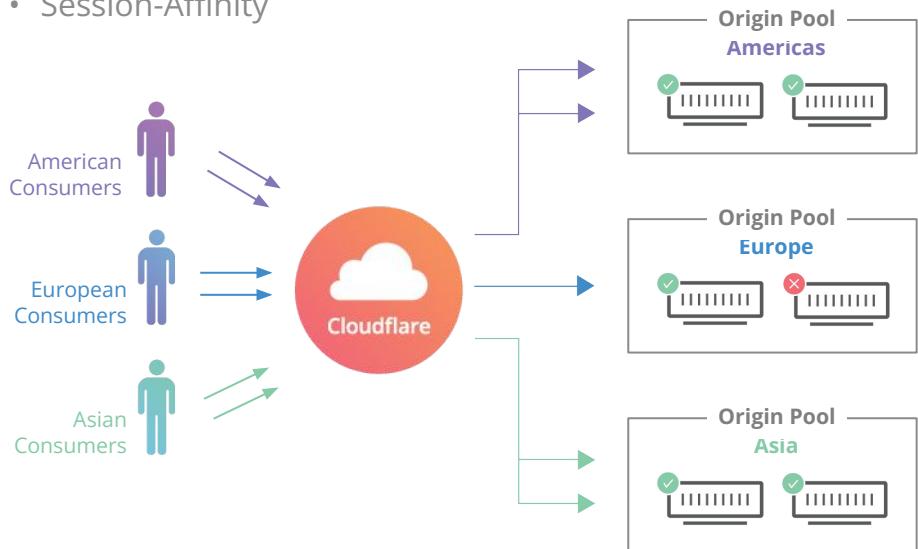
Cloudflare Spectrum encrypts non-HTTP/S TCP traffic with Universal SSL to protect against snooping of data in transit.

## 3 Block Traffic by IP or IP Range

Spectrum integrates with Cloudflare's IP Firewall so that traffic from specific IP or IP ranges can be dropped at the edge

# Cloudflare Load Balancing

- Health checks with fast failover
- Global and local load balancing
- Weight load balancing
- Session-Affinity



## Configuration made simple

- Easy configuration through Cloudflare's dashboard, or automation through a powerful API

## DDoS Resilient Service

- Anycast network that is 10X bigger than the largest DDoS attack ever recorded ensures traffic continues to be routed even under stress

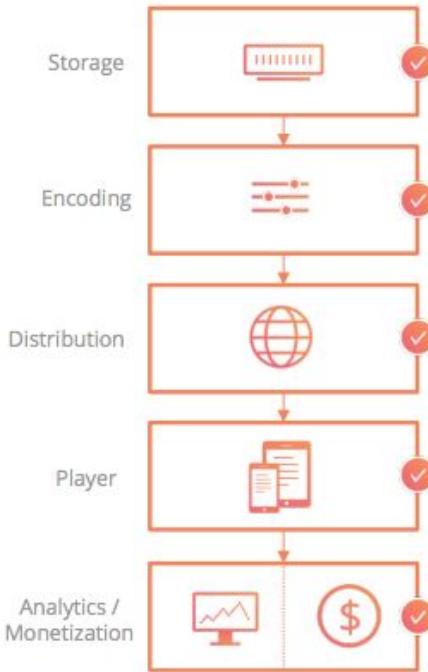
## Global DNS Network

- Health checks from each of Cloudflare's datacenters enables fast failover unbound by DNS propagation delays

## More information

<https://www.cloudflare.com/load-balancing/>

# Cloudflare Stream



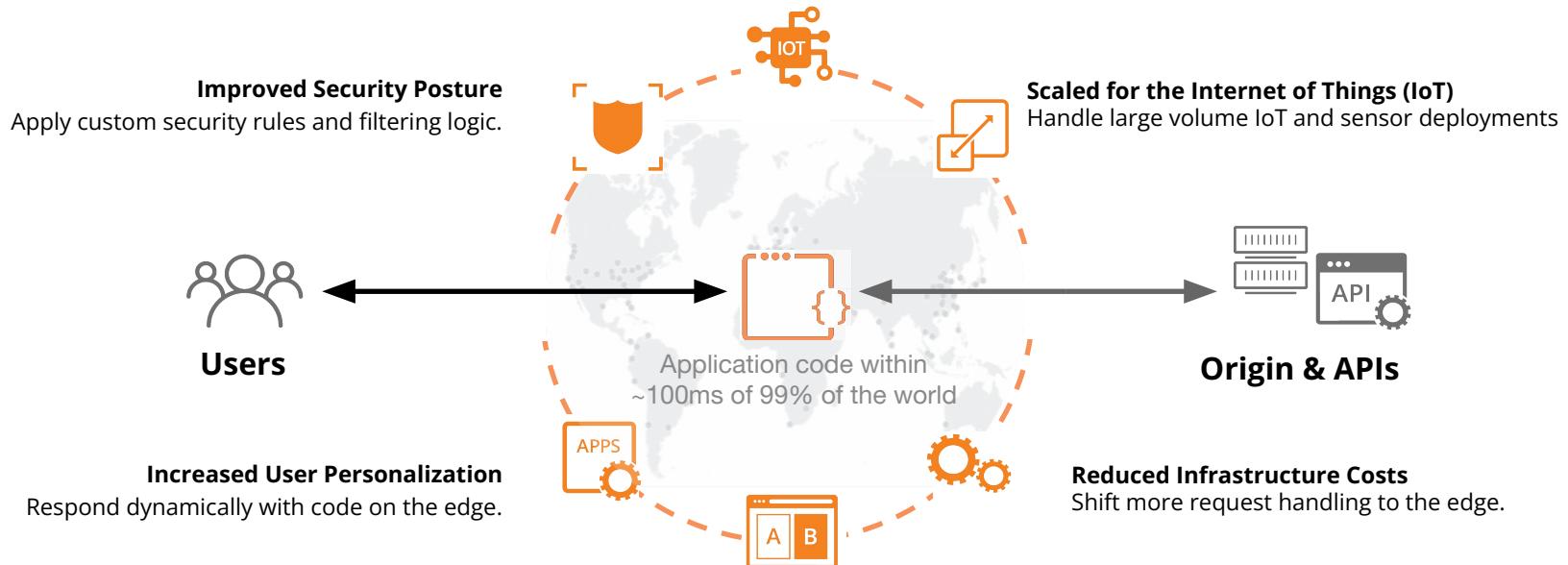
- **All-in-one solution:** No integration work necessary, allowing you to focus on creating the best video experience, not managing different services for each of those solutions.
- **Focus on speed:** Eliminates buffering and makes video instant

## How It Works

1. Upload a video to Cloudflare
2. Cloudflare stores the video, encodes it to different codecs and stores the newly encoded versions
3. Cloudflare provides an embed code which includes the Cloudflare video player
4. Cloudflare uses adaptive streaming to fetch the best quality video for that network connection and device
5. The video “just works” - looks great and loads quickly on any device type and network connection

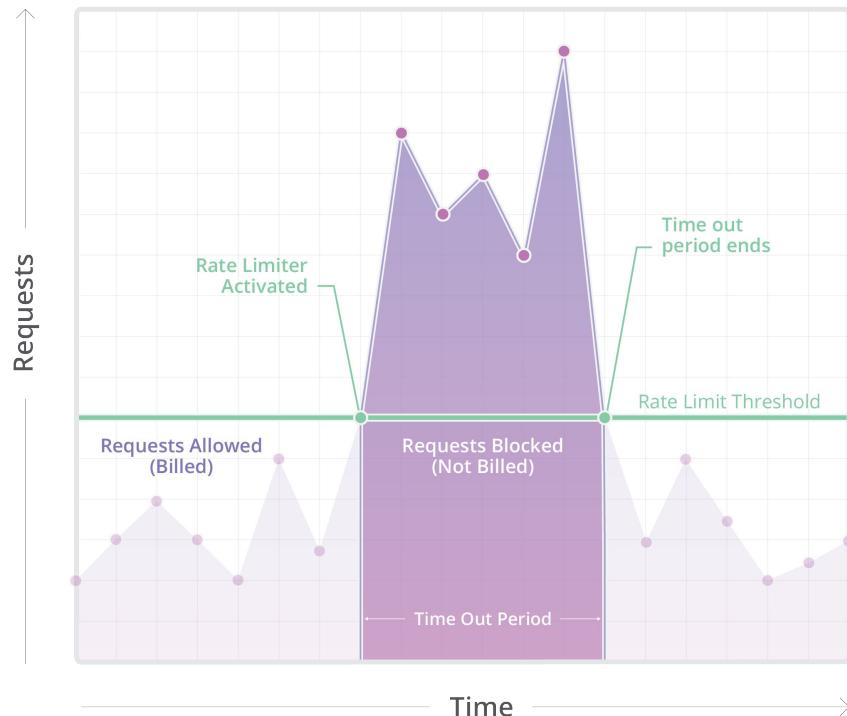
# Future applications require the scale of serverless

Serverless solutions provide a third place to run code for latency-sensitive and high volume applications.



# Cloudflare Rate Limiting

Requests per IP address matching the traffic pattern



## Precise DDoS Mitigation

- High precision denial-of-service protection through robust configuration options

## Protect Customer Data

- Protect sensitive customer information against brute force login attacks

## Ensure Availability

- Avoid service disruptions by setting usage limits on HTTP requests

## Cost Protection

- Avoid the unpredictable cost of traffic spikes or attacks by setting thresholds which only allow good traffic through.

### More information

<https://www.cloudflare.com/rate-limiting/>

# Cloudflare Bot Management



## Smart Data

Cloudflare protects 16M+ web properties and processes trillions of requests per day. The Bot Management solution leverages the learning from this traffic:

- Machine learning uses 200M requests analysed on a state-of-the-art GPU cluster
- Our data set contains 137 countries and 3M solved Captchas to verify our data
- Learning from one website are immediately applied to the whole network



## Transparency and Control

Customers know exactly why a particular request is flagged:

- JavaScript based solution, Behavioral Analytics and Machine Learning filters in the Firewall make it transparent to the customer why a particular request is flagged.
- Customers can control what mitigation steps they would like to take from simulate in logs as well as headers to Captchas, Block, Rate Limit and Alternative Content.



## Complete not Complex

Customer can expect a complete Bot Management solution considered as table stakes, without adding unnecessary complexity:

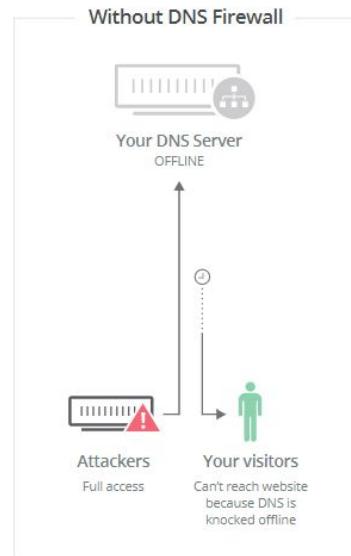
- One-click API and Mobile App protection
- Content/Price Scraping, Credential and Credit Card Stuffing, Spam, Inventory Hoarding, Click-Fraud are all incorporated into one product offering.



# Cloudflare DNS Firewall

DNS Firewall protects and accelerates an organization's DNS infrastructure through robust DDoS mitigation, lightning-fast DNS lookups, and caching at all of Cloudflare's locations around the globe. DNS Firewall acts as a DNS proxy and can be used as a completely stand-alone service, or alongside our normal HTTP/S proxy services.

**More information** <https://www.cloudflare.com/virtual-dns/>

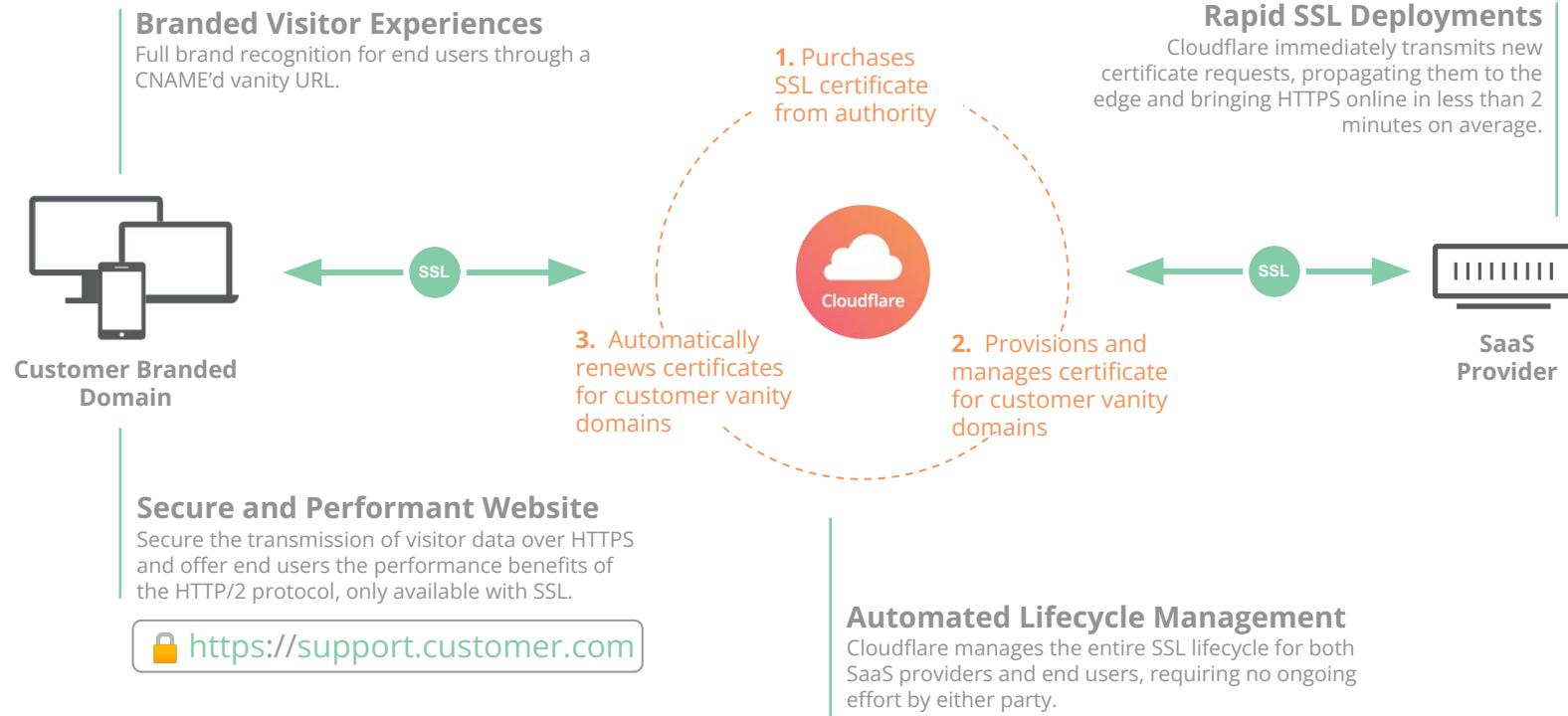


**WITHOUT CLOUDFLARE DNS FIREWALL**  
The Attacker is able to directly attack your origin DNS server, preventing the visitors from completing DNS lookups.



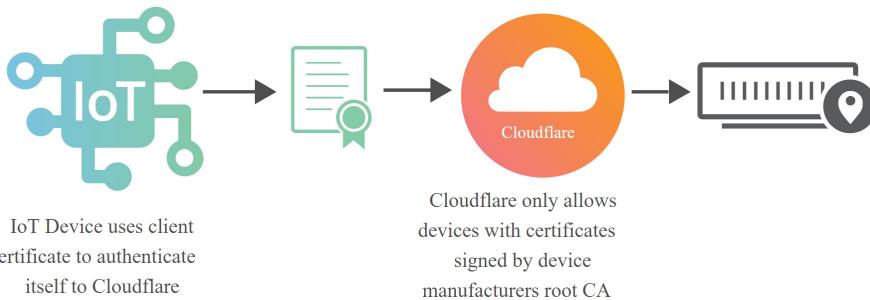
**WITH CLOUDFLARE DNS FIREWALL**  
Cloudflare DNS Firewall stops the attacker at the edge and keeps your DNS server protected.

# Cloudflare SSL for SaaS



# Cloudflare Orbit (Mutual TLS)

Orbit creates a secure and authenticated connection between an IoT device and its origin server. Orbit allows device manufacturers to instantly deploy “virtual patches” and block vulnerabilities across all devices on the network simultaneously. This keeps malicious requests from reaching devices, buys time for IoT manufacturers to carefully QA their updates, and keeps devices from leaking data or launching DDoS attacks.



Using Orbit, IoT infrastructures can:

- ✓ Secure & authenticated data transfer
- ✓ Cloudflare's firewall instantly blocks malicious threats across all IoT devices at the network level.
- ✓ Cloudflare delivers IoT firmware updates directly from cache, resulting in faster updates and reduced bandwidth costs.
- ✓ Cloudflare's compression and performance optimizations reduce data transmission, resulting in lower power consumption and better battery life.

<https://www.cloudflare.com/orbit/>



# Cloudflare Registrar

## Registrar

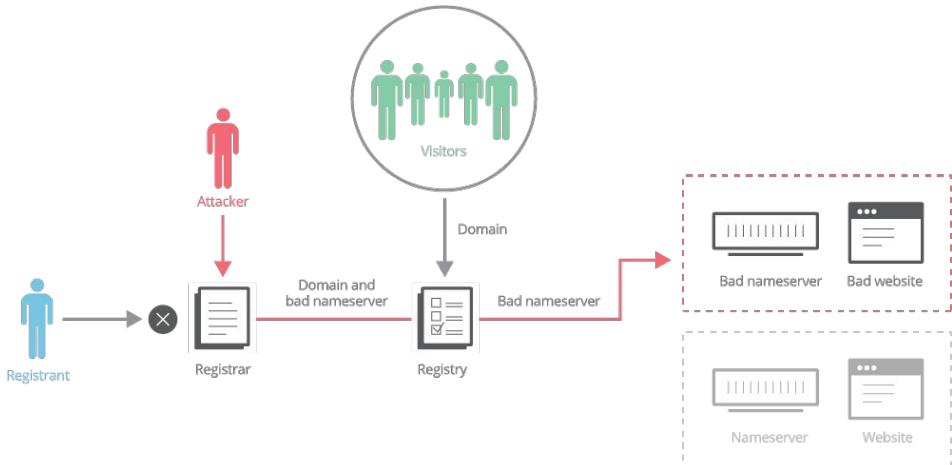
Cloudflare Registrar securely registers and manages your domain names with transparent, no-markup pricing that eliminates surprise renewal fees and hidden add-on charges. You pay what we pay — you won't find better value.

<https://www.cloudflare.com/registrar/>

## Custom Domain Protection

Additionally, you can add domain protection from Cloudflare to protect your organization from domain hijacking with high-touch, on and off-line verification of any changes to your Registrar account. Cloudflare is an ICANN accredited registrar providing secure domain registration for high-profile domains.

<https://www.cloudflare.com/products/registrar/custom-domain-protection/>



# Image Resizing

