What's New at Cloudflare
Starts at 10:00
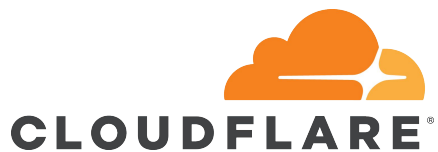
<u>Please connect to the audio bridge</u>

Please click the settings button ⚙ on the left hand side of the screen
"Join Audio"

<u>For questions</u>

Use the chat feature 💬 in the bottom left side of your screen

What's New at Cloudflare?
June 2019

Jake Jones

Customer Success

Anthony Mortimer

Customer Development

Danny Browne

Customer Development

Overview and Network Updates

We are helping build a better Internet

Cloudflare is an Edge Service Provider that provides performance and security services to anything connected to the Internet

CLOUDFLARE®

Cloudflare sits between our customers' traffic and their web servers, APIs, and IoT devices

Client / Visitor

Cloudflare Edge Network

Customer's Store & Compute Vendor

Cloudflare

Google Cloud

Azure

Yandex Cloud

On Premise

CLOUDFLARE
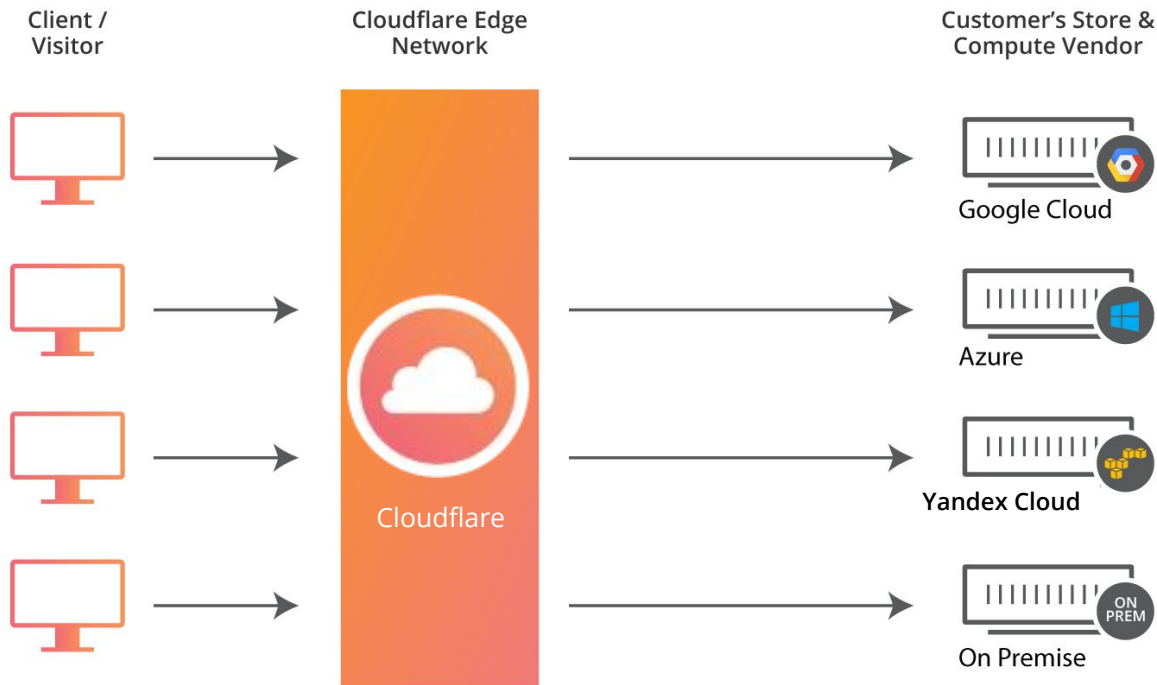
Solving the problems of Internet

PERFORMANCE
- CDN
- Web optimization
- Mobile optimization
- WAN optimization

SECURITY
- DDoS
- IoT security
- WAF
- Perimeter security

RELIABILITY
- DNS
- Anycast network
- Load balancing
- Always online

INSIGHTS
- Threat analytics
- Enterprise logs
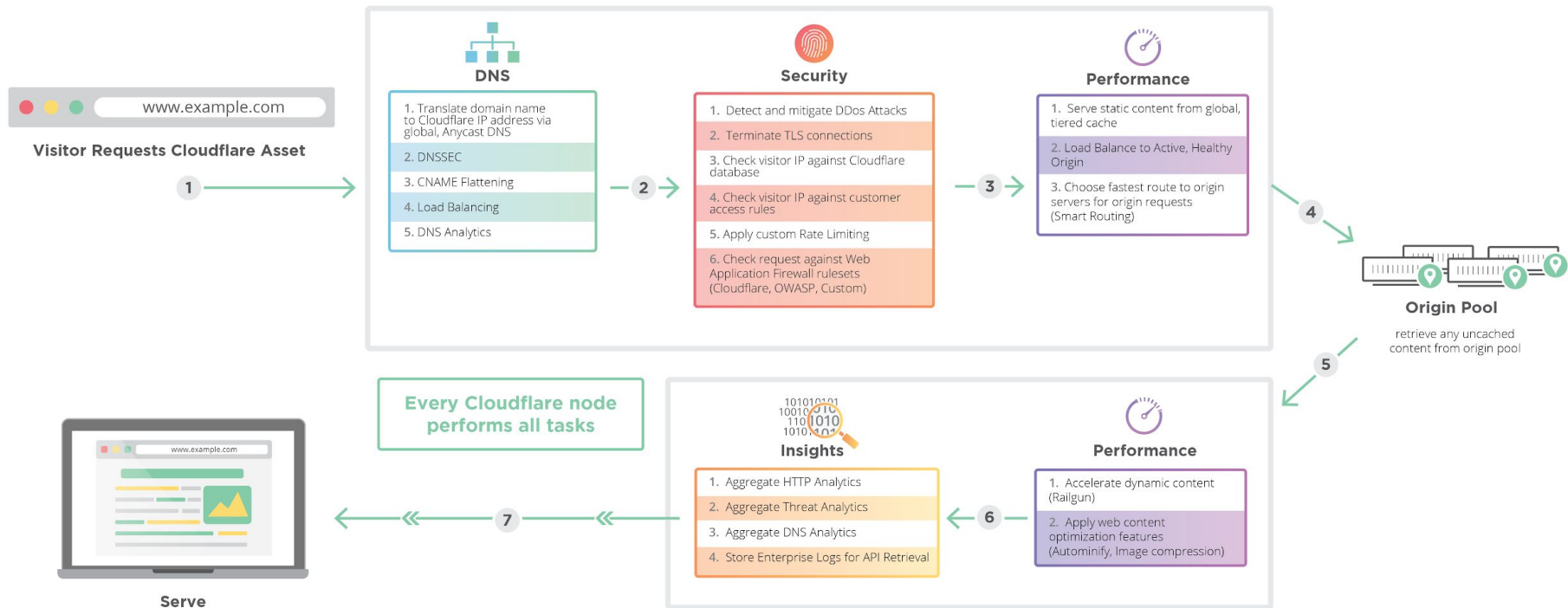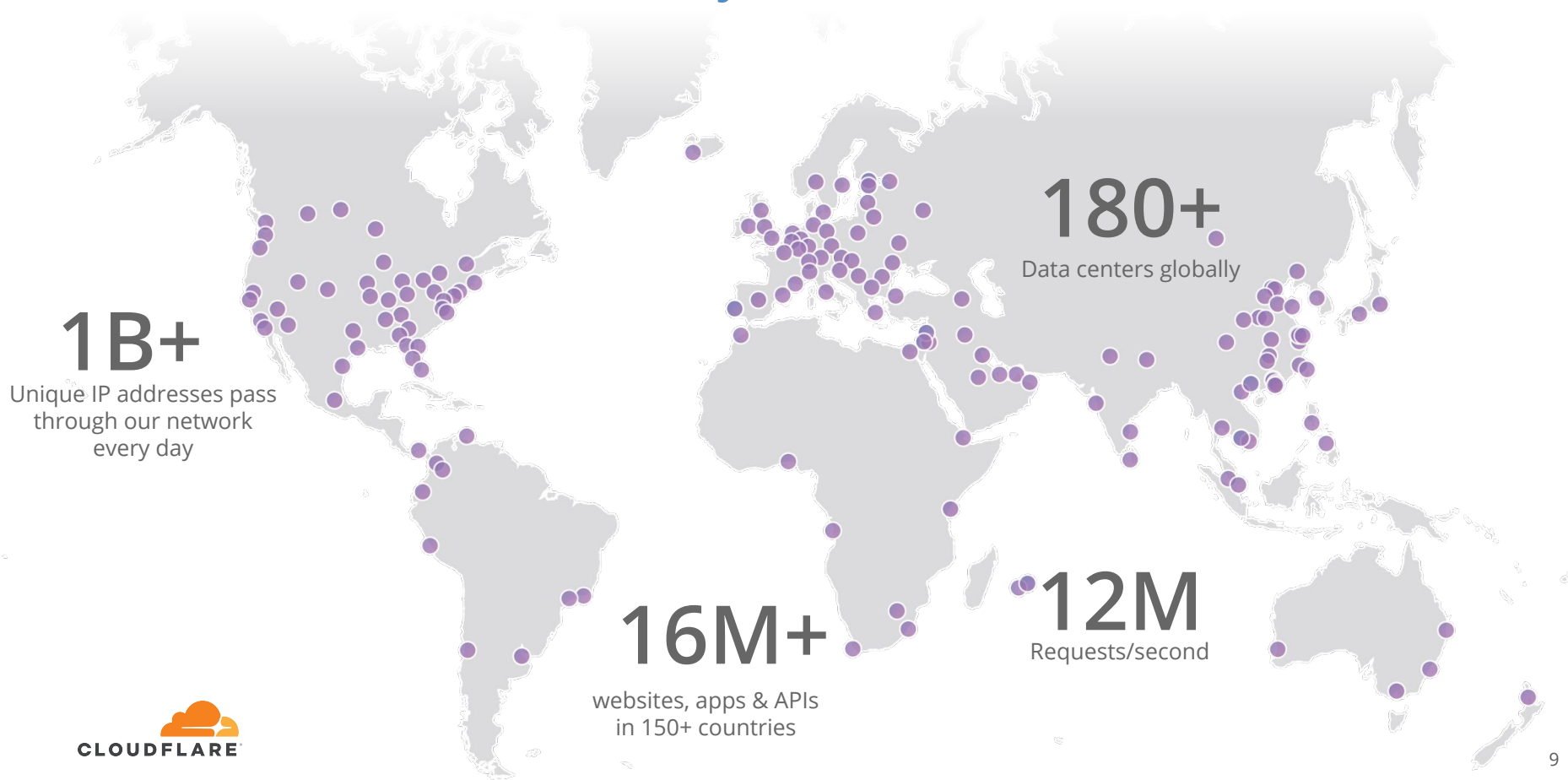- Traffic monitoring

PLATFORM
- Edge compute
- Apps platform

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Scalable ● Modern, unified architecture ● Easy onboarding, fine-grained control

Life of a request

www.example.com

Visitor Requests Cloudflare Asset

1

DNS
1. Translate domain name to Cloudflare IP address via global, Anycast DNS
2. DNSSEC
3. CNAME Flattening
4. Load Balancing
5. DNS Analytics

2

Security
1. Detect and mitigate DDos Attacks
2. Terminate TLS connections
3. Check visitor IP against Cloudflare database
4. Check visitor IP against customer access rules
5. Apply custom Rate Limiting
6. Check request against Web Application Firewall rulesets (Cloudflare, OWASP, Custom)

3

Performance
1. Serve static content from global, tiered cache
2. Load Balance to Active, Healthy Origin
3. Choose fastest route to origin servers for origin requests (Smart Routing)

4

Origin Pool

retrieve any uncached content from origin pool

5

Every Cloudflare node performs all tasks

Insights
1. Aggregate HTTP Analytics
2. Aggregate Threat Analytics
3. Aggregate DNS Analytics
4. Store Enterprise Logs for API Retrieval

6

Performance
1. Accelerate dynamic content (Railgun)
2. Apply web content optimization features (Autominify, Image compression)

7

www.example.com

Serve

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Cloudflare's Global Anycast Network

1B+
Unique IP addresses pass
through our network
every day

180+
Data centers globally

16M+
websites, apps & APIs
in 150+ countries

12M
Requests/second

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9

An integrated end to end solution with lower TCO

Each of Cloudflare's 180+ Points of Presence runs an **integrated stack** of easy-to-use security, performance and reliability services
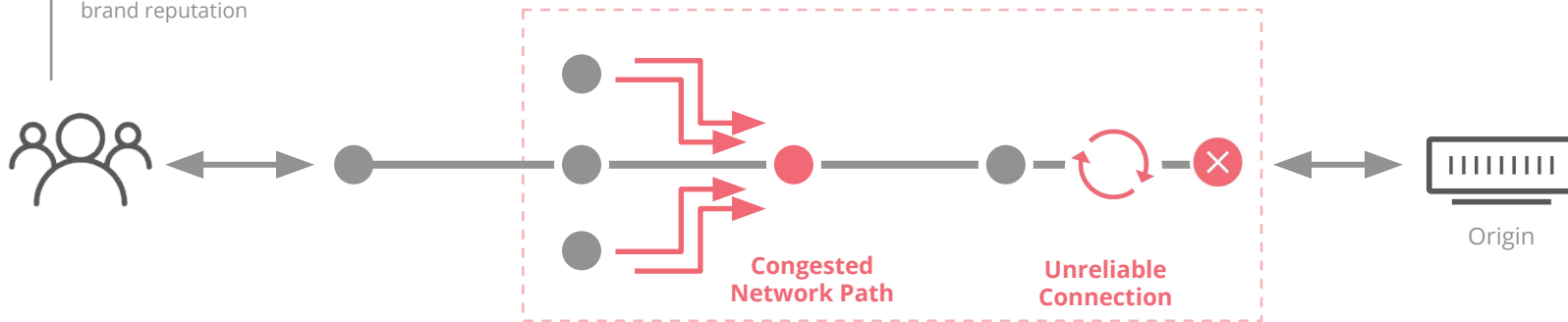
Customer Challenges

Poor User Experience
Slow loading times and connection timeouts increase the likelihood of a poor user experience that can result in reduced revenue or damaged brand reputation
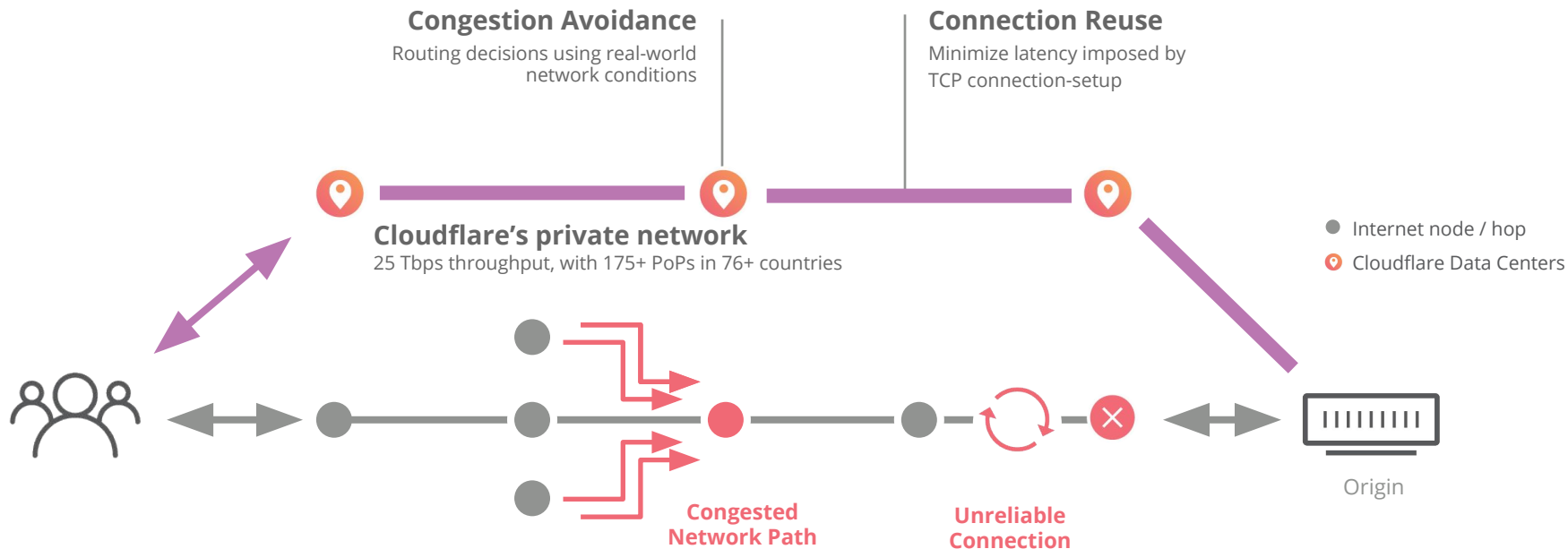

Congested Network Path

Unreliable Connection

Origin

Slow Loading Times
Static routes can't avoid congested network paths or unreliable connections

Cloudflare Argo Smart Routing

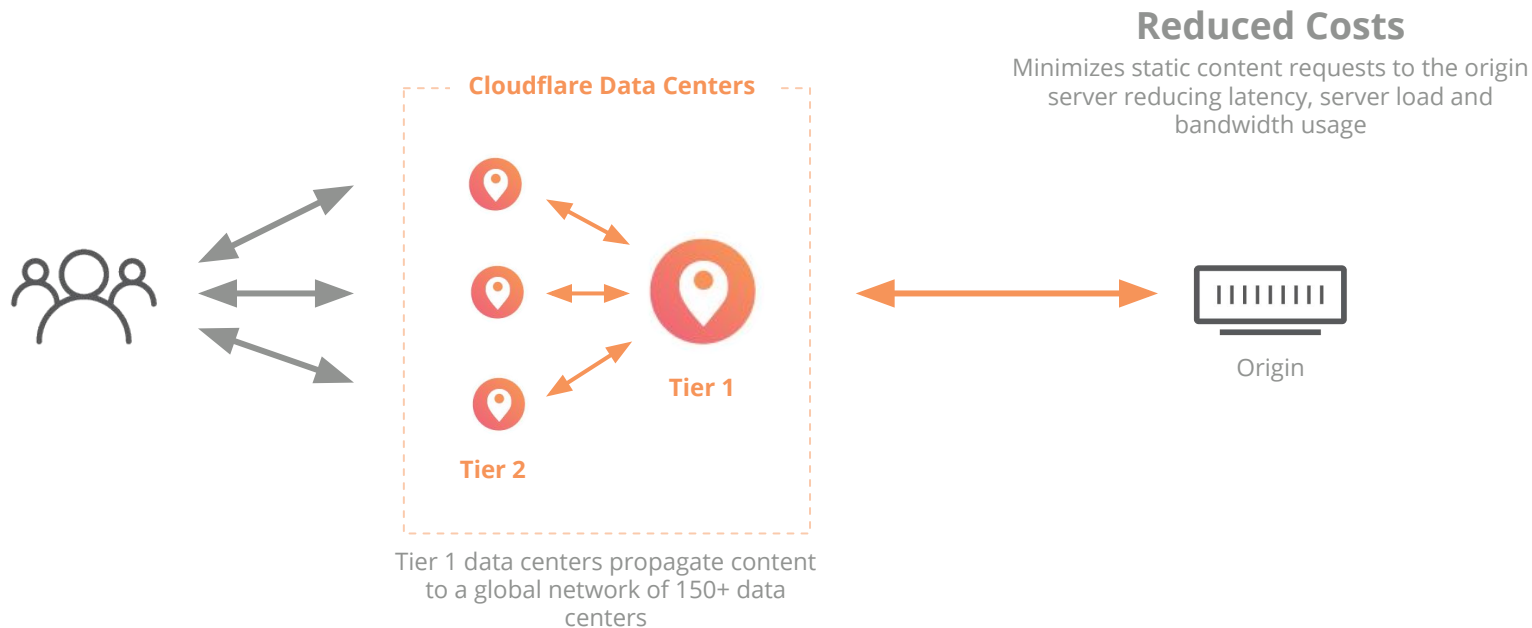**Congestion Avoidance**
Routing decisions using real-world network conditions

Connection Reuse
Minimize latency imposed by TCP connection-setup

Cloudflare's private network
25 Tbps throughput, with 175+ PoPs in 76+ countries

● Internet node / hop
⚲ Cloudflare Data Centers

Congested Network Path

Unreliable Connection

Origin

30% Faster
Over 10 trillion Internet requests transit the Cloudflare network per month, providing Argo with real-world intelligence on the fastest network paths.
On average, our customers see a 30% improvement in performance

13

Cloudflare Argo Tiered Caching

Cloudflare Data Centers

Tier 1

Tier 2

Tier 1 data centers propagate content to a global network of 150+ data centers

Reduced Costs

Minimizes static content requests to the origin server reducing latency, server load and bandwidth usage

Origin

Argo Smart Routing: bigger, smarter, and faster!

10,000,000,000,000
With an increased network footprint of over 180 data centers, Argo has access to the timing data of over 10 trillion requests per month.

Smart Algorithms
Argo harnesses this data and employs smarter routing algorithms to pick the fastest and most adaptive routes in real-time based on current network conditions

Global Private Backbone
Private fiber connections between Cloudflare's data centers allows for an additional level of control to guarantee the fastest, most reliable performance in real-time

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Performance:
Speed Week

BINARY **AST**

30-50%
IMPROVEMENT IN
JAVASCRIPT PARSING
PERFORMANCE ON
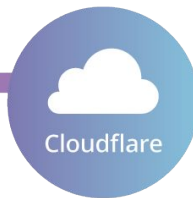THE MOST COMMON
FRAMEWORKS

HTTP/2
PRIORITIZATION

50%
FASTER BROWSER
RENDERING USING
SAMPLED SITES

CONCURRENT
STREAMING
ACCELERATION

2 SECOND
POTENTIAL LATENCY
REDUCTION
FOR LIVE VIDEO

Cloudflare

IMAGE
RESIZING

219 KB
POTENTIAL
SAVINGS IN IMAGE
FILE SIZES*

FASTER, BETTER
ARGO

16%
IMPROVEMENT
IN TIME TO FIRST
BYTE (TTFB)

Speed Week: HTTP/2 Prioritization

What: Prioritize HTTP/2 requests from the origin/server instead of relying on client side browsers.

Why: Every browser handles prioritization differently, which leads to inconsistent page performance. Cloudflare will provide built in support for prioritization, and will allow customers to build advanced configuration rulesets to further control page load times.

Who: iOS users on Safari will see the biggest benefits. eCommerce and WordPress sites will also benefit from this.

HTTP/2
PRIORITIZATION

50% faster   Browser rendering using sampled sites

Speed Week: Parallel Streaming

What: Faster image loads

Why: Parallel streaming of progressive images leverages the HTTP/2 prioritization schema we released to improve the load times for images on a page.

Who: Image heavy sites using progressive JPEG images.

Speed Week: Concurrent Streaming Acceleration

What: Stream live video to multiple viewers with reduced latency

Why: Live video is becoming increasingly prevalent with customers. Ensuring that all viewers have a consistent, timely viewing experience is important.

Who: OTT providers and video publishers that serve live video streaming content

When: May 16th, 2019

CONCURRENT
STREAMING
ACCELERATION
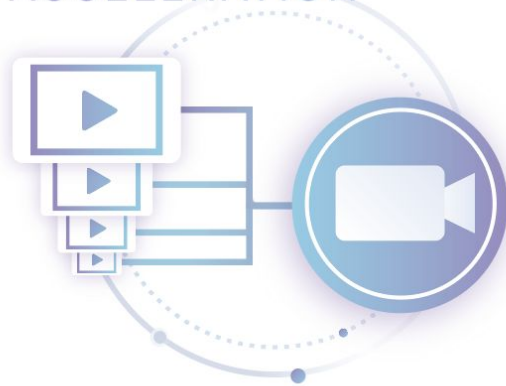
2 second Potential latency reduction for live video

Speed Week: Binary AST

What: Support for Binary AST, a lightweight JavaScript format that reduces the time it takes for browsers to parse JavaScript.

Why: Large JavaScript files can take a long time to parse, resulting in slow page startups and a poor user experience. In collaboration with Mozilla, we are helping them test their proposed standard for Binary AST.

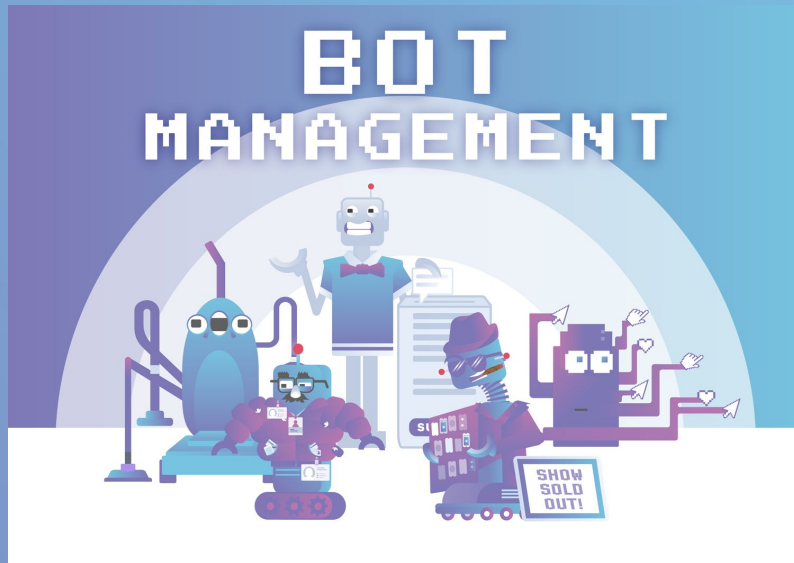**Who:** Web developers that are building complex JavaScript heavy web pages and applications.

When: May 17th, 2019

BINARY
AST

30 - 50% Improvement in JavaScript parsing performance on the most common frameworks
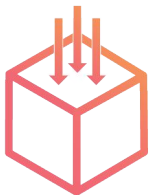
Security:
Bot Management

Factors increasing exposure to bots

Greater attack surface area from more public APIs, moving to the cloud, and increasing third-party integrations
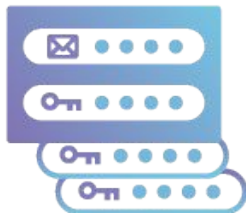
Stronger and more sophisticated attackers

Greater scrutiny by government and media around data, privacy and security

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Common Use Cases

Credential Stuffing

Attempts to log into and take-over a user's account by applying previously stolen account credentials.

Content Scraping

Steals public information from a website

Content Spam

Adds malicious content to web properties such as forums and registration forms

Inventory Hoarding

Fraudulently purchases goods to deprive legitimate customers or resell for a higher price

Credit Card Stuffing

Attempts to validate stolen credit cards to then make fraudulent purchases

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Costs to the business

**Lost customer trust
Degraded brand value**

**Lost revenue
Increased costs**

Business Impact

- **Lost Revenue due to:**
  - Competition
  - Stolen content
  - Lowered SEO
  - Downtime or sluggish service

- **Damaged Brand**
  - Data breach
  - Content spam

- **Wasted Expenses**
  - Staff costs for remediation
  - IT costs from malicious traffic

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Cloudflare Bot Management Methods

Detection

Machine Learning

Cloudflare's ML trains on a curated subset of more than **475 billion** requests per day across **13M+** Internet properties to create a reliable "bot score" for every request.

Behavioral Analysis

Behavioral analysis detects anomalies in site-specific traffic, scoring every request on how different it is from the baseline.

Protection

Automatic Whitelist

Because not all bots are bad, the solution automatically maintains and updates a white list of "good" bots, such as those belonging to search engines.

Mobile App

We protect your mobile App from impersonation and emulation attacks without using a mobile SDK.

Benefits

Protect revenue and customer trust by preventing bots from disrupting your business model.

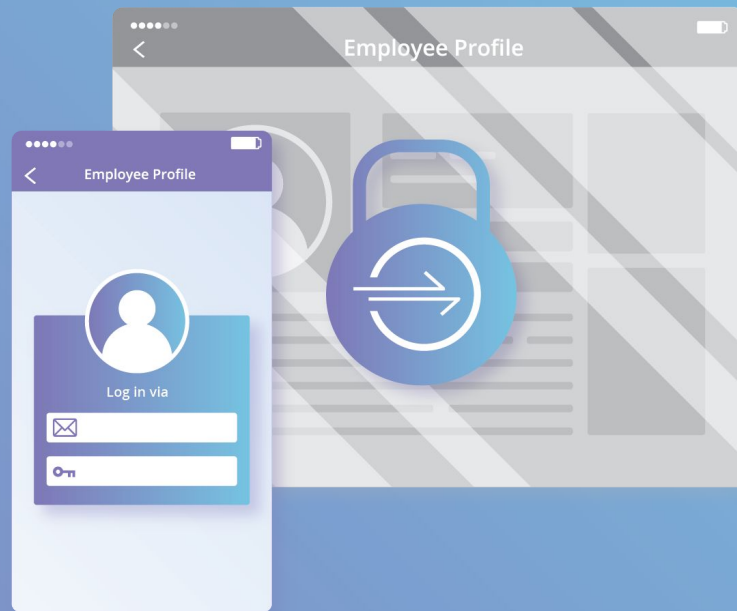**Keep applications fast and available** by mitigating resource-draining malicious traffic.

Reduce the complexity of threat detection and intervention by leveraging automation that uses data from one of the largest networks in the world.

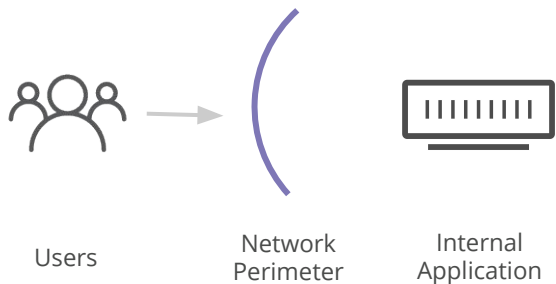**Improve data integrity** for teams that rely on accurate traffic metrics to run the business.

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Security:
Access

User Access Customer Challenges
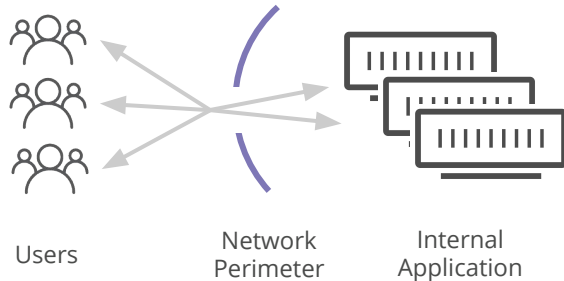
Data Theft

Slow Mobile Access

Remote Workers Denied Access
Outside of the firewall, users no longer have secure access to Internet-facing internal applications.

Weak, Overly Broad Authentication
Users who are given access through a shared password or even a VPN have access not enforced by application or authenticated by identity.

Slow and Cumbersome VPN Access
Traditional VPN solutions add latency, especially for users on mobile devices with spottier connections.

Users · Network Perimeter · Internal Application

Users · Network Perimeter · Internal Application

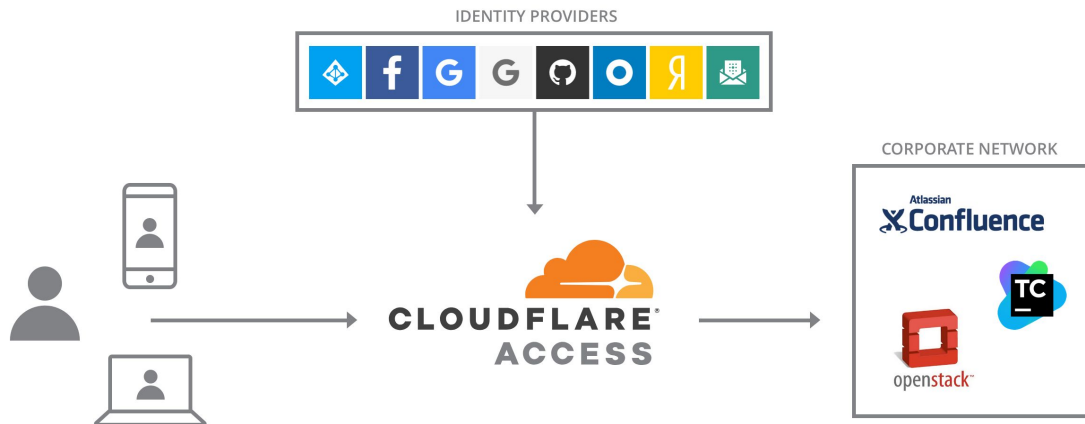Users · VPN Latency · Internal Application
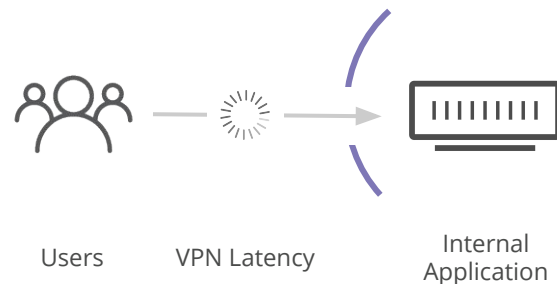
Cloudflare Access

Secure application access without a VPN

- Control user access at Applications level (domain, application or path)
- Monitor and log user access and changes
- Deploy and manage Access Control quickly
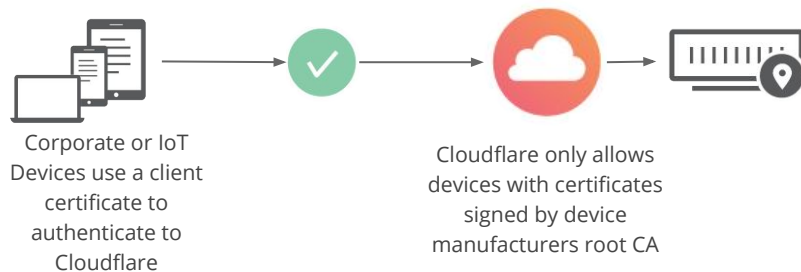- Deliver fast applications to devices Anywhere

IDENTITY PROVIDERS

CORPORATE NETWORK

CLOUDFLARE ACCESS

Available identity providers: Azure, Centrify, Facebook, GSuite, Generic OIDC, Github, Google, Okta, Onelogin, **SAML 2.0**, Yandex

Complement Access with client authentication (Mutual TLS)

- Ensure that the **traffic is secure and trusted** in both directions between a client and server.

- Allow **requests that do not login with an identity provider** (like IoT devices) demonstrate that they should be able to reach a given resource

- **Second layer of security** for team members who both login with an identity provider and present a valid client certificate

Corporate or IoT Devices use a client certificate to authenticate to Cloudflare

Cloudflare only allows devices with certificates signed by device manufacturers root CA

403

Corporate or IoT Devices use a client certificate to authenticate to Cloudflare

Clients that send missing, expired, or invalid certificates are unauthorized

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Want to learn more?

For any questions or to arrange trials of these products, please contact:

Email **success@cloudflare.com**