



The New Net, Edge Computing, and Services

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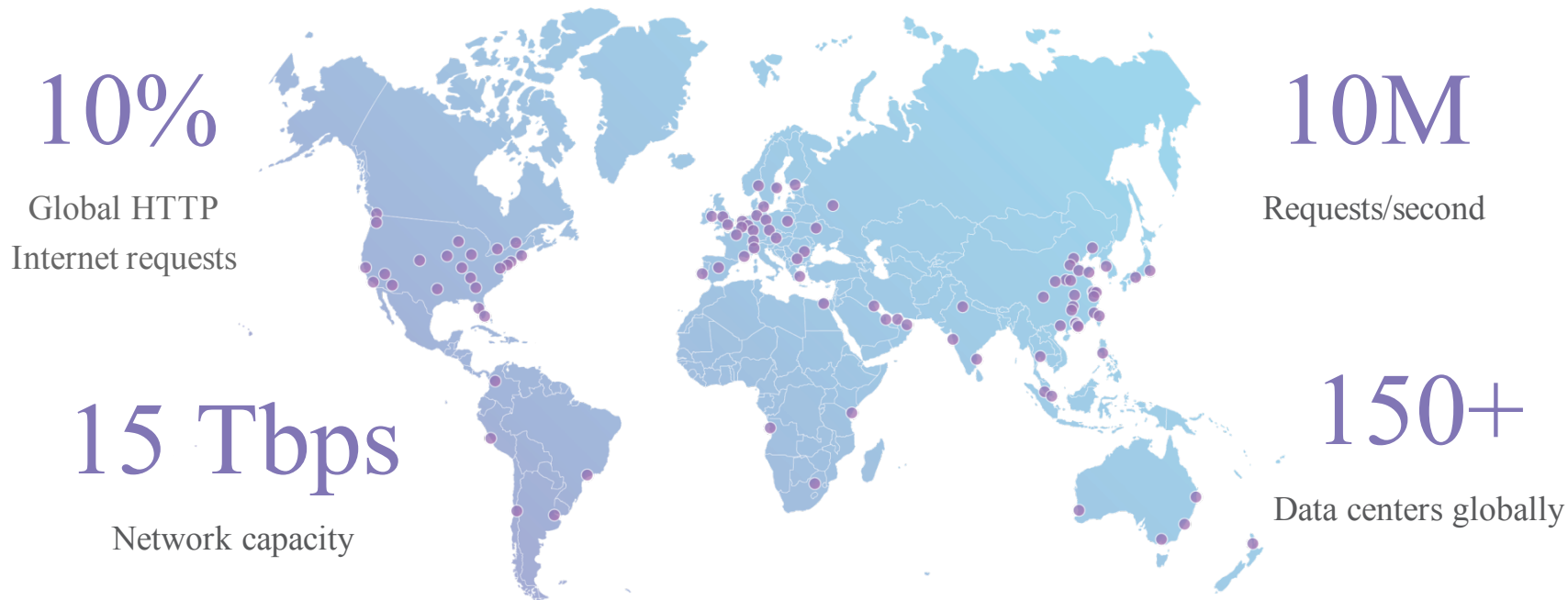
We are helping build a better Internet

Cloudflare is an Edge Service Provider that provides performance, security, reliability, and insights to anything connected to the Internet.



Cloudflare's Global Anycast Network

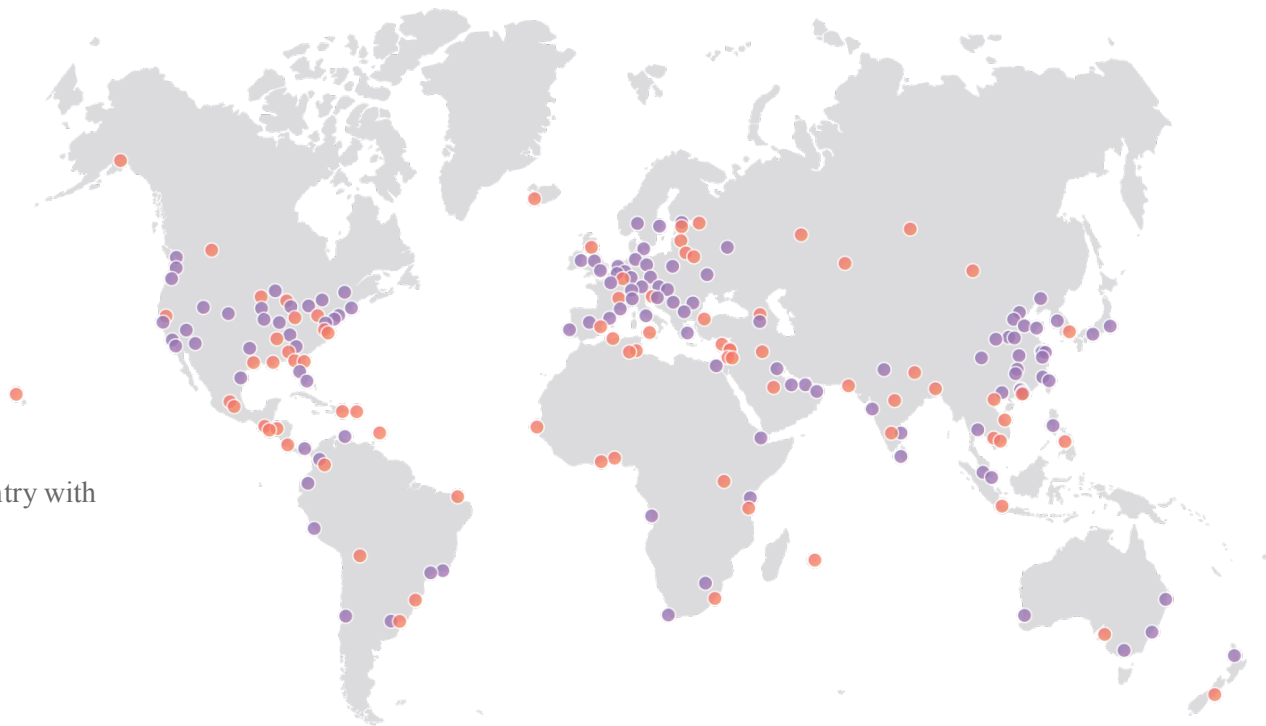
Infinite scalability is the future of the Internet



Upcoming Data Centers in 2018

95%

of internet users will live in a country with
a Cloudflare data center

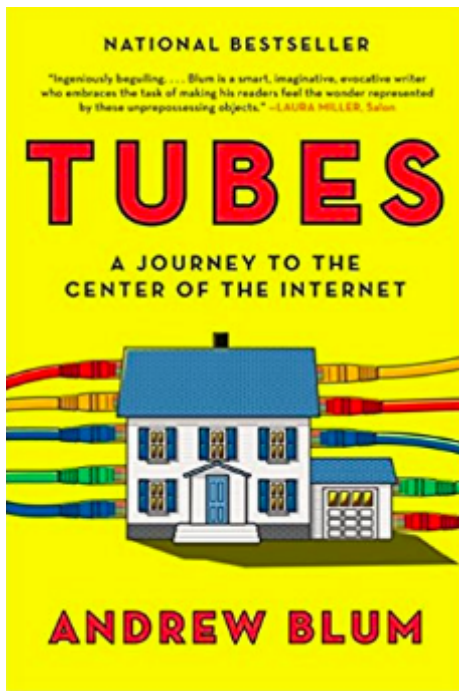


- Live Data Center
- In Progress/Planned

A VERY Short History of the early Internet

- 1) “Dumb pipes” (text and IP addresses)
- 2) Domain Name System (Paul Mockapetris, 1983)
- 3) World Wide Web (Tim Berners-Lee, 1989)
- 4) Graphical web browser, MOSAIC (at NCSA UIUC, 1992)
- 5) Secure Socket Layer (Netscape, 1994)
- 6) Grid computing (early 1990s)
- 7) Content Distribution Networks (MIT + Akamai, 1998)
- 8) “Cloud computing” + Amazon Web Services(2000-2003)

Two useful guides



“Control Point Analysis”

2012 TRPC conference

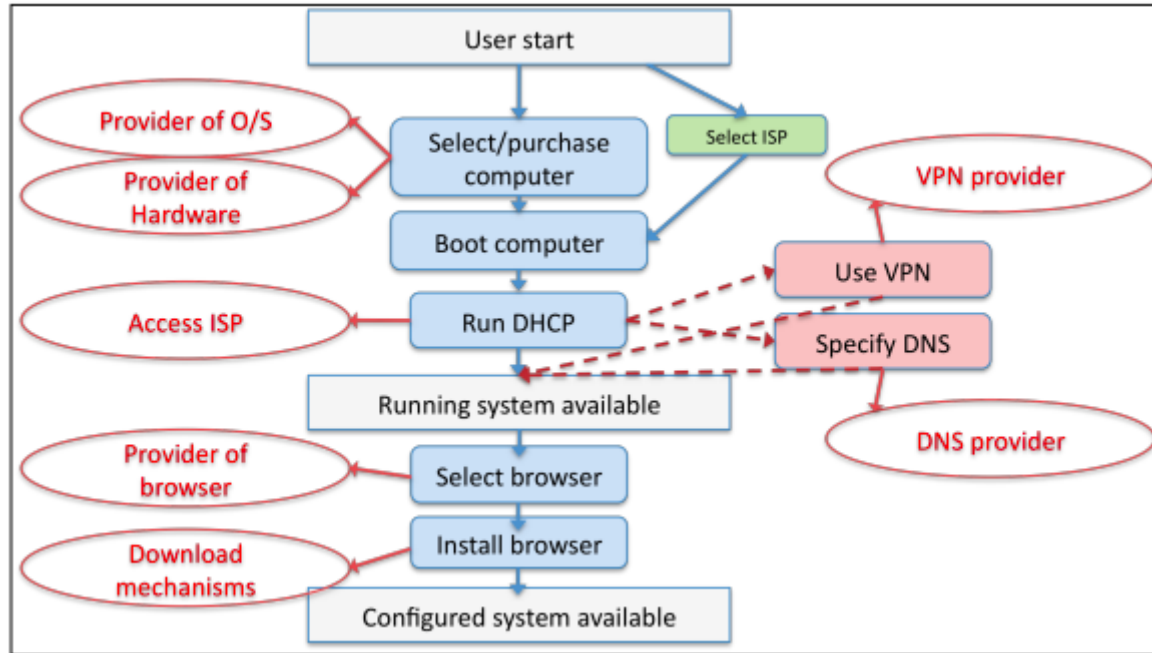
David D. Clark

MIT CSAIL

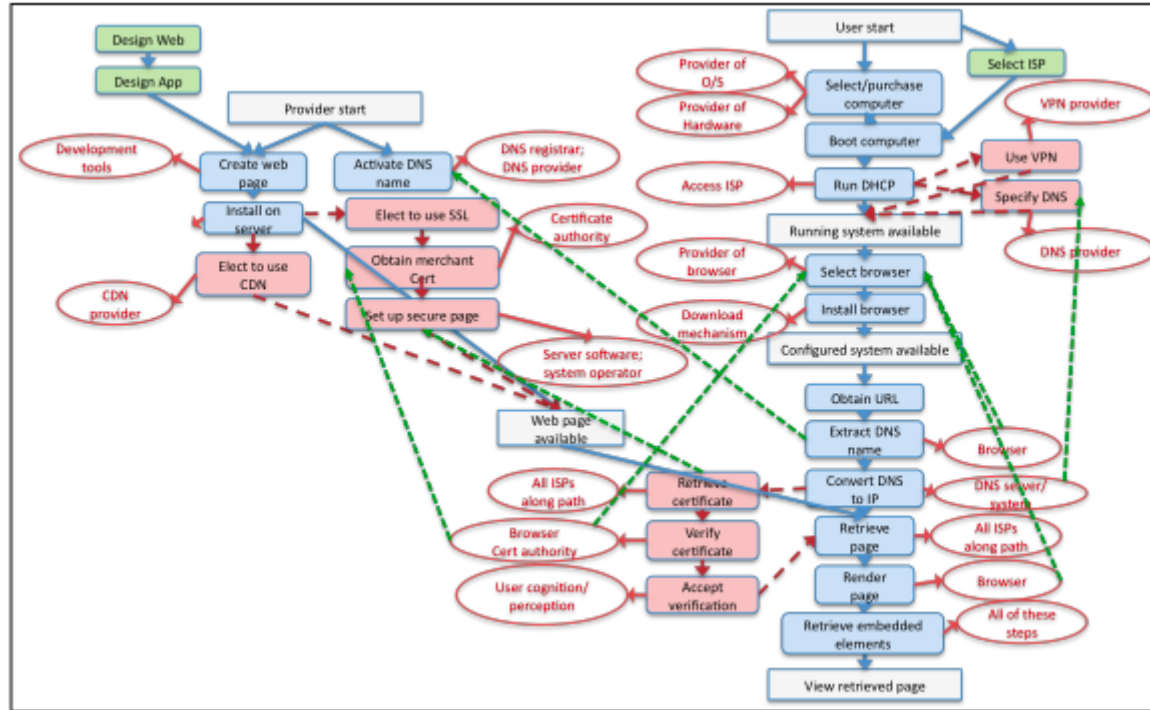
<https://ssrn.com/abstract=203212>

4

When things were simple

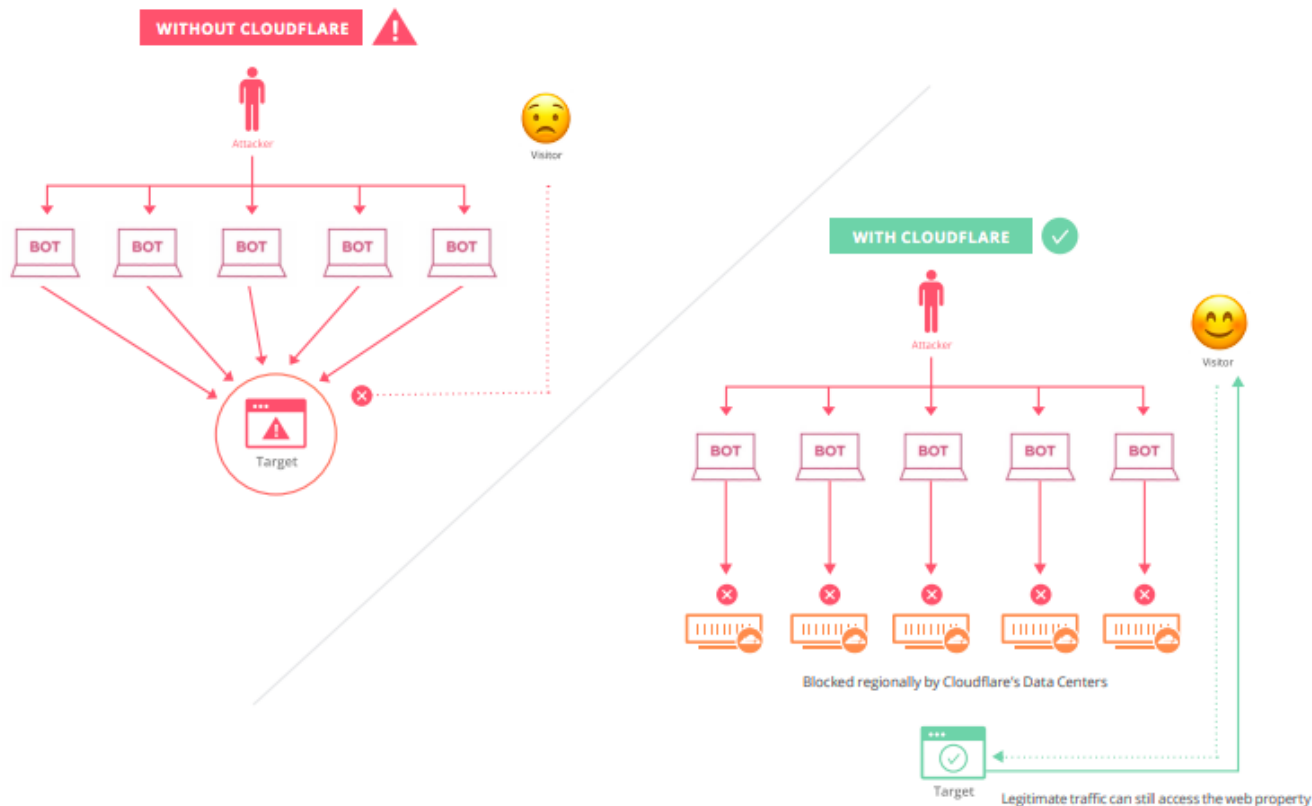


By the year 2000



Cloudflare Advanced DDoS Protection

Cloudflare's advanced Distributed Denial of Service (DDoS) protection, provisioned as a service at the network edge, can be used to mitigate DDoS attacks of all forms and sizes.



Content



**APPS:
PLATFORMS,
CONTENT, SEARCH**

CONTENT CREATORS who author the actual content online
PLATFORMS (e.g., Facebook, Wordpress, etc.) where the content is published
SEARCH ENGINES (Google, Bing)



BROWSERS

BROWSERS (e.g., Firefox, Chrome, etc.) where the content is published



HOSTING COMPANIES

HOSTS (e.g., Amazon Web Services, Dreamhost, etc.) provide infrastructure on which the websites and platforms live

Infrastructure



**SECURITY
INFRASTRUCTURE**

REVERSE PROXIES/CDNs (e.g., Akamai, Cloudflare, etc.) provide networks to ensure content loads fast and is protected from attack



DOMAIN NAME SYSTEM

RECURSIVE DNS PROVIDERS (e.g., Open DNS, Google, etc.) resolve content consumers' DNS queries
AUTHORITATIVE DNS PROVIDERS (e.g., Dyn, Cloudflare, etc.) resolve the domains of sites
REGISTRARS (e.g., GoDaddy, Tucows, etc.) register the domains of sites
REGISTRIES (e.g., Verisign, Afiliass, etc.) run the top level domains like .com, .org, etc.

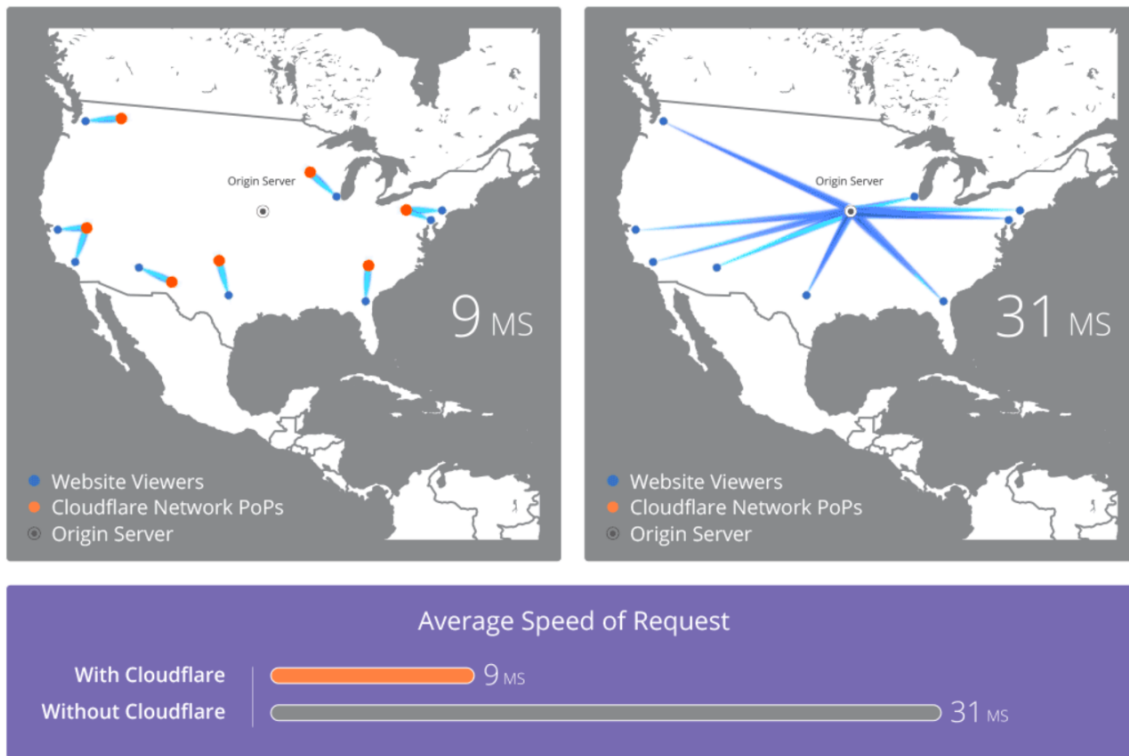


TRANSIT AND IP LAYER

INTERNET SERVICE PROVIDERS (ISPs) (e.g., Comcast, AT&T, etc.) connect consumers of content to the Internet
TRANSIT PROVIDERS (e.g., Level 3, NTT, etc.) connect the hosts to the rest of the Internet

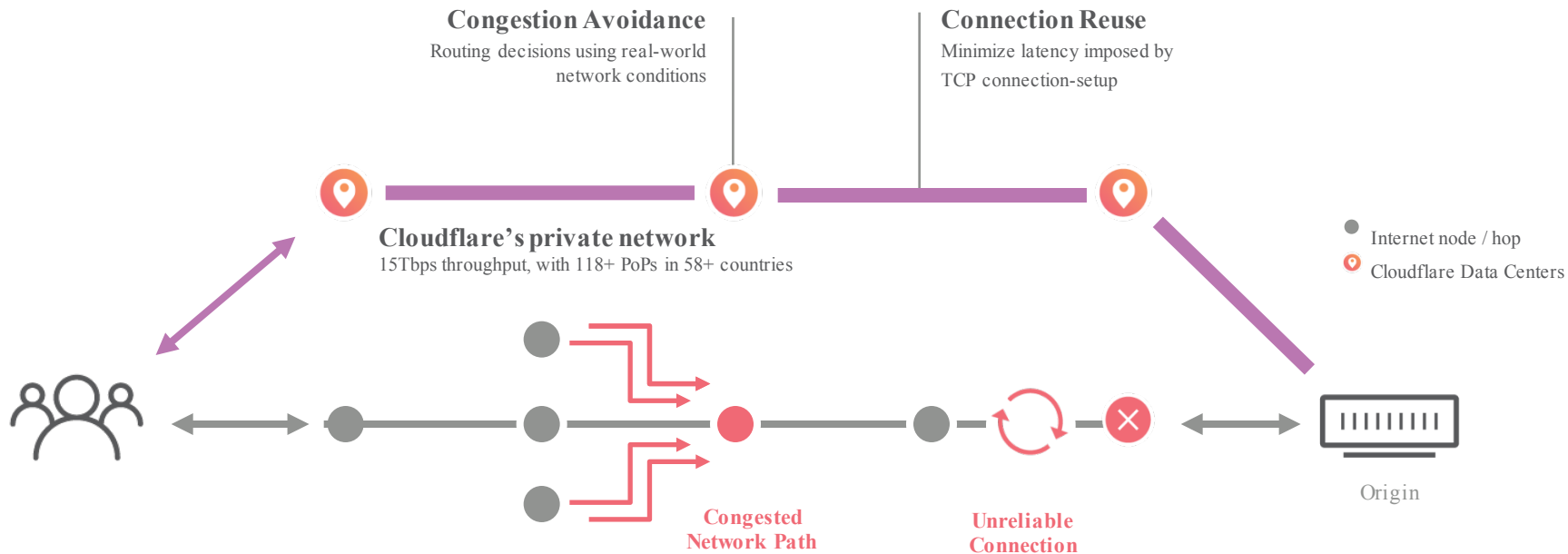
Power of Content Distribution Networks

Cloudflare caches your content across our global network, bringing it closer to visitors from every region





A Short Cut for the Net: 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.

Trends for the Cloud

Replacing Hardware with Cloud Service

- Provision only what you need
- Pay only for what you use
- Zero downtime

Less to manage at your site

- Cloud WAF and DDoS act as reverse proxies, provide equivalent protection lower costs with less complexity
- No “failover” to occur
- Bad traffic never reaches the origin’s network

Simplify! One integrated package of Cloud services

- Single pane of glass
- Rapid on-boarding of the integrated offering

Multi-Cloud: Provider Independence

- Independence & choice
- Consistent control plane
- Best of breed capabilities

Looking Forward

Democratizing the Web

- Implementing new technologies and protocols in simple, scalable way for customers of all sizes
- Extend same performance and security to all protocols, all content and all devices

Intelligent Edge

- Robust performance through data optimized routing
- Simple security through threat based firewall configuration
- Rich insights and actionable guidance

Developer Ecosystem

- Innovation and customization on the edge
- Bring audience and opportunity with App Store

PERFORMANCE

SECURITY

RELIABILITY

INSIGHTS

Essential Reading

The
Economist

Topics ▾

Current edition

More ▾

Life on the edge

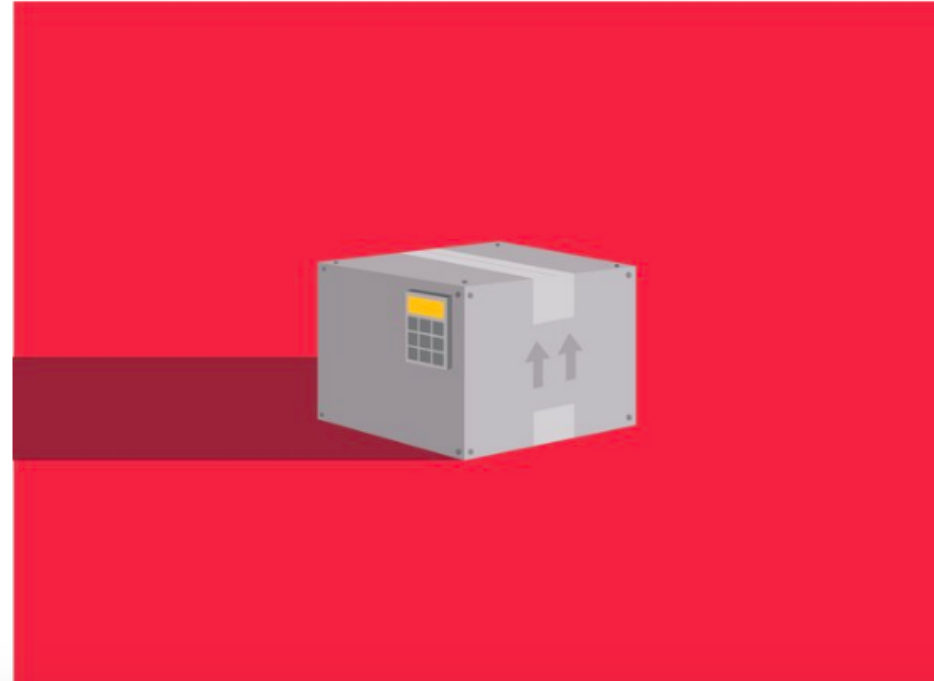
The era of the cloud's total dominance is drawing to a close

The rise of the “internet of things” is one reason why computing is emerging from the centralised cloud and moving to an “edge” of networks and intelligent devices



Further Reading

CLOUDFLARE'S PLAN TO PROTECT THE WHOLE INTERNET COMES INTO FOCUS

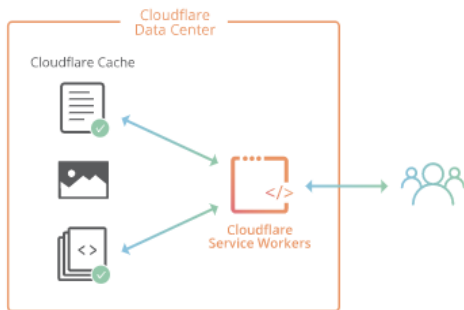


What Matters

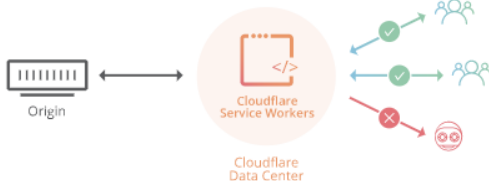
- 1) Edge services for the masses
- 2) Faster, simpler encryption
- 3) Security for the Internet of Things
- 4) The programmable Cloud (e.g. Workers)

Cloudflare Workers

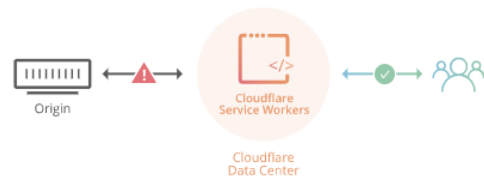
Cloudflare Workers let developers run JavaScript Service Workers in Cloudflare's 151 data centers in 70 countries



- Custom logic for cacheable requests and improved cache hit rate.
- Expand HTML templates to fetch only dynamic content from the origin.
- Dynamically respond to requests without contacting the origin server.



- Create custom security rules and filters to block unwanted visitors and bots.
- Implement custom authentication and authorization mechanisms.
- Perform data sanitization and validation before sending it to the origin.



- Respond dynamically when the origin server is unreachable.
- Implement custom load balancing and failover logic.
- Deploy fast fixes to a site in seconds, without having to update the origin server.

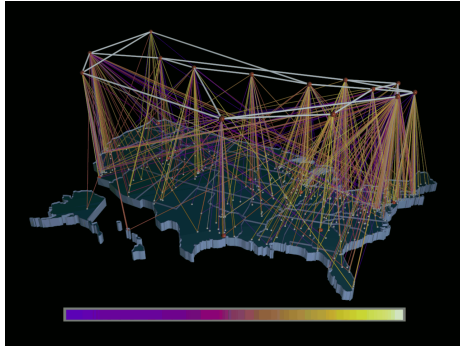
Policies Matter!

Innovation ^ ^ ^	SCoT Secure Cloud of Things	CoVET Cloud of VERY Expensive Things
	IoT Internet of Things	CoST Cloud of Shoddy Things

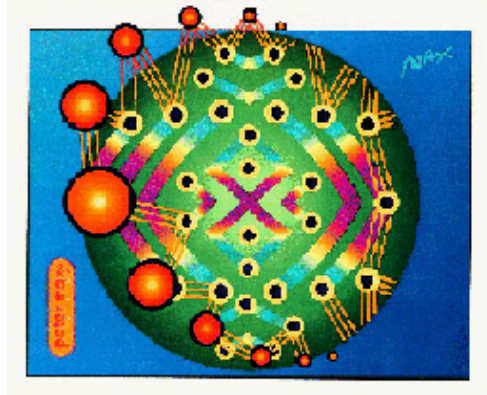
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Innovation

CoAT Cloud of ALL Things	
SCoT Secure Cloud of Things	CoVET Cloud of VERY Expensive Things
IoT Internet of Things	CoST Cloud of Shoddy Things

Visions of the Digital Economy in the 1990s



National Information Infrastructure
Agenda for Action
1993



Global Information Infrastructure
Agenda for Cooperation
1995

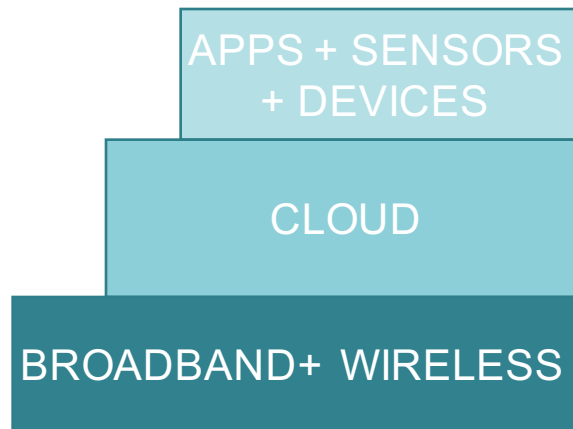


Framework for Global Electronic Commerce
The "Magaziner Report"
1997

THE
SIMPLE ANSWERS
TO THE QUESTIONS THAT GET ASKED
ABOUT EVERY NEW TECHNOLOGY:

WILL ☐ MAKE US ALL GENIUSES?	NO
WILL ☐ MAKE US ALL MORONS?	NO
WILL ☐ DESTROY WHOLE INDUSTRIES?	YES
WILL ☐ MAKE US MORE EMPATHETIC?	NO
WILL ☐ MAKE US LESS CARING?	NO
WILL TEENS USE ☐ FOR SEX?	YES
WERE THEY GOING TO HAVE SEX ANYWAY?	YES
WILL ☐ DESTROY MUSIC?	NO
WILL ☐ DESTROY ART?	NO
BUT CAN'T WE GO BACK TO A TIME WHEN—	NO
WILL ☐ BRING ABOUT WORLD PEACE?	NO
WILL ☐ CAUSE WIDESPREAD ALIENATION BY CREATING A WORLD OF EMPTY EXPERIENCES?	WE WERE ALREADY ALIENATED

What if innovation were our policy goal?



What if innovation were our policy goal?

NEW BUSINESS MODELS

APPS + SENSORS
+ DEVICES

CLOUD

BROADBAND+ WIRELESS

ENABLE

New Entrants

More Experiments

Global small businesses

Trust

Moore's Law

AVOID

Protecting Old Models

Conflicting Local Regs

Fragmentation

Stranded Spectrum

Smart Policy; Dumb Policy

What Helps:

Competition

Transparency

Smart Government Buying

Strong Encryption

What Hurts:

Data Localization

Limits on Encryption

Monopolies

Protectionism

Restrictive Standards

Concluding Tweets (from @MikeNelson)

- 1) The Internet is changing faster than ever!
- 2) But it's hard to see changes in the infrastructure
- 3) Don't focus on the network.
- 4) The edge is where the action is
- 5) Prototype, Prototype, Prototype

Thank You!

BACKUP SLIDES

Cloudflare is an Edge Service Provider



PERFORMANCE



CDN



Web
optimization



Mobile
optimization



WAN
optimization

SECURITY



DDoS



SSL



WAF



Rate
limiting

RELIABILITY



DNS



Anycast
network



Load
balancing



Always online

INSIGHTS



Threat
analytics



Enterprise
logs



Apps
platform



Traffic
monitoring

Scalable global network with a modern, unified architecture across all datacenters

Integrated stack of performance, security and reliability services

Rapid onboarding, easy configurations and fine grain control

Cloudflare Feature List



PERFORMANCE



- CDN
- Load Balancing
- Website Optimization
- Argo Smart Routing
- DNS
- SSL
- Dedicated SSL Certificates
- Websockets
- Railgun
- HTTP/2
- Mirage
- Mobile Optimization
- Page Rules
- Accelerated Mobile Links
- Cloudflare Stream

SECURITY



- DDoS Protection
- WAF
- SSL (and SSL for SaaS)
- Secure Registrar
- DNSSEC
- Dedicated SSL Certificate
- Automatic HTTPS Rewrite
- Keyless SSL
- Certificate Optimization
- Unmetered Mitigation
- Geo Key Manager
- Cloudflare Warp
- Rate Limiting
- Orbit

RELIABILITY



- China Network
- IPv6
- DDoS Protection
- Always Online™
- DNS
- DNSSEC
- DNS Firewall

INSIGHTS



- Audit Logs
- Threats Analytics
- Product Analytics
- Enterprise Logs

