



AWS **Edge** services

Performance | Scale | Security | Cost control

Istvan **Polay**

Principal Partner Lead, **EMEA**, Edge & AWS Elemental Media Services



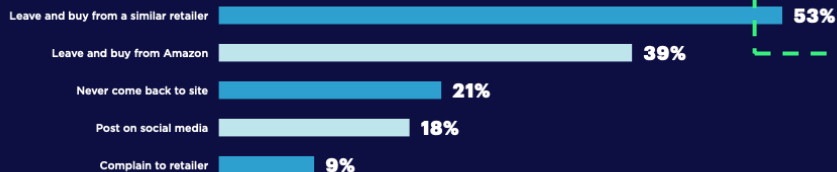
Industry challenges

Are You Losing Customers?

FIGURE 4

Retailers' slow sites are making their competitor's day

What do you do when you are frustrated with a slow site? (Please select ALL that apply)

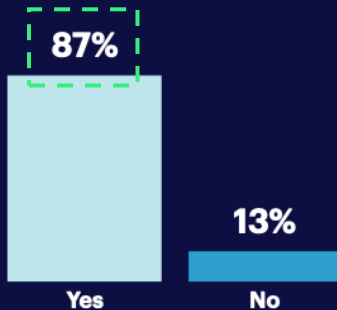


Source: RSR Research, November 2021

FIGURE 3

87% of shoppers will not wait for a slow site to load

Have you ever left a website because it does not load in the time you expect it to?

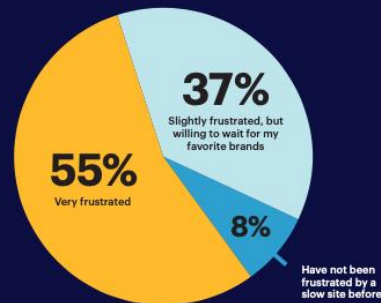


Source: RSR Research, November 2021

FIGURE 2

92% of shoppers are frustrated with slow sites

How frustrated do you get when you go shopping online and the site is slow?



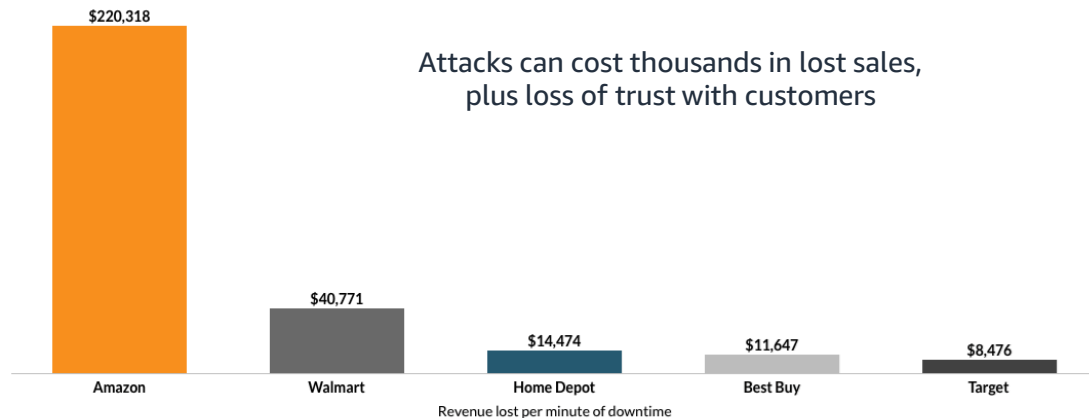
Source: RSR Research, November 2021

Attacks Causing Downtime Are Costly



Every **39 seconds**, there is a new attack somewhere on the web.

Every retailer is at risk.



Source: Gremlin, Cost of Downtime Index, 2021 estimates



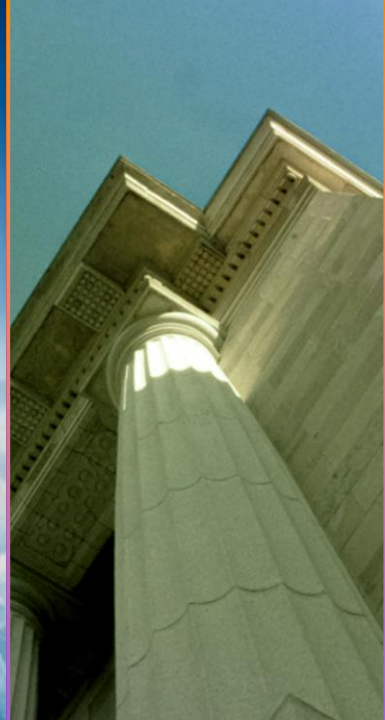
<https://techjury.net/blog/how-many-cyber-attacks-per-day>



**Betting and
Gaming**



**Travel &
Hospitality**



**Financial
services**



Retail



**Media &
entertainment**



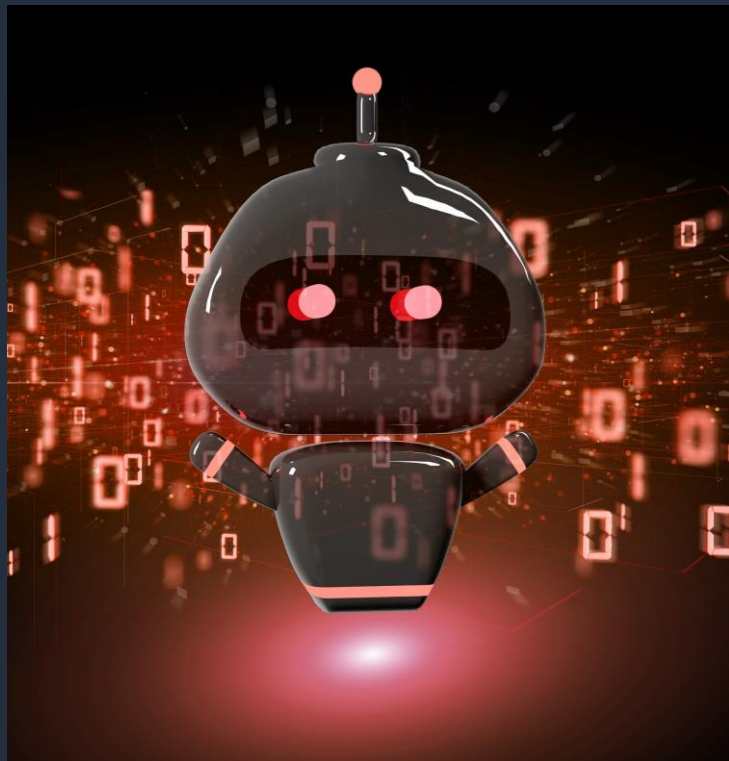
Disrupt Event	Flight Information	Risk management	Pricing	Premium Video Content
Account Lockouts	Pricing	Fraud detection	Inventory Information	Fake Accounts
Regional specific content	Seat Availability	User credential fraud	Sneakerbots – Limited Editions	Regional specific content
Arbitrage Attack	Loyalty Program	Payment fraud	Gift Card fraud	Limited Access Content
Betting Fraud	User Credit Card Info		User Credit Card Info	Failed Login Attempts
Betting and Gaming	Travel & Hospitality	Financial services	Retail	Media & entertainment



Bonus Abuse Bots - Bad for B&G Businesses!

iGaming business plan for bad actors:

1. Scrape the dark web for credentials
2. Open up phony iGaming accounts
3. Have a person click through the KYC
4. Collect sign-on bonus
5. Place wagers
6. Cash out the winners
7. Do this at SCALE
8. Rinse - repeat





AWS solution

AWS Solution for Retail, Travel, Media, Finance, Gaming...



Security

Services that
protect and
detect



Availability

Supported my
multiple zones
and regions



Performance

Cache at the
edge for speed
and private
network



Scalability

Scale up and
down quickly



Flexibility

Easy tooling
to manage
configurations

Edge Services

Edge Performance

Make websites, applications and APIs faster, more responsive and more elastic.



Amazon CloudFront

Accelerate web applications through 600+ globally dispersed points-of-presence



AWS Global Accelerator (AGA)

Accelerate non-http applications through 90+ global edge locations.

Edge Security

Mitigate threats to application security and availability at the edge of the network



AWS Shield Advanced

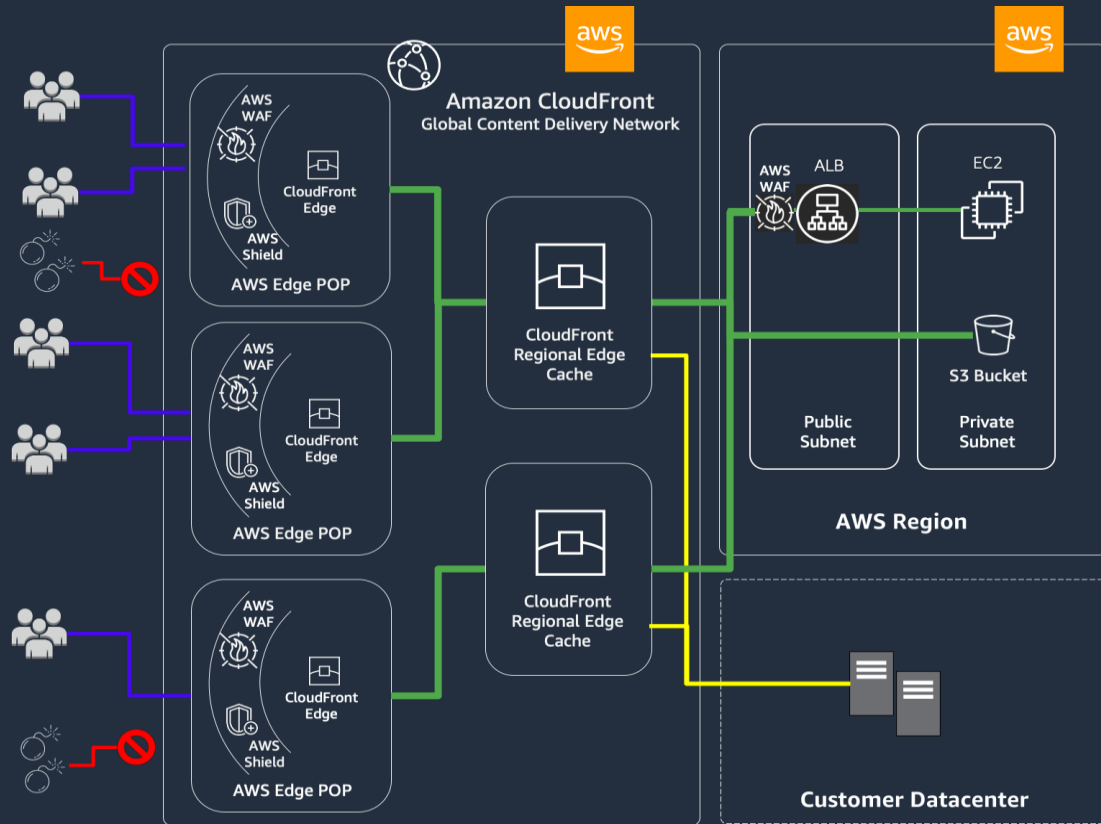
Managed Distributed Denial of Service (DDoS) protection service that mitigates DDoS attacks at the edge of the network, increasing application uptime and availability.



AWS Web Application Firewall (WAF)

Protect web applications or APIs against common web exploits and **Bots** which affect availability, compromise security, or consume excessive resources.

AWS Edge for on-prem, hybrid and cloud origins



Security and Performance at the Edge

- End-user requests matched to nearest location based on latency & availability
- Edge locations are multi-purpose
 - DNS services (Route 53)
 - Caching (CloudFront)
 - Multi-protocol acceleration (AGA)
 - DDoS protection (Shield)
 - Layer 7 protection (WAF)
- Regional Edge Caches
 - Located in AWS Regions
 - Increase origin offload
 - Secure connection to S3/EC2
- AWS Private Backbone (green)
 - Edge locations directly connected to AWS backbone network
 - Allows for greater control over performance and security of traffic flows (vs traversing open Internet).

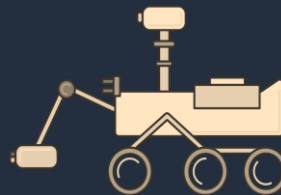
Common external threats



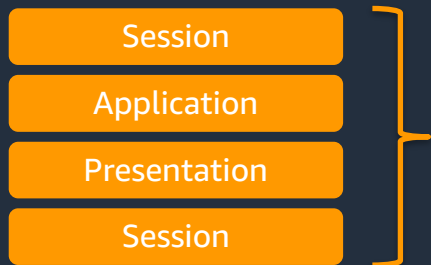
DDoS



Web Application
Attacks



Bad Bots



**HTTP Flood |
Malformed HTTP**

**App exploits | CVE |s
XSS | SQLi | RFI**

**Bots | Scrapers |
Crawlers**



SYN/ACK Flood | Slowloris | SSL Abuse



Ping of Death | ICMP Flood | Teardrop | reflections | UDP floods

Global-scale threat intelligence provided by AWS

10k+ sensors deployed globally

Observes **750M+** potential threat interactions daily

400M activities classified as malicious daily



Threat intelligence



AWS Shield



AWS WAF



Amazon
GuardDuty



AWS Network Firewall



Amazon Route 53 Resolver DNS Firewall



Amazon S3



Amazon VPC

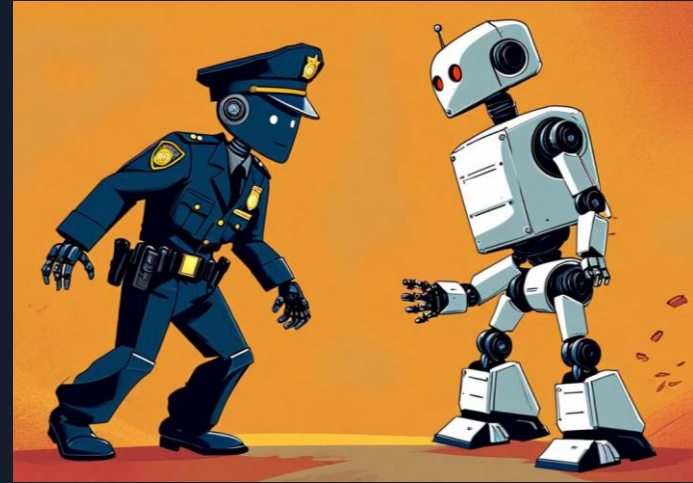
How to protect against bots using AWS

Use Amazon Managed Rules Groups:

- Amazon IP reputation list
- Core Rule Set
- Known Bad Inputs

Use WAF Targeted Bot Control

- Advanced features to detect and thwart bots.
- Customer Mobile applications can integrate SDK for better effectiveness.
- Trials: Consider turning on WAF in **monitor only** mode to start.

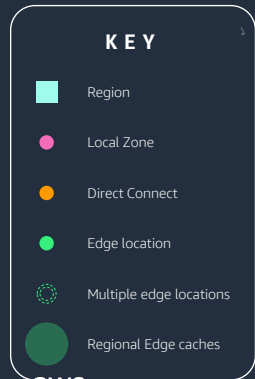


Leverage AWS' reach and scale to detect threats

Exabytes of data
analyzed every 60 sec

100+ billion AWS managed rules
requests processed per day

Thousands of DDoS attacks
mitigated every day



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700+ Points of Presence in 100 cities and 50 countries

13 Regional Caches

600+ more Embedded Caches in 200+ cities

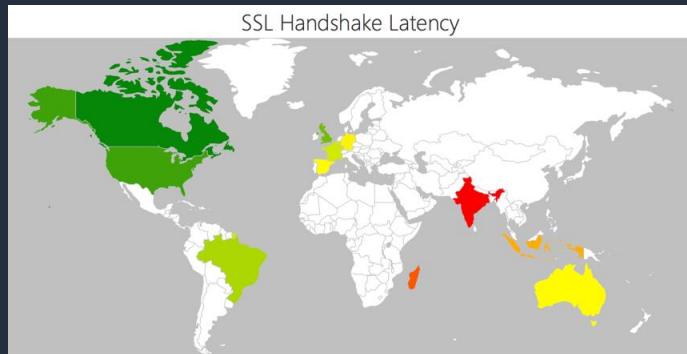


Customer usecases

Dynamic Acceleration - Tinder

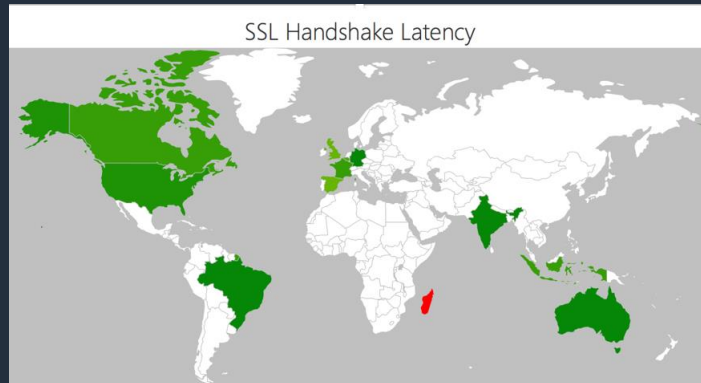
tinder.

Without CloudFront



India	750 ms
Mauritius	650 ms
Indonesia	550 ms
Germany	470 ms
Australia	460 ms
Spain	460 ms
Belgium	410 ms
France	400 ms
Brazil	350 ms
United Kingdom	280 ms
United States	210 ms
Canada	140 ms

With CloudFront



Mauritius	250 ms
Spain	90 ms
United Kingdom	90 ms
Belgium	80 ms
Canada	70 ms
France	70 ms
Indonesia	70 ms
United States	60 ms
Brazil	50 ms
Germany	50 ms
India	50 ms
Australia	50 ms

Challenges/Opportunities

- Dynamic API interactions between mobile app and cloud-deployed backend.
- Multiple connections
- Tested and implemented CloudFront to localize connection termination and TLS
- Global user-base, more centralized backend

Results

- Global latency reduction of hundreds of milliseconds
- Users going away because of slower experienced returned to the app!
- Profiles loaded ~20% faster
- Image uploads grew by ~15%!
- Total Swipers increased by ~3%!
- Overall browsing on the app was faster!



Retail & Commerce - Zalando

Zalando Enhances Shopper Experience Using Amazon CloudFront



Challenges

Zalando sought greater developer visibility and control in managing, transforming, and delivering images to support growth and differentiate the shopper experience.

Solutions

Zalando migrated its media management and delivery solution to Amazon Web Services using Amazon CloudFront.

Results

- Improves observability of content delivery network
- Achieves 99.5% cache hit ratios
- Handles an average of 100,000 transactions per second



The business benefits of using Amazon CloudFront are the operational flexibility as well as the ability to monitor the health of the solution and experiment and reverse changes quickly.



Przemek Czarnecki

vice president of software engineering, Zalando

INDUSTRY
Retail & Wholesale

REGION
EMEA

Focused on fashion and lifestyle, Zalando is an online retailer based in Berlin, Germany. Founded in 2008, it connects customers, brands, and partners across 25 European countries.

Gaming - Supercell

Supercell Delivers Dynamic, Low-Latency Games to Millions of Players Using AWS Edge Services



Challenges

Supercell needs proactive security measures and deliver game updates regularly while maintaining an excellent player experience.

Solutions

Supercell uses Amazon CloudFront to distribute assets to players across all Supercell games. They also AWS Local Zones, a type of infrastructure deployment that places compute, storage, database, and other select AWS services close to large population and industry centers.

Results

- Scales to support 250 million monthly users
- Facilitates game launches and supports user upticks
- Helps small teams operate independently with lean engineering resources



Using AWS, we have a global presence and the ability to deliver our games with low latency all around the world.

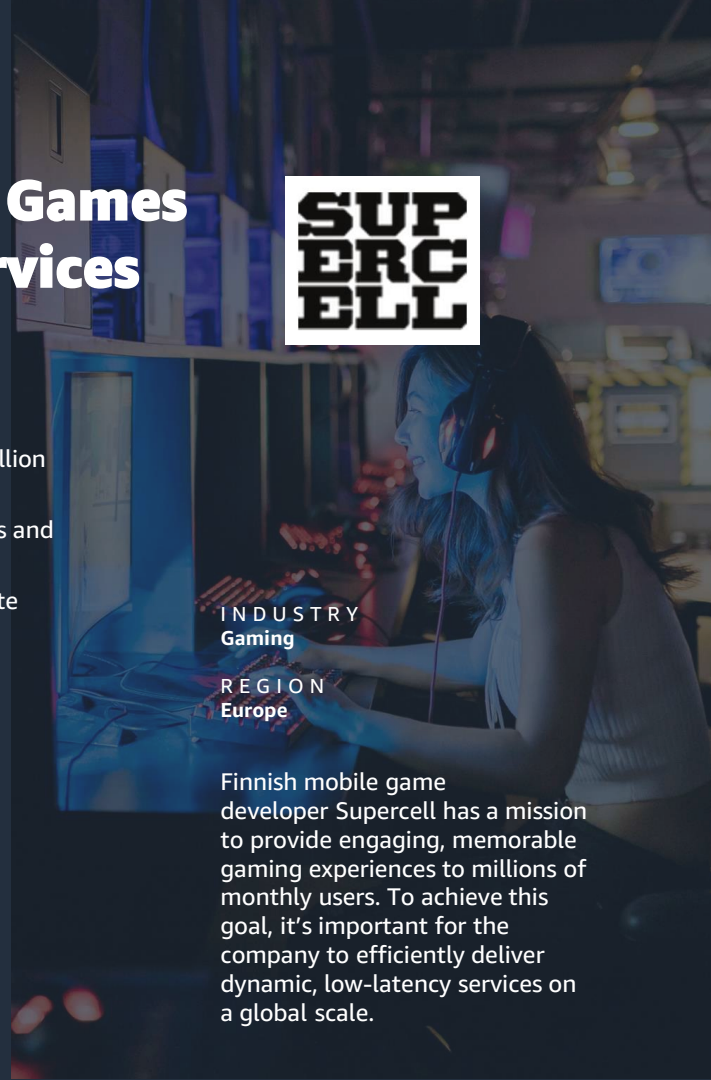


Mikael Paani

Cloud Governance Specialist, Supercell

INDUSTRY
Gaming
REGION
Europe

Finnish mobile game developer Supercell has a mission to provide engaging, memorable gaming experiences to millions of monthly users. To achieve this goal, it's important for the company to efficiently deliver dynamic, low-latency services on a global scale.



Prime Video - media

Amazon Prime Video Uses AWS to Deliver Solid Streaming Experience to More Than 18 Million Football Fans

Challenges

When Amazon Prime Video won the rights to stream NFL Thursday Night Football games in more than 200 countries. The team had to make sure it could easily and quickly support large spikes in user traffic.

Solutions

To focus on customers instead of infrastructure, Yellow Class needed a cost-effective and scalable cloud solution, so the company looked to Amazon Web Services (AWS) and used services like Amazon CloudFront and AWS Elemental MediaConnect

Results

- Weeks of research and development saved using AWS support
- \$2,000 saved per month by replacing a third-party service
- Fortified security during an AWS Well-Architected review



We provided a highly redundant, low-latency, scalable, live sports-streaming solution to NFL fans all over the world because of the elasticity and flexibility of AWS.



BA Winston

Global head of digital video playback and delivery, Amazon Video

The Amazon Prime Video logo, featuring the word "prime" in blue and "video" in black, with a blue curved arrow underneath.

INDUSTRY
Media & Entertainment

REGION
Global

Amazon Prime Video, part of the Amazon Video on-demand internet video service, provides a selection of original content and licensed movies and TV shows that can be streamed or downloaded as part of the Amazon Prime subscription.

HBO Max - media

HBOmax™

HBO Max needed to deliver content to their expanding customer base with highest performance and low latency

They deployed Amazon CloudFront for its high capacity and global footprint as part of its content delivery network

With AWS, HBO Max delivers high performance live and on-demand content to millions of customers



Honda Migrates Content Delivery Network to Amazon CloudFront, Optimizing Costs and Performance

Challenges

As part of its mission to provide the best possible customer experience, Honda performed an evaluation of several different CDN providers, including Amazon Web Services (AWS), for its Japanese website.

Solutions

After a thorough assessment, the company determined that using AWS solutions would meet Honda's high-quality standards for performance, availability, reliability, and scalability.

Results

- Optimized costs for procuring both content delivery and hosting servers
- Improved website response times
- Increased staff productivity



Using AWS, we've been able to optimize costs for procuring both content delivery servers and servers to host the website content.



Shinsuke Taniguchi
Webmaster, Honda Motor Co., Ltd.



INDUSTRY
Automotive

REGION
Japan

Honda is a mobility company that offers a wide range of products which, in total, makes Honda the world's largest power unit manufacturer. Since its founding, Honda has been contributing to the advancement of mobility and people's daily lives.

Travel & hospitality - TUI

Creating an App for 12,000 Game Show Viewers Using Amazon CloudFront with TUI



Challenges

TUI needed to deliver the app in just 2 weeks to provide a seamless voting experience for 12,000 audience members, but it didn't have the agility to meet the deadline using its on-premises hardware.

Solutions

TUI used Amazon S3 and Amazon CloudFront to build the app 90 percent faster, at a fraction of the cost, and deliver it in time for the game show's season finale, helping the company create positive brand impressions.

Results

- 90% faster development time
- 12,000 audience members used TUI's voting app
- Achieved scalability and elasticity
- Reduced cost of development



Using Amazon S3 and Amazon CloudFront, we could build the app in hours, at a fraction of the cost of any on-premises solution.



Peter Timmermans
head of technology, TUI

INDUSTRY
Hospitality

REGION
EMEA

TUI is a global tourism group consisting of tour operators, 1,600 travel agencies and online portals, 5 airlines, over 400 hotels, 16 cruise liners, and incoming agencies in all major holiday destinations around the world.

Retail – Coca Cola

Low latency with CloudFront

*“Now when someone walks up and scans the QR code, the user interface pops up within 800 milliseconds and connects to the dispenser, which responds to pour requests in another 100 or 200 milliseconds, In other words, **a customer can go from scanning a QR code to pouring a drink in less than a second.**”*

Daisy Teoh

Director of Innovation for Coca-Cola Freestyle

The Coca-Cola Freestyle logo, featuring the classic red script "Coca-Cola" above the word "freestyle" in a bold, red, sans-serif font.



Thank you!