Winning the Cat-and-Mouse Race: Staying One Step Ahead of Streaming Free-Riders with GeoGuard and AWS

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With video piracy on the rise, streaming providers are under mounting pressure to curb illegal viewing. However, many of the approaches available to providers require complex technicalities and huge investments.

Thanks to integration with Amazon Web Services (AWS), **GeoGuard**'s virtual private network (VPN) blocking is an elegant solution to the challenge—it's low-cost, easy to deploy, and provides a quick return on investment (ROI).

GeoGuard is a developed by AWS Partner **GeoComply** and is a database of more than 270 million IP addresses that contain both IPv4 and IPv6 address network ranges. Continuously updated, it detects and flags a wide range of anonymizers such as VPNs, proxy servers, Tor exit nodes, hosting providers, peer-to-peer networks, and Smart DNS Proxies.

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One of GeoGuard's users estimates that up to 10% of their streaming traffic is due to geo-piracy: users spoofing their location using VPNs or proxies to get access to cheaper or free content. GeoComply's customers save costs by blocking such users, which frees up infrastructure, reduces content delivery network (CDN) spend, and ensures adverts reach the right eyeballs.

On top of this, GeoGuard helps ensure customers comply with their contractual obligations for rights licensing. This is important because the media and entertainment (M&E) industry relies on restricting content to viewers in certain markets to charge the local market rate and uphold exclusivity, especially for live sports and other premium content.

To demonstrate the scale of revenue loss involved: subscribers to a major U.S. sports streaming season pass pay $199.99 each year, while in India it only costs 1,500 rupees, or $19. Each time a U.S. subscriber spoofs their location to appear to be in India, the streaming service loses 90% of earnings per sale.

In this post, we will discuss hijacked residential IP addresses, the latest trick that streaming free-riders use to circumvent controls and pay little to nothing for premium or exclusive content. We'll also share how GeoGuard helps streaming services "beat the cheats" and protect their content from this newest threat.

What Are Hijacked Residential IP Addresses?

VPNs are constantly looking out for new ways to cheat the system and allow their users to access territorially restricted content. They continually come up with new attacks on streaming services. In this never-ending game of cat-and-mouse, their latest technique is the use of stolen or hijacked residential IP addresses.

GeoComply estimates that over 200 million internet users worldwide have unknowingly had their home IP addresses compromised. Their IP addresses are used to bypass VPN restrictions and access territorially restricted content, contributing to the streaming piracy that threatens the M&E ecosystem.

When users sign up for a free VPN or domain name system (DNS) proxy service without reading the terms and conditions, it can allow VPN or proxy providers to sublease users' IP addresses. These are also hijacked when Trojan code or malware infects devices during cyber-attacks and connects them to a botnet.

Free VPN providers profit by selling hijacked residential IP addresses to the highest bidder—usually a provider of so-called "undetectable" premium VPN services. These services then give hijacked addresses to their paying subscribers, who spoof their locations and appear as genuine residential addresses online.

According to Surfshark in 2022, 31% of all internet users have a VPN. Among these, nearly 70% opt for free services—putting them most at risk of having their IP addresses stolen.

According to GWI, 51% of VPN users—that's over 700 million users—use a VPN to access entertainment content. This includes streaming services and pay-per-view events that are either not available in their country or are more expensive locally.

So far, GeoComply has identified 17 companies selling residential proxy IPs, and a recent report from Kantar shows 1.5 million fewer people now subscribe to streaming services in the UK compared to Q4 2021. More than a third of these losses could be attributed to families trying to cut costs.

GeoComply believes demand for stolen and hijacked residential IPs will only increase as viewers turn to VPNs to find cheaper subscriptions or access pirated services.

Beating the Cheats

In summer 2022, GeoComply became the first company to block the growing number of VPN users who spoof their location using hijacked residential IP addresses.

With this new enhancement, GeoGuard can accurately detect and block users accessing streaming services using hijacked residential IP addresses. This upholds the territorial licensing models customers depend on. GeoGuard can also detect the difference between a legitimate subscriber at home and an unwanted free-rider using that same IP address, helping ensure streaming services' revenues are protected.

GeoGuard maintains a database of more than 270 million IP addresses associated with location spoofing. Every customer has access to an updated list every six hours, and for some customers the update occurs once an hour. Powered by human intelligence and machine learning (ML), the product is able to maintain one of the lowest false-positive rates in the industry.

In addition to a size advantage, GeoGuard's database also leads the market in accuracy. Approved by major Hollywood studios, GeoGuard was independently rated by Kingsmead Security as 99.6% effective in detecting VPNs and DNS proxies.

Solution Overview

GeoGuard's VPN and DNS proxy detection is pre-integrated with Amazon CloudFront, making it possible to quickly detect residential IP addresses and stop illegal streams.

It is deployed as a managed rule via web access control lists (ACLs) on AWS WAF. For customers using multiple CDNs, GeoGuard is available as a "Bring Your Own License" model, allowing easy switch-on with other GeoComply partners.

Protect Your **Content** from the Residential IP Address Threat
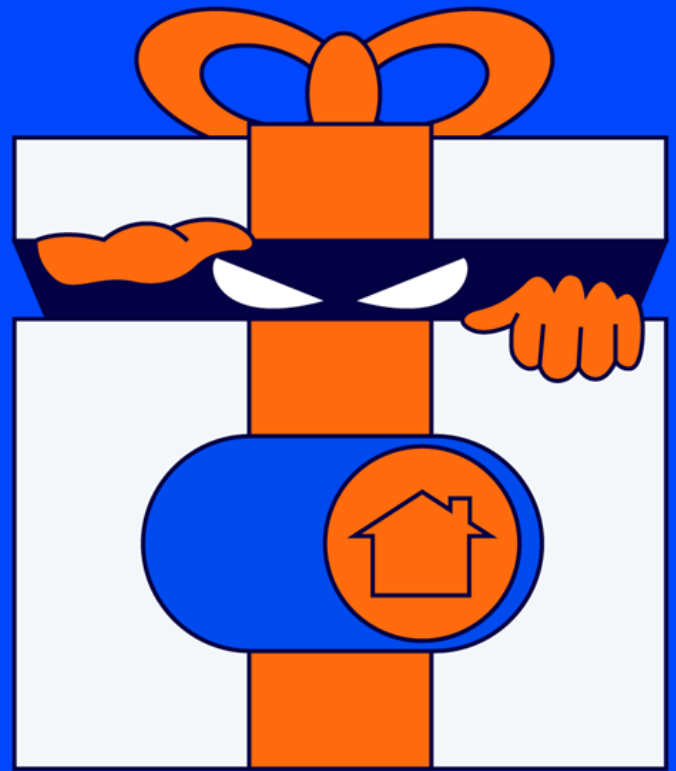
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In an August 2022 interview with Faultline, James Clark, GeoComply's M&E general manager, discussed how the need for anti-piracy solutions like GeoGuard has grown:

"It has always been a constant battle with piracy, but in the heyday of massive subscriber growth in streaming video on demand (SVoD), as long as the numbers were going in the right direction, piracy was somewhat nice to have—as it proved global interest," James said.

"Now that we are seeing some of those growth numbers wobble, it has become apparent that this plethora of pirate viewers could be converted into legitimate viewers, or blocked to cut operating costs, and now the streaming services and their shareholders are motivated to hunt them."

Alex Davies, author of the Faultline article, added: "Thankfully for GeoComply, the return on investment for these customers is very quick. The aforementioned CDN and cloud savings are obvious and usually quite immediate, but as these customers are usually required to have some sort of VPN blocking function in place via the contracts they have with the rights owners, in some ways they are a secondary benefit."

Customer Case Study

Nelonen Media's popular video streaming service, Ruutu, offers a wide array of premium content including popular U.S. sports leagues and Hollywood movies.

When it came to choosing a VPN blocking solution, GeoGuard was Nelonen Media's choice—its speedy deployment time and affordability stood out from the crowd.

Tero Vedenoja, Head of Online Development at Nelonen Media, knew the importance of affordable pricing and easy implementation. Not only did GeoGuard meet those demands, but Tero was delighted at how straightforward it was to try out GeoGuard through AWS Marketplace.

"We liked GeoGuard's effortless, well-designed approach to deployment," said Tero. "It was as easy as flicking a switch through AWS. and was such a contrast to other time-consuming solutions on the market that need constant updating. We were also impressed there is lots of flexibility to optimize the solution to meet our specific requirements."

Nelonen Media now has the reassurance that VPN users are being blocked effectively, freeing up resources to focus on service enhancement for legitimate subscribers. Learn more in the GeoComply-Nelonen Media case study.

Conclusion

Unlike other anti-piracy solutions which are complex and require a significant level of commitment, GeoGuard is easy to deploy and integrate, requires no in-house support, and delivers savings from day one.

If you want a solution that is always evolving to keep one step ahead of video streaming free-riders, check out GeoGuard on AWS Marketplace.

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GeoComply – AWS Partner Spotlight

GeoComply is an AWS Partner and leader in geolocation compliance and security to detect location fraud, prevent cybercrime, and ensure jurisdictional compliance.

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