

Using Anycast to Balance Local Regulatory Demands with Global Availability

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What is Anycast?

- Announcement of the same /24 globally
 - Anycast works best for UDP services, but many networks are using Anycast for TCP
 - Easy to deploy, can be difficult to maintain
- The more diverse your Anycast POPs, the more granular your control
 - This offers you the ability to perform rolling maintenance without an interruption in services

Common Anycast Problems

- ISPs join and leave Internet Exchanges without notice
 - Often networks leave IXes in local markets but stay connected to foreign exchanges
- Performance issues are often discovered by customer complaints, since you cannot have eyeballs in every customer market
 - Monitoring can be done by checking flow against GeoIP data, but you cannot troubleshoot every ASN, only the most popular

Recent Problems

- Increased government regulations
 - Enforcing localized logging and reporting requirements
 - Content blocking
 - Data sovereignty
- Legal orders
 - Block specific domains in individual regions
 - Direct traffic to a government "black box"
- High latency and Load balancing
 - Sites/services have a lot more international users

Solutions

- Do nothing, do not utilize Anycast
 - Possibility of legal ramifications, DNS and/or IP blocking
 - Performance depends on how geographically close the user is to the server
- Comply with the legal order globally with or without Anycast
 - This approach reduces your legal liability
 - Impacts customers the most
 - The laws of the United States impact the users of Ireland

Solutions (Cont)

- Ingest a GeoIP database
 - Deal with false-positive / false-negatives
 - Increased development cost
 - This can be done hand-in-hand with Anycast
- Comply with legal orders in-region with Anycast
 - Easily block xyzstreamingsports.io where a legal order is enforced by applying the changes on a single region
 - As a side effect, globally, users will have low latency responses, improving performance

Solutions (Cont)

- Comply with a government's "pen register" orders
 - Only give them PCAP data from the regions that they have authority in
- Direct users to local edge compute clusters
 - This delivers the application to the user locally, with minimal crossing of international borders
 - Works hand-in-hand with Anycast

Thank you

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